

**MIOSHA CHEMICAL INFORMATION MANUAL
CHAPTER III**

**SUBSTANCES WITHOUT CURRENTLY AVAILABLE SAMPLING AND ANALYTICAL METHODS
FROM LABORATORY AND EQUIPMENT SERVICES**

1. General

- 1.1 Chapter III generally includes substances without a documented sampling or analytical method developed by LESS. OSHA or NIOSH has developed methods for a number of the substances in this chapter. Many of these substances have not been submitted to LESS for analysis and are included only to provide current IMIS Reporting Codes for field or state program use. For further explanation of individual fields of information refer to specific items in Chapter I.
- 1.2 If a sampling method is needed for a substance listed in this chapter or for a substance not listed in either Chapter II or III, contact LESS for a recommendation.
- 1.3 To search for substances by name, IMIS code, CAS number, or synonyms use the ctrl+F function to locate a specific character, word, or phrase in the document.

2. Substances

Abietic Acid

IMIS **A616** CAS 514-10-3
 SYN Abietinic Acid; Sylvic Acid; Rosin Core Solder Pyrolysis Products
 DESC Pyrolysis products of rosin core solder include acetone, aliphatic aldehydes, methyl alcohol, methane, ethane, various abietic acids (the major components of rosin), CO & CO2
 MW: 302.46 BP: 482 F (9 mm) MP: 343 to 345 F
 INCOM Strong oxidizing agents, Strong bases
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 200 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 COND Column: C18
 Mobile Phase: 60:40:0.1 Acetonitrile: Water: Phosphoric acid
 Detector Wavelength: 254nm

Acetamide

IMIS **A625** CAS 60-35-5
 SYN Acetic Acid Amide; Acetimidic Acid; Ethanamide; Methanecarboxamide
 NIOSH RTECS AB4025000*
 DESC Colorless crystals
 MW: 59.07 BP: 430 F MP: 180.1 F VP: 1 mm (149 F)
 INCOM Strong oxidizing agents, Strong acids, Strong bases, Strong reducing agents, Metals, halogenated agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Acetamide]
 SLC1 MEDIA:
 ANL SOLVENT: Methanol

MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Seventeen percent loss during retention study not due to breakthrough may indicate a problem. Further studies should be done.

Acetanilide

IMIS **A158** CAS 103-84-4
DESC White to gray solid.
MW: 135.17 BP: 579 F MP: 237.7 F FP: 345 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Acetic Anhydride

IMIS **0030** CAS 108-24-7
SYN Acetic acid anhydride, Acetic oxide, Acetyl oxide, Ethanoic anhydride
NIOSH RTECS AK1925000 DOT 1715 137
MIOSHA FINAL RULE (Table G-1-A):
CEIL 5 ppm, 20 mg/m³
DESC Colorless liquid with a strong, pungent, vinegar-like odor.
MW: 102.1 BP: 282 F VP: 4 mm MP: -99 F
INCOM Water, alcohols, strong oxidizers (especially chromic acid), amines, strong caustics
[Note: Corrosive to iron, steel & other metals. Reacts with water to form acetic acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Conjunctivitis, lacrimation (discharge of tears), corneal edema, opacity, photophobia
(abnormal visual intolerance to light); nasal, pharyngeal irritation; cough, dyspnea
(breathing difficulty), bronchitis; skin burns, vesiculation, sensitization dermatitis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA: GFFs coated with veratrylamine (3,4-dimethoxybenzylamine) and di-n-octyl
phthalate [SLTC100]
ANL SOLVENT: (50/50) Isopropanol/Toluene
MIN V: 7.5 Liters MAX F: 0.5 L/min (CEIL)
ANL 1: Gas Chromatography; GC-NPD
REF: OSHA 102 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Obtain treated filters from SLTC and keep in refrigerator until use. Use filters
within 1 month of prep. Sample open face.
SAM2 DET TUBE: Sensidyne, 81, 0.5-40 ppm
MIRAN 1A: MIN. Det. Con. 0.05ppm at 8.9 um
MIRAN 103: MIN. Det. Con. 0-10 ppm at 8.9 um
PHOTOIONIZATION DETECTOR

Acetoacetanilide

IMIS A505 CAS 102-01-2
SYN 2'-Methylacetoacetanilide
DESC White crystalline solid.
MW: 177.21 BP: Decomposes MP: 187 F FP: 325 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Acetonitrile

IMIS **0060** CAS 75-05-8
SYN Cyanomethane, Ethyl nitrile, Methyl cyanide [Note: Forms cyanide in the body.]

NIOSH RTECS AL7700000 DOT 1648 127
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 40 ppm, 70 mg/m³
 STEL 60 ppm, 105 mg/m³

DESC Colorless liquid with an ether-like odor.
 MW: 41.1 BP: 179 F VP: 73 mm MP: -49 F

INCOM Strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Acute Toxicity---Short-term high risk effects. (HE4)

SYMPT Irritation nose, throat; asphyxia; nausea, vomiting; chest pain; lassitude (weakness, exhaustion); stupor, convulsions; In Animals: liver, kidney damage

ORGAN Respiratory system, cardiovascular system, central nervous system, liver, kidneys
 SLC1 MEDIA: CSC Tube (400/200 mg) [SKC 226-09]
 ANL SOLVENT: (85/15) Methylene Chloride/Methanol
 MAX V: 25 Liters MIN V: 1 Liter FLOW: 0.01 to 0.2 L/min
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1606 SAE: 0.164 CLASS: Fully Validated by NIOSH
 NOTE: Keep samples refrigerated when not in transit. Ship samples overnight with cold-packs as soon as possible.

Acetophenone

IMIS **A169** CAS 98-86-2
 SYN alpha-Acetophenone, acetylbenzene; 1-phenylethanone; phenyl methyl ketone
 DESC A colorless liquid with a sweet pungent taste and odor resembling the odor of oranges.
 MW: 120.15 BP: 395.1 F MP: 67.5 F FP: 180 F

NIOSH RTECS AM5250000* DOT 1993 128
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Nervous System Disturbances---Narcosis. (HE8)

SLC1 MEDIA:
 ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
 MAX V: 12 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

SAM2 MIRAN IA & IB: MIN. Det. Con. 0.3 ppm at 10.6 um

Acetylacetone (2,4-Pentanedione)

IMIS **A178** CAS 123-54-6
 SYN 2,4-Pentanedione; Acetoacetone; Diacetyl Methane
 NIOSH RTECS SA1925000* DOT 2310 131
 DESC A colorless or yellow colored liquid.
 MW: 100.12 BP: 284.7 F MP: -10.3 F FP: 93 F

INCOM Strong oxidizing agents, Reducing agents, Strong bases, Metals
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Acetylaminofluorene

IMIS **0065** CAS 53-96-3
 SYN 2-AAF, AAF, 2-Acetaminofluorene, N-Acetyl-2-aminofluorene, FAA, 2-FAA, 2-Fluorenylacetamide

NIOSH RTECS AB9450000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
 DESC Tan, crystalline powder.
 MW: 223.3 MP: 194 C
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Cancer---Currently regulated by OSHA as carcinogen. (HE1)
 NTP Suspect Human Carcinogen - [2-Acetylaminofluorene]
 SYMPT Reduced functioning of liver, kidneys, bladder, pancreas; [potential occupational carcinogen]
 ORGAN Liver, bladder, kidneys, pancreas, skin [in animals: tumors of the liver, bladder, lungs, skin & pancreas]
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 250 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 COND Acetonitrile extraction; C18 column; UV det: 280, 313; 0.6 mL/min ; 75% methanol 25% water; retention time, 11.3 min; DL 0.8 ng/inj; C/P DB 3/83

n-Acetylbenzidine

IMIS **A206** CAS 3366-61-8
 SYN Monoacetylbenzidine
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NOTE: Metabolite of Benzidine
 NTP Human Carcinogen - [Benzidine (see Benzidine and Dyes Metabolized to Benzidine)]
 IARC Group 1 - carcinogenic to humans - [Benzidine]
 BIOL MEDIA: Urine sample VOLUME: 20-200 mL
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: 1) Stabilize urine samples at the time of collection with 30% (w/v) citric acid solution; 1 mL acid to 100 mL urine.
 2) Seal samples securely, freeze them, and send them to SLTC in an insulated container by express mail. Call the Branch Chief, C/P at SLTC to notify of shipment.
 3) Citric acid solution may be obtained from the SLTC.

Acetyl Chloride

IMIS **A179** CAS 75-36-5
 SYN Acetic Chloride; Ethanoyl Chloride; Acetic Acid, Chloride
 NIOSH RTECS AO6390000* DOT 1717 155
 DESC A colorless fuming liquid with a pungent odor.
 MW: 78.5 BP: 123.6 F MP: -170 F FP: 40 F
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Acetylene

IMIS **0070** CAS 74-86-2
 SYN Ethine, Ethyne [Note: A compressed gas used in the welding & cutting of metals.]
 NIOSH RTECS AO9600000 DOT 1001 116
 DESC Colorless gas with a faint, ethereal odor. [Note: Commercial grade has a garlic-like odor. Shipped under pressure dissolved in acetone.]

MW: 26.0 BP: Sublimes VP: 44.2 atm MP: -119 F (Sublimes)
 INCOM Zinc; oxygen & other oxidizing agents such as halogens [Note: Forms explosive acetylide compounds with copper, mercury, silver & brasses]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Headache, dizziness; asphyxia; liquid: frostbite
 ORGAN Central nervous system, respiratory system
 SAM2 DET. TUBE: Sensidyne, 171, 0.1-4%
 Draeger, CH 26101, 500-3,000 ppm
 MSA, 82802, 3-600 ppm
 Kitagawa, 101S, 50- 1000 ppm
 MIRAN IA & IB: Min. Det. Con. 1.6 ppm at 3 um
 MIRAN 103: Range 0-50 ppm at 3.03 um

Acetylene Tetrabromide (1,1,2,2-Tetrabromoethane)

IMIS **0080** CAS 79-27-6
 SYN Symmetrical tetrabromoethane, TBE, Tetrabromoacetylene, 1,1,2,2-Tetrabromoethane, Tetrabromoethane
 NIOSH RTECS K18225000 DOT 2504 159
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 14 mg/m3
 DESC Pale-yellow liquid with a pungent odor similar to camphor or iodoform. [Note: A solid below 32°F.]
 MW: 345.7 BP: 474 F (Decomposes) VP: 0.02 mm MP: 32 F
 INCOM Strong caustics; hot iron; reducing metals such as aluminum, magnesium & zinc
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Nervous System Disturbances---Narcosis. (HE8)
 SYMPT Irritation eyes, nose; anorexia, nausea; headache; abdominal pain; jaundice; leukocytosis (increased blood leukocytes); central nervous system depression
 ORGAN Eyes, upper respiratory system, liver, central nervous system
 SLC1 MEDIA: Solid sorbent tube (silica gel, 150 mg/75 mg)
 ANL SOLVENT: Tetrahydrofuran
 MAX V: 100 Liters MIN V: 50 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2003 SAE: 0.16 CLASS: Partially Validated by NIOSH
 SAM2 DET. TUBE: MSA, 85834, 2-50 ppm
 MIRAN IA & IB: MIN. Det. Con. 1.2 ppm at 9.0 um
 BIOL Gas Chromatography, Blood

Acetylsalicylic Acid

IMIS **A629** CAS 50-78-2
 SYN 2-Acetoxybenzoic acid, o-Acetoxybenzoic acid, Aspirin
 NIOSH RTECS VO0700000 DOT 2811 154
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC Odorless, colorless to white, crystal-line powder. [aspirin] [Note: Develops the vinegar-like odor of acetic acid on contact with moisture.]
 MW: 180.2 BP: 284 F (Decomposes) VP: 0 mm MP: 275 F
 INCOM Solutions of alkali hydroxides or carbonates, strong oxidizers, moisture [Note: Slowly

hydrolyzes in moist air to salicyclic & acetic acids.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, upper respiratory system; increased blood clotting time; nausea, vomiting; liver, kidney injury
ORGAN Eyes, skin, respiratory system, blood, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Acid Black 128

IMIS **A257** CAS 37293-45-1
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: [OSHA In-house File] CLASS: Not Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.
COND Mobile phase extraction; C18 column; 73% methanol 27% water, PIC A 1 mL/min; UV det: 254, 280; 3 ug/sample; ext. eff. 96%; C/P DBA

Acid Blue 9

IMIS **A156** CAS 2650-18-2; 3844-45-9
SYN Brilliant Blue FCF; C.I. Acid Blue 9, diammonium salt; C.I. Acid Blue 9, disodium salt
NIOSH RTECS BQ4550000*
DESC Reddish-violet powder or granules with metallic luster.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Brilliant Blue FCF, disodium salt]
SLC1 MEDIA:
ANL SOLVENT: (1/1) Methanol/Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
REF: (OSHA In-House File) CLASS: Partially Validated
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.
COND 50% methanol/50% water extraction; Zorbax ODS; 55% methanol 45% water; 0.005 M TBAP; 1 mL/min; UV/VIS 650; Retention time, 7.8 min; DL 0.83 ng/inj; C/P YC 1/82

Acid Orange 74

IMIS **A256** CAS 10127-27-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

COND Mobile phase extraction; C18; 59% methanol 41% water, PIC A; 1 mL/min; UV 254, 280; DL 2.5 ug/sample; ext. eff. 90%; C/P DBA

Acid Red 114

IMIS **A105** CAS 6459-94-5

NIOSH RTECS QJ6475500*

DESC Dark red powder
MW: 830.63

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Suspect Human Carcinogen - [C.I. Acid Red 114 (see 3,3'-Dimethylbenzidine and Dyes Metabolized to 3,3'-Dimethylbenzidine)]

IARC Group 2B - possibly carcinogenic to humans - [CI Acid Red 114]

SLC1 MEDIA:
ANL SOLVENT: (65/35) Methanol: Tetrabutylammonium Phosphate (pH 7.5)
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
REF: (OSHA In-House File) CLASS: Partially Validated

COND Column: C8
Mobile Phase: 65:35 Methanol: 0.005M
Tetrabutylammonium Phosphate (pH7.5)
Detector Wavelength: 550nm
Detection Limit: 3.2 ng/inj

Acid Yellow 34

IMIS **A177** CAS 6359-90-6

SYN Benzenesulfonic acid, 4-Chloro-3-(4-5-dihydro-3-methyl-5-oxy-4 (phenylazo)-1H-pyrazol-1-yl)-, Sodium Salt; Wool Yellow 36L

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Methanol and Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
REF: (OSHA In-House File) CLASS: Partially Validated

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

COND Methanol/water extraction; Chromosil C18; 70% methanol 30% water with PIC A; UV 436, 280; Retention time, 5.2 min; DL 1.3 ng/inj; C/P DBA 10/84

Acid Yellow 42

IMIS **A106** CAS 6375-55-9

NIOSH RTECS DV3910000*

DESC MW: 760.76

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: (65/35) Methanol/Tetrabutylammonium Phosphate (pH 7.5)
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-FLU
REF: (OSHA In-House File) CLASS: Partially Validated

COND Column: C8
Mobile Phase: (65/35) Methanol/0.005M
Tetrabutylammonium Phosphate (pH 7.5)
Detector Wavelength: 410nm
Detection Limit: 3.0 ng/inj

Acridine

IMIS **A506** CAS 260-94-6
SYN benzo[B]quinoline
NIOSH RTECS AR7175000* DOT 2713 153(acridine)
MIOSHA FINAL RULE (Table G-1-A) Coal Tar Pitch Volatile (As Benzene Solubles):
TWA 0.2 mg/m3
DESC Small colorless needle-like crystalline solid
MW: 179.22 BP: 655 F MP: 225 to 230 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]
IARC Group 1 - carcinogenic to humans - [Coal-tar pitch]
INCOM Strong oxidizers
SYMPT Dermatitis, bronchitis, [potential occupational carcinogen]
ORGAN Respiratory system, skin, bladder, kidneys [lung, kidney & skin cancer]
SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: OSHA 58 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Validation in conjunction with Coal Tar Pitch Volatiles and Coke Oven
Emissions.
NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap.
Sample must be protected from direct sunlight.
COND Column: C18
Mobile Phase: 85:15 Acetonitrile: Water
Detector Wavelength: 254nm or 254 EX: 370 EM (Fluor)
Detection Limit: 0.066 ug/m3

Acrolein

IMIS **0110** CAS 107-02-8
SYN Acraldehyde, Acrylaldehyde, Acrylic aldehyde, Allyl aldehyde, Propenal, 2-Propenal
NIOSH RTECS AS1050000 DOT 1092 131P(inhibited)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.25 mg/m3
STEL 0.3 ppm, 0.8 mg/m3
DESC Clear colorless or yellowish liquid with a piercing, disagreeable odor, causes tears.
MW: 56.1 BP: 127 F VP: 210 mm MP: -126 F
INCOM Oxidizers, acids, alkalis, ammonia, amines [Note: Polymerizes readily unless
inhibited--usually with hydroquinone. May form shock-sensitive peroxides over time.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or
other). (HE9)

IARC Group 2A - probably carcinogenic to humans - [Acrolein]
 SYMPT Irritation eyes, skin, mucous membrane; decreased pulmonary function; delayed pulmonary edema; chronic resp disease
 ORGAN Eyes, skin, respiratory system, heart
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 48 Liters MAX F: 0.1 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-NPD
 REF: OSHA 52 SAE: 0.12 CLASS: Fully Validated by OSHA
 NOTE: When formaldehyde and acrolein are sampled together, their sample volume must be 24 L.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.9 ppm at 8.6 um

Acrylamide

IMIS **0115** CAS 79-06-1
 SYN Propenamide; Acrylamide monomer; Acrylic amide; 2-Propenamide
 NIOSH RTECS AS3325000 DOT 2074 153P
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.03 mg/m3 (Skin)
 DESC White crystalline, odorless solid.
 MW: 71.1 BP: 347 to 572 F (Decomposes) MP: 184 F VP: 0.007 mm
 FP: 280 F
 INCOM Strong oxidizers. [Note: May polymerize violently upon melting.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [Acrylamide]
 IARC Group 2A - probably carcinogenic to humans - [Acrylamide]
 SYMPT Irritation eyes, skin; ataxia, numb limbs, paresthesia; muscle weak; absent deep tendon reflex; hand sweating; lassitude (weakness, exhaustion), drowsiness; reproductive effects; [potential occupational carcinogen]
 ORGAN Eyes, skin, central nervous system, peripheral nervous system, reproductive system
 LESS1 MEDIA (44): OVS-7 - 13 mm XAD-7 tube (200/100 mg, 20/60 mesh) with glass fiber filter enclosed
 ANL SOLVENT: (5/95) Methanol/Deionized Water
 REC V: 120 Liters REC F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OHL2004S018 CLASS: Partially Validated
 NOTE: Store and ship cold.

Acrylic Acetate

IMIS **A507**
 DESC A synthetic resin made from acrylic acid and acetate.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Acrylic Acid

IMIS **0117** CAS 79-10-7
 SYN Acroleic acid, Aqueous acrylic acid, Ethylenecarboxylic acid, Glacial acrylic acid, 2-Propenoic acid
 NIOSH RTECS AS4375000 DOT 2218 132P (inhibited)

MIOSHA FINAL RULE (Table G-1-A):

TWA 10 ppm, 30 mg/m³ (Skin)

DESC Colorless liquid or solid (below 55°F) with a distinctive, acrid odor. [Note: Shipped with an inhibitor (e.g., hydroquinone) since it readily polymerizes.]
MW: 72.1 BP: 286 F MP: 55 F VP: 3 mm FP: 121 F

INCOM Oxidizers, amines, alkalis, ammonium hydroxide, chloro-sulfonic acid, oleum, ethylene diamine, ethyleneimine, 2-aminoethanol [Note: Corrosive to many metals.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Acrylic acid]

SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; skin sensitization; In Animals: lung, liver, kidney

ORGAN Eyes, skin, respiratory system

LESS1 MEDIA (99): Two Anasorb 708 Tubes in series (100 mg sections)
ANL SOLVENT: Methanol
REC V: 24 Liters REC F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OHL2004S021 CLASS: Partially Validated

Adipic Acid

IMIS A155 CAS 124-04-9

SYN Acifloctin; Acinetten; Adilatetten; 1,4-Butanedicarboxylic Acid; 1,6-Hexanedioic Acid; Adipinic Acid

NIOSH RTECS AU8400000* DOT 3077 171

DESC Freely soluble in methanol, ethanol; soluble in acetone
MW: 146.14 MP: 304 F FP: 376 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)

SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 100 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

COND Column: 15m x 0.32 mm ID Stabilwax 1 micron film
Temp: Oven 200-210 deg C; Inj 220 deg C; Det 220 deg C

Adiponitrile

IMIS **A509** CAS 111-69-3

SYN 1,4-Dicyanobutane, Hexanedinitrile, Tetramethylene cyanide

NIOSH RTECS AV2625000 DOT 2205 153

DESC Water-white, practically odorless, oily liquid. [Note: A solid below 34°F. Forms cyanide in the body.]
MW: 108.2 BP: 563 F MP: 34 F VP: 0.002 mm

INCOM Oxidizers (e.g., perchlorates, nitrates), strong acids (e.g., sulfuric acid) [Note: Decomposes above 194°F, forming hydrogen cyanide.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Asphyxiants, Anoxiants. (HE17)

SYMPT Irritation eyes, skin, respiratory system; headache, dizziness, lassitude (weakness, exhaustion), confusion, convulsions; blurred vision; dyspnea (breathing difficulty);

abdominal pain, nausea, vomiting
 ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system
 SLC1 MEDIA:
 ANL SOLVENT: Chloroform
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: [OSHA In-house File] CLASS: Partially Validated
 BIOL See Acrylonitrile

Aflatoxins

IMIS **0122** CAS 1402-68-2
 SYN Aflatoxin (B1), (1163-65-8); Aflatoxin (B2), (7220-81-7); Aflatoxin (G1), (1165-39-5);
 Aflatoxin (G2), (7241-98-7)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 LD50 (oral, rat) 5 mg/kg, Aflatoxin (B1)
 LD50 (oral, duck) 785 ug/kg, Aflatoxin (G1)
 NTP Human Carcinogen - [Aflatoxins]
 IARC Group 1 - carcinogenic to humans - [Aflatoxins]
 SLC1 NOTE: For all Aflatoxins call C/P Branch Chief for sampling instructions (801-524-5366 or FTS 588-5366).

Alachlor

IMIS **1580** CAS 15972-60-8
 SYN lasso; acetanilide, 2 - chloro-2',6'-diethyl-N-(methoxymethyl); 2-chloro-N-(2,6-diethylphenyl) N-(methoxymethyl) acetamide; Alamex; alochlor; CP50144; metachlor; methachlor
 NIOSH RTECS AE1225000*
 DESC Crystalline cream-colored solid.
 MW: 269.77 BP: 212 F (0.02 mm) MP: 104 to 106 F FP: 278.6 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 BULK Limit the amount of bulk submitted to one gram or one mL.

Aldicarb

IMIS **0123** CAS 116-06-3
 SYN Temik
 NIOSH RTECS UE2275000* DOT 2757 151
 DESC White crystals with a slightly sulfurous odor. Commercial formulations are granular.
 MW: 190.23 BP: Decomposes VP: <0.5 mm MP: 210 to 214 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Aldicarb]
 SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: OSHA 74 SAE: 0.110 CLASS: Fully Validated by OSHA
 COND 55% methanol 45% water extraction; Zorbax ODS; 55% methanol 45% water;
 1mL/min; UV Det: 254, 229; Hg lamp; Retention time, 9 min; DL 9 ng/inj; C/P DBA
 WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Dry or Isopropanol

Aldrin

IMIS **0125** CAS 309-00-2
 SYN 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-endo-1,4-exo-5,8-dimethanonaphthalene, HHDN, Octalene
 NIOSH RTECS IO2100000 DOT 2761 151
 MIOSHA FINAL RULE (Table G-1-A): TWA 0.25 mg/m3 (Skin)

DESC Colorless to dark-brown crystalline solid with a mild chemical odor. [Note: Formerly used as an insecticide.]
 MW: 364.9 BP: Decomposes VP: 0.00008 mm MP: 219 F

INCOM Concentrated mineral acids, active metals, acid catalysts, acid oxidizing agents, phenol

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

IARC Group 2A - probably carcinogenic to humans - [Aldrin (see Dieldrin, and aldrin metabolized to dieldrin)]

SYMPT Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort); myoclonic jerks of limbs; clonic, tonic convulsions; coma; hematuria (blood in the urine), azotemia; [potential occupational carcinogen]

ORGAN Central nervous system, liver, kidneys, skin [in animals: tumors of the lungs, liver, thyroid & adrenal glands]

SLC1 MEDIA:
 ANL SOLVENT: Isooctane
 MAX V: 240 Liters MIN V: 18 Liters FLOW: 0.2 to 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: NIOSH 5502 SAE: 0.15 CLASS: Fully Validated by NIOSH
 NOTE: Transfer bubbler solutions and filters in scintillation vials; pack carefully.

COND Isooctane extraction; 5% SE-30 on 80/100 Chromosorb W
 WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Dry

Allethrin

IMIS **T412** CAS 584-79-2
 SYN Pyresin; Exthrin; Pynamin; Pyresyn
 DOT 2902 151

DESC A clear amber-colored viscous liquid.
 MW: 302.4

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

COND Acetonitrile extraction, Zorbax CN column, 32% acetonitrile 68% water. 1 nm. Retention time 25.9 and 27.2 min. D.L. 9ng/injection. C/P YC 7/87

WIPE MEDIA: Glass Fiber Filter (37 mm)

Allyl Acetate

IMIS **A515** CAS 591-87-7
 SYN 3-Acetoxypropene; Acetic Acid, Allyl Ester; Acetic Acid, 2-Propenyl Ester
 NIOSH RTECS AF1750000* DOT 2333 131
 DESC A liquid.
 MW: 100.12
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Allyl Alcohol

IMIS **0130** CAS 107-18-6

SYN AA, Allylic alcohol, Propenol, 1-Propen-3-ol, 2-Propenol, Vinyl carbinol 2-Propenol; 2-Propen-1-ol; Vinyl carbinol
 NIOSH RTECS BA5075000 DOT 1098 131
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 ppm, 5 mg/m³ (Skin)
 STEL 4 ppm, 10 mg/m³ (Skin)

DESC Colorless liquid with an odor like mustard.
 MW: 58.1 BP: 205 F VP: 17 mm MP: -200 F

INCOM Strong oxidizers, acids, carbon tetrachloride [Note: Polymerization may be caused by elevated temperatures, oxidizers, or peroxides.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

SYMPT Eye irritation, tissue damage; irritation upper respiratory system, skin; pulmonary edema

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
 ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
 MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1402 SAE: 0.13 CLASS: Partially Validated by NIOSH
 NOTE: Ship and store refrigerated.

SAM2 MIRAN 1A: MIN. Det. Con. 0.4 ppm at 9.8 µm

WIPE Wipe with charcoal pad, seal in glass vial for shipment.

Allyl Chloride

IMIS **0140** CAS 107-05-1
 SYN 1-Chloro-2-propene, 3-Chloropropene, 3-Chloropropylene
 NIOSH RTECS UC7350000 DOT 1100 131
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 3 mg/m³
 STEL 2 ppm, 6 mg/m³

DESC Colorless, brown, yellow, or purple liquid with a pungent, unpleasant odor.
 MW: 76.5 BP: 113 F VP: 295 mm MP: -210 F

INCOM Strong oxidizers, acids, amines, iron & aluminum chlorides, magnesium, zinc

SYMPT Eye, nose, skin irritation; pulmonary edema; lung, liver, kidney damage; deep muscle ache; deep bone ache

ORGAN Respiratory system, skin, eyes, liver, kidneys

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Allyl chloride]
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

SYMPT Irritation eyes, skin, nose, mucous membrane; pulmonary edema; In Animals: liver, kidney injury

ORGAN Eyes, skin, respiratory system, liver, kidneys

SLC1 MEDIA:
 ANL SOLVENT: Benzene
 ALT SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 100 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1000 SAE: 0.12 CLASS: Fully Validated by
 NIOSH
 WIPE Wipe with charcoal pad, seal in glass vial for shipment.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.6 ppm at 10.8 um

Allyl Cyanide

IMIS **A605** CAS 109-75-1
 SYN 3-butenenitrile
 DESC Liquid with an odor like onions.
 MW: 67.09
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Allyl Diglycol Carbonate

IMIS **A620** CAS 142-22-3
 SYN DAGC; Diallyl Diglycol Carbonate; Carbonic Acid, Oxydiethylenedi-, diallyl ester
 NIOSH RTECS FG2080000*
 DESC Colorless Liquid.
 MW: 274.27
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Allyl Glycidyl Ether (AGE)

IMIS **0145** CAS 106-92-3
 SYN AGE, 1-Allyloxy-2,3-epoxypropane, Glycidyl allyl ether, [(2-Propenyloxy)methyl] oxirane
 NIOSH RTECS RR0875000 DOT 2219 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 22 mg/m3
 STEL 10 ppm, 44 mg/m3
 DESC Colorless liquid with a strong odor.
 MW: 114.2 BP: 309 F VP: 2 mm MP: -148 F [forms glass]
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 SYMPT Irritation eyes, skin, nose, respiratory system; dermatitis; pulmonary edema; narcosis; possible hematopoietic, reproductive effects
 ORGAN Eyes, skin, respiratory system, blood, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: Diethyl Ether
 MAX V: 8 Liters MIN V: 1.5 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2545 SAE: 0.125 CLASS: Fully Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.1 um

Allyl Methacrylate

IMIS **A516** CAS 96-05-9
SYN 2-Propenoic Acid, 2-Methyl-, 2-Propenyl Ester
NIOSH RTECS UD3483000*
DESC MW: 126.16 BP: 302 F
INCOM Strong oxidizers and caustics
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Anemias. (HE12)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
SAM2 DET. TUBE:
Kitagawa, 8014-190U, 10-1000 ppm
MIRAN 1A & 1B: MIN. Det. Con. 0.2 ppm at 8.9 um
MIRAN 103: Range 0-100 ppm at 8.9 um

Allyl Propyl Disulfide

IMIS **0150** CAS 2179-59-1
SYN 4,5-Dithia-1-octene, Onion oil, 2-Propenyl propyl disulfide, Propyl allyl disulfide
NIOSH RTECS JO0350000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 12 mg/m3
STEL 3 ppm, 18 mg/m3
DESC Pale-yellow liquid with a strong & irritating onion-like odor. [Note: The chief volatile component of onion oil.]
INCOM Oxidizer
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation eyes, nose, respiratory system; lacrimation (discharge of tears)
ORGAN Eyes, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Trichloroethylene
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) SAE: 0.090 CLASS: Partially Validated

Aluminum, Alkyls (as Al)

IMIS **A104** CAS 7429-90-5
NIOSH RTECS BD0330000 DOT 1309 170; 1396 138; 9260 169
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 mg/m3
Stayed, FR 54:2922, 1/19/89
DESC Silvery-white, malleable, ductile, odorless metal
INCOM Strong oxidizers & acids, halogenated hydrocarbons [Note: Corrodes in contact with acids & other metals. Ignition may occur if powders are mixed with halogens, carbon disulfide, or methyl chloride.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)
SYMPT Irritation eyes, skin, respiratory system
ORGAN Eyes, skin, respiratory system
SLC1 Call SLTC for information on specific compounds. Standard has been stayed until an analytical method can be developed.

Aluminum Silicate, Fibers

IMIS **A514** CAS 1302-76-7
SYN Kyanite; Aluminum Silicate prior to 9/1/89
DESC Blue mineral
MW: 168.09
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Alupent

IMIS **A626** CAS 5874-97-5
SYN Metaproterenol Sulfate. Benzyl Alcohol, 3-6-Dihydroxy-alpha- ((isopropylamino) methyl)-, sulfate (2:1) (Salt)
NIOSH RTECS DO2275000*
DESC MW: 520.6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 800 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
COND Column: Zorbax C8
Mobile Phase: 75% ACN/25% H2O di-n-butylamine
H3PO4 pH: 5; 1 mL/min flow; Lambda = 280

Amiben

IMIS **A623** CAS 133-90-4
SYN Chloramben, 3-Amino-2, 5-dichlorobenzoic acid; Metraproterenoe
NIOSH RTECS DG1925000*
DESC Purplish white powder or light purple solid.
MW: 206.02
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
COND Column: Zorbax C18
Mobile Phase: Methanol/Water (55/45) 0.1% H3PO4
Lambda 218, 254
WIPE MEDIA: Glass Fiber Filter (37 mm)

p-Aminoacetanilide

IMIS **0161** CAS 122-80-5
DESC White or slightly reddish solid.
MW: 150.2 BP: 513 F MP: 329 to 334 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

p-Aminoazobenzene

IMIS **A508** CAS 60-09-3
DOT 3077 171
DESC Odorless brownish-yellow needles with bluish coating, or an orange powder.
MW: 197.24 BP: >680 F MP: 262 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [para-Aminoazobenzene]

4-Aminodiphenyl

IMIS **0162** CAS 92-67-1
SYN p-Aminodiphenyl; 4-Aminobiphenyl, 4-Phenylaniline
NIOSH RTECS DU8925000 DOT 3077 171
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Colorless crystals that turn purple on contact with air; floral odor.
MW: 169.2 BP: 576 F MP: 127 F FP: >235 F
INCOM Oxidized by air
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)
NTP Human Carcinogen - [4-Aminobiphenyl]
IARC Group 1 - carcinogenic to humans - [4-Aminobiphenyl]
SYMPT Headache, dizziness; drowsiness, dyspnea (breathing difficulty); ataxia, lassitude (weakness, exhaustion); methemoglobinemia; urinary burning; acute hemorrhagic cystitis; [potential occupational carcinogen]
ORGAN Bladder, skin [bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 93 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: Within ten hours after sampling, transfer filter to glass vial containing 2 mL deionized water. Sample must be shipped and stored frozen. Analyze as soon as possible. Filters may be obtained from SLTC.
COND C18 column; 65% methanol 35% water; UV Det: 280, 220; Fluor. Ex. 265; Em 389; Retention time, 8.9 min; DL 0.06 ug/sample; C/P JRL 12/78
WIPE MEDIA: Glass Fiber Filter (37 mm)
BIOL MEDIA: Urine Sample
MAX V: 200 mL MIN V: 20 mL
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: 1) Stabilize urine samples at the time of collection with 30% (w/v) citric acid solution; 1 mL acid to 100 mL urine.
2) Seal samples securely, freeze them, and send them to SLTC in an insulated container by express mail. Call the Branch Chief, C/P at SLTC to notify of shipment.
3) Citric acid solution may be obtained from the SLTC.

n-Aminoethylpiperazine

IMIS **R256** CAS 140-31-8
SYN N- (beta-aminoethyl) piperazine; 1-(2-Aminoethyl) piperazine
NIOSH RTECS TK8050000* DOT 2815 153
DESC Colorless liquid with a faint fishlike odor.
MW: 129.2 BP: 428 F MP: -2 F FP: 200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

2-Amino-2-Methylpropanol

IMIS **A615** CAS 124-68-5
SYN AMP; 2-aminodimethylethanol; β -aminoisobutanol; 2-amino-2-methylpropan-1-ol; 2-

amino-2-methyl-1-propanol; isobutanol-2-amine; isobutanolamine
 NIOSH RTECS UA5950000* DOT 1993 128
 DESC A clear light colored liquid
 MW: 89.16 BP: 329 F MP: 89.6 F FP: 153 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 SLC1 MEDIA: XAD-2 tube (80/40) coated with 10% 1-naphthylisothiocyanate (NITC) [SKC
 226-30-18]
 ANL SOLVENT: (4/1) Methanol: 0.1 N H2SO4
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: (OSHA In-House File) CLASS: Not Validated
 COND Standard amine column

1-Amino-2-Propanol

IMIS **A606** CAS 78-96-6
 SYN 1-aminopropan-2-ol; α -aminoisopropyl alcohol; 2-hydroxypropylamine;
 isopropanolamine; 1-methyl-2-aminoethanol; monoisopropanolamine
 NIOSH RTECS UA5775000* DOT 2735 153
 DESC A colorless liquid with a slight ammonia-like odor.
 MW: 75.13 BP: 313 to 316 F MP: 34.5 F FP: 171 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 LESS1 MEDIA:
 ANL SOLVENT: Dimethylformamide
 REC V: 10 Liters REC F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OHL2004S022 CLASS: Not Validated

3-Amino-1-Propanol

IMIS **A608** CAS 156-87-6
 SYN N-Propanolamine
 DOT 2735 153
 DESC Colorless to pale yellow liquid with a fishy odor.
 MW: 75.11 MP: 52 F FP: 175 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 INCOM May be incompatible with isocyanates, halogenated organics, peroxides, phenols
 (acidic), epoxides, anhydrides, and acid halides; reducing agents

bis-2-Aminopropyl Ether

IMIS **0164** CAS 2997-01-5
 DESC MW: 176.26
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Aminopyridine

IMIS **0165** CAS 504-29-0
 SYN alpha-Aminopyridine, α -Pyridylamine
 NIOSH RTECS US1575000 DOT 2671 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 2 mg/m3
 DESC White powder, leaflets, or crystals with a characteristic odor

MW: 94.1 BP: 411 F VP: 0.8 mm (77 F) MP: 137 F

INCOM Strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

SYMPT Irritation eyes, nose, throat; headache, dizziness; excitement; nausea; high blood pressure; resp distress; lassitude (weakness, exhaustion); convulsions; stupor

ORGAN Central nervous system, respiratory system

SLC1 MEDIA:
REC V: 12 Liters FLOW: 0.01 to 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S-158 SAE: 0.10 CLASS: Fully Validated by NIOSH

WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Isopropanol

Amitrole

IMIS **A176** CAS 61-82-5

SYN Aminotriazole, 3-Aminotriazole, 2-Amino-1,3,4-triazole, 3-Amino-1,2,4-triazole

NIOSH RTECS XZ3850000 DOT 3077 171

MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3

DESC Colorless to white, crystalline powder. [herbicide] [Note: Odorless when pure.]
MW: 84.1 MP: 318 C

INCOM Light (Decomposes), strong oxidizers [Note: Corrosive to iron, aluminum & copper.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

NTP Suspect Human Carcinogen - [Amitrole]

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Amitrole]

SYMPT Irritation eyes, skin; dyspnea (breathing difficulty), muscle spasms, ataxia, anorexia, salivation, increased body temperature; lassitude (weakness, exhaustion), skin dryness, depression (thyroid function suppression)

ORGAN Eyes, skin, thyroid [in animals: liver, thyroid & pituitary gland tumors]

SLC1 MEDIA:
MAX V: 60 liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

COND Chromasil C18 column; 100% water, 1.0 mL/min; 205 nm; RT 6.0 min, DL 0.5 ng/injection C/P YC

Ammonium Carbamate

IMIS **A205** CAS 1111-78-0

SYN Carbamic Acid, ammonium salt; Ammonium aminofornate

NIOSH RTECS EY8575000*

DESC Appears as a white crystalline solid used as a fertilizer.
MW: 78.07 BP: 60 C (Sublimes)

INCOM Strong acids and bases, strong reducing agents

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

sec-Amyl Acetate

IMIS **0191** CAS 626-38-0

SYN 1-Methylbutyl acetate, 2-Pentanol acetate, 2-Pentyl ester of acetic acid
 NIOSH RTECS AJ2100000 DOT 1104 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 125 ppm, 650 mg/m³
 DESC Colorless liquid with a mild odor.
 MW: 130.2 BP: 249 F VP: 7 mm MP: -109 F
 INCOM Nitrates; strong oxidizers, alkalis, and acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 SYMPT Irritation eyes, skin, nose; narcosis; dermatitis; possible kidney, liver injury; possible
 central nervous system depression
 ORGAN Eyes, skin, respiratory system, kidneys, liver, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1450 SAE: 0.12 CLASS: Partially Validated by
 NIOSH
 NOTE: Ship refrigerated

n-Amyl Alcohol

IMIS **A159** CAS 71-41-0
 SYN 1-pentanol DOT 1105 129
 DESC A colorless liquid with a mild to moderately strong odor.
 MW: 88.2
 INCOM Oxidizing materials, hydrogen trisulfide
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

tert-Amyl Alcohol

IMIS **A612** CAS 75-85-4
 SYN 2-Methyl-butanol-2; 2-Methyl-2-butanol; tert-Pentanol; Amylenehydrate;
 Dimethylethylcarbinol
 NIOSH RTECS SC0175000* DOT 1105 129
 DESC A clear, colorless liquid with an odor of camphor.
 MW: 88.2 FP: 67 F
 INCOM Forms explosive mixture with air. Strong oxidizers and hydrogen trisulfide, strong
 acids.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Amyl Nitrite

IMIS **A607** CAS 463-04-7
 SYN n-Amyl Nitrite; Nitramyl; 1-Nitropentane; Pentyl Nitrite; Pentyl Alcohol Nitrite
 NIOSH RTECS RA1140000 DOT 1113 129
 DESC A clear colorless to yellowish liquid with a fragrant, fruity odor and pungent aromatic
 taste.
 MW: 117.2 BP: 219 F FP: 50 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 8.5 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

NOTE: Protect samples from light and heat.

Aniline

IMIS **0220** CAS 62-53-3
SYN Aminobenzene; Phenylamine; Aniline oil, benzenamine
NIOSH RTECS BW6650000 DOT 1547 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 8 mg/m³ (Skin)
DESC Colorless to brown, oily liquid with an aromatic amine-like odor. [Note: A solid below 21°F.]
MW: 93.1 BP: 363 F VP: 0.6 mm MP: 21 F
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 8 mg/m³ (Skin)
INCOM Strong oxidizers, strong acids, toluene diisocyanate, alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
IARC Group 2A - probably carcinogenic to humans - Aniline (see also Aniline hydrochloride)
SYMPT Headache, lassitude (weakness, exhaustion), dizziness; cyanosis; ataxia; dyspnea (breathing difficulty) on effort; tachycardia; irritation eyes; methemoglobinemia; cirrhosis; [potential occupational carcinogen]
ORGAN Blood, cardiovascular system, eyes, liver, kidneys, respiratory system [bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: 0.2 N NH₄OH in Methanol
REC V: 30 Liters REC F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
SAM2 DET. TUBE: Sensidyne, 181, 1.25-60 ppm
Draeger, CH 20401, 1-20 ppm
Kitagawa, 181S, 1-30 ppm
MIRAN IA & 1B: MIN. Det. Con. 0.2 ppm at 9.4 um
MIRAN 103: MIN. Det. Con. 0-50 ppm at 13.3 um
WIPE MEDIA: Glass Fiber Filter (37 mm)

o-Anisaldehyde

IMIS **A517** CAS 135-02-4
SYN Diesel Exhaust Component; 2-Methoxybenzaldehyde
NIOSH RTECS BZ2625000*
DESC Colorless to pale yellow liquid.
MW: 136.15
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
SLC1 MEDIA:
ANL SOLVENT: (90/10) Methylene Chloride/ Methanol
MAX V: 96 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
COND Column: C18

Mobile Phase: 76:24:0.1 Water: Acetonitrile: H3PO4
Detector Wavelength: 254 nm
Detection Limit: 3.8 ng

Anisidine (o-, p- Isomers)

IMIS **0225** CAS 90-04-0; 104-94-9; 29191-52-4
SYN ortho-Aminoanisole, 2-Anisidine, o-Methoxyaniline [Note: o-Anisidine has been used as a basis for many dyes.]
NIOSH RTECS BZ5410000 DOT 2431 153
MIOSHA FINAL RULE (Table G-1-A): TWA 0.5 mg/m3 (Skin)
DESC Red or yellow, oily liquid with an amine-like odor. [Note: A solid below 41°F.]
MW: 123.2 BP: 437 F VP: <0.1 mm MP: 41 F FP: (oc) 244 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
NTP Suspect Human Carcinogen - [o-Anisidine (see o-Anisidine and Its Hydrochloride)]
IARC Group 2A - probably carcinogenic to humans - [ortho-Anisidine (see also ortho-Anisidine hydrochloride)]
Group 3 - not classifiable as to its carcinogenicity to humans - [para-Anisidine]
SYMPT Headache, dizziness; cyanosis; red blood cell Heinz bodies; [potential occupational carcinogen]
ORGAN Blood, kidneys, liver, cardiovascular system, central nervous system [in animals: tumors of the thyroid gland, bladder & kidneys]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 320 Liters MIN V: 24 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 2514 SAE: 0.11 CLASS: Fully Validated by NIOSH
COND Column: C18
Mobile Phase: 35:65 Acetonitrile: Water
Detector Wavelength: 254nm
Detection Limit: 0.06 mg/m3
WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Isopropanol

Anisole

IMIS **A621** CAS 100-66-3
SYN Methoxybenzene DOT 2222 128
DESC A clear straw-colored liquid with an aromatic odor.
MW: 108.14 FP: 125 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide: Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Anthracene

IMIS **0227** CAS 120-12-7

SYN Anthracin; green oil; paranaphthalene; Tetra Olive N2G
 NIOSH RTECS CA9350000* DOT 2222 128
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 mg/m3
 DESC White to yellow solid with a weak aromatic odor.
 MW: 178.23 BP: 644 F MP: 421 to 424 F FP: 250 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]
 IARC Group 2B - possibly carcinogenic to humans - [Anthracene]
 SLC1 MEDIA:
 ANL SOLVENT: Benzene
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
 REF: OSHA 58 SAE: 0.11 CLASS: Fully Validated by OSHA
 NOTE: Validation in conjunction with Coal Tar Pitch Volatiles and Coke Oven Emissions.
 NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap.
 Sample must be protected from direct sunlight.
 COND Column: C18
 Mobile Phase: 85:15 Acetonitrile: Water
 Detector Wavelength: 254nm or 254 EX: 370 EM (Fluor)
 Detection Limit: 0.066 ug/m3

ANTU (alpha-Naphthylthiourea)

IMIS **0235** CAS 86-88-4
 SYN Naphthylthiourea, α -Naphthyl thiocarbamide, 1-Naphthyl thiourea, α -Naphthyl thiourea
 NIOSH RTECS YT9275000 DOT 1651 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.3 mg/m3
 DESC White crystalline or gray, odorless powder. [rodenticide]
 MW: 202.3 BP: Decomposes VP: 0 mm (approx.) MP: 388 F
 INCOM Strong oxidizers, silver nitrate
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [1-Naphthylthiourea (ANTU)]
 SYMPT After ingestion of large doses: vomiting, dyspnea (breathing difficulty), cyanosis, coarse pulmonary rales; liver damage
 ORGAN Respiratory system, blood, liver
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 REC V: 480 Liters FLOW: 1.5 to 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: NIOSH S276 SAE: 0.090 CLASS: Fully Validated by NIOSH
 COND Column: C18
 Mobile Phase: 50:50 Methanol: Water
 Detector Wavelength: 254nm
 Detection Limit: 0.13 mg/m3
 WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Dry

Apron

IMIS **A706** CAS 57837-19-1
SYN Metalaxyl
NIOSH RTECS AY6910000
DESC Whitish Crystals; Fungicide
MW: 279.34 BP: 564.6 F MP: 159.8 to 161.6 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
COND Acetonitrile extraction; Alltech C18 column; 60% ACN, 40% water;
1.0 mL/min, 198 nm, 214 nm; RT 7.0 min; DL 4 ng/injection C/P YC

Argon

IMIS **0240** CAS 7440-37-1
DOT 1006 120
DESC A colorless odorless noncombustible gas.
MW: 39.9
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Simple Asphyxiant (Asphyxiants, Anoxiants. (HE17)) If Oxygen level is 18% by volume

Arsenic, Organic Compounds (as As)

IMIS **A202** CAS 7440-38-2
SYN Arsenicals; Metallic Arsenic
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m3
DESC Varies with specific organic arsenic compound.
INCOM Varies
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [Arsenic (see Arsenic and Inorganic Arsenic Compounds)]
IARC Group 1 - carcinogenic to humans - [Arsenic and inorganic arsenic compounds]
SYMPT In Animals: irritation skin, possible dermatitis; resp distress; diarrhea; kidney damage; muscle tremor, convulsions; possible gastrointestinal tract, reproductive effects; possible liver damage
ORGAN Skin, respiratory system, kidneys, central nervous system, liver, gastrointestinal tract, reproductive system
SLC1 MEDIA:
ANL SOLVENT: Borate-Carbonate Buffer
MAX V: 1000 Liters MIN V: 50 Liters FLOW: 1.0 to 2.0 L/min
ANL 1: Ion Chromatography - Atomic Absorption Spectroscopy; IC-AAS
REF: NIOSH 5022 CLASS: Fully Validated by NIOSH
NOTE: Call SLTC before sampling. Special apparatus required for analysis NOT currently available.

Arsine

IMIS **0270** CAS 7784-42-1
SYN Arsenic hydride, Arsenic trihydride, Arseniuretted hydrogen, Arsenous hydride, Hydrogen arsenide
NIOSH RTECS CG6475000 DOT 2188 119
MIOSHA FINAL RULE (Table G-1-A):

TWA 0.05 ppm, 0.2 mg/m³

DESC Colorless gas with a garlic-like odor. [Note: Shipped as liquefied compressed gas.]
MW: 78.0 BP: -81 F MP: -179 F

INCOM Strong oxidizers, chlorine, nitric acid [Note: Decomposes above 446°F. There is a high potential for the generation of arsine gas when inorganic arsenic is exposed to nascent (freshly formed) hydrogen.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

NTP Human Carcinogen - [Arsenic (see Arsenic and Inorganic Arsenic Compounds)]

IARC Group 1 - carcinogenic to humans - [Arsenic and inorganic arsenic compounds]

SYMPT Headache, malaise (vague feeling of discomfort), lassitude (weakness, exhaustion), dizziness; dyspnea (breathing difficulty); abdominal, back pain; nausea, vomiting; bronze skin; hematuria (blood in the urine); jaundice; peripheral neuropathy; liquid: frostbite; [potential occupational carcinogen]

ORGAN Blood, kidneys, liver [lung and lymphatic cancer]

SLC1 MEDIA:
ANL SOLVENT: 0.01 M Nitric Acid
MAX V: 960 Liters MIN V: 480 Liters REC F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Validated In-House
NOTE: The stoichiometric factor for arsine from arsenic is 1.040.

SAM2 DET. TUBE: Dräger, CH 25001, 0.03-3 ppm range

Asbestos (Action Level, State of Oregon Only)

IMIS **A619** CAS 1332-21-4

NTP Human Carcinogen - [Asbestos]

IARC Group 1 - carcinogenic to humans - [Asbestos (all forms, including actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite)]

Aspartame

IMIS **R273** CAS 22839-47-0

SYN Succinamic Acid, 3-Amino-N-(alpha-carboxyphenethyl)-N-methyl Ester; NutraSweet; Canderel; Equal; L-Phenylalanine, N-L-alpha-Aspartyl, 1-Methyl Ester

NIOSH RTECS WM3407000

DESC MW: 294.34

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 2B - possibly carcinogenic to humans - [Aspartame]

SLC1 MEDIA:
ANL SOLVENT: 2.062 gm of 1-heptanesulfonic acid sodium salt to 1.0 L of 3:2 acetonitrile: water, adjust pH to 3.0 with H₃PO₄
MAX V: 1200 Liters MIN V: 70 Liters FLOW: 1.0 to 3.0 L/min
ANL 1: High Pressure Liquid Chromatography; HPLC-UV
REF: NIOSH 5031 CLASS: Partially Validated by NIOSH

COND Column: C18
Mobile Phase: 60% Eluent A/40% Eluent B

Aspergillus

IMIS **R274**

SYN Fungi

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Atrazine

IMIS	0295	CAS	1912-24-9
SYN	2-Chloro-4-ethylamino-6-isopropylamino-s-triazine, 6-Chloro-N-ethyl-N'- (1-methylethyl)-1,3,5-triazine-2,4-diamine		
NIOSH	RTECS XY5600000	DOT	2762 151(triazine pesticide)
MIOSHA	FINAL RULE (Table G-1-A):		TWA 5 mg/m3
DESC	Colorless or white, odorless, crystalline powder. [herbicide]		
INCOM	Strong acids, strong bases		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14) Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16) Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)		
IARC	Group 3 - not classifiable as to its carcinogenicity to humans - [Atrazine]		
SYMPT	Irritation eyes, skin; dermatitis, sensitization skin; dyspnea (breathing difficulty), lassitude (weakness, exhaustion), incoordination, salivation; hypothermia; liver injury		
ORGAN	Eyes, skin, respiratory system, central nervous system, liver		
SLC1	MEDIA: ANL SOLVENT: Acetonitrile MAX V: 240 Liters MAX F: 1.0 L/min ANL 1: High Performance Liquid Chromatography; HPLC-UV REF: (OSHA In-House File) CLASS: Not Validated MEDIA: Glass Fiber Filter (37 mm) ANL SOLVENT: Ethyl Acetate MAX V: 200 Liters MAX F: 1.0 L/min ANL 2: Gas Chromatography; GC-NPD REF: (OSHA In-House File) CLASS: Not Validated		
COND	Zorbax ODS column; 55% methanol 45% water; 1.0 mL/min; 254 nm detection; D.L. 2.5 ug/sample; C/P WEB 7-83		
WIPE	MEDIA: Glass Fiber Filter (37 mm)		

Auramine

IMIS	A609	CAS	492-80-8; 2465-27-2
SYN	Auremine; Benzenamine, 4,4' Carbonimidoyl bis (N, N' dimethyl-); Brilliant Oil yellow; Waxoline yellow D; Yellow pyoctanine; Blauramine; CI Basic Yellow 2, free base		
NIOSH	RTECS BY3500000*		
DESC	Colorless or yellow solid, flakes, or powder. MW: 321.89 MP: 513 F		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
IARC	Group 2B - possibly carcinogenic to humans - [Auramine]		
SLC1	MEDIA: ANL SOLVENT: Isopropanol MAX V: 100 Liters MAX F: 1.0 L/min ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS REF: (OSHA In-House File) CLASS: Partially Validated NOTE: Method does not distinguish Auramine from Auramine Hydrochloride.		
COND	Mobile Phase: 77:13:10 Isooctane: Isopropanol: Methanol Detector Wavelength: 254 or 340nm Detection Limit: 0.005 mg/m3		
WIPE	MEDIA: Glass Fiber Filter (37 mm)		

Auramine Hydrochloride

IMIS Use Auramine, (**A609**) CAS 2465-27-2
SYN Auramine 0; Benzenamine, 4,4' carbonimidoyl bis (N, N' dimethyl-),
monohydrochloride; C.I. Basic Yellow 2, monohydrochloride
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Azinphos-Ethyl

IMIS **A618** CAS 2642-71-9
SYN o, o-Diethyl s- [(4-oxo-1, 2,3 benzotriazin-3 (4H)-yl) methyl]phosphorodithioate;
Azinos; Ethyl Guthion
NIOSH RTECS TD8400000* DOT 2783 152(solid); 3018 152(liquid)
DESC Colorless crystals.
MW: 345.38 BP: 232 F (0.001 mm) MP: 127 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)

Azinphos-Methyl (Guthion)

IMIS **0300** CAS 86-50-0
SYN O,O-Dimethyl-S-4-oxo-1,2,3-benzotriazin-3(4H)-ylmethyl phosphorodithioate,
Guthion®, Methyl azinphos
NIOSH RTECS TE1925000 DOT 2783 152
MIOSHA FINAL RULE (Table G-1-A): TWA 0.2 mg/m3 (Skin)
DESC Brown, waxy solid.
MW: 317.3 BP: Decomposes MP: 163 F
INCOM Strong oxidizers, acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Miosis, aching eyes; blurred vision, lacrimation, rhinorrhea; headaches; tight chest,
wheezing, laryngeal spasms; salivation; cyanosis; anorexia; nausea, vomiting,
diarrhea; sweating; twitching, paralysis, convulsions; low blood pressure; cardiac
irregularities
ORGAN Respiratory system, central nervous system, cardiovascular system, blood
cholinesterase
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BIOL Cholinesterase Inhibition

1,1'-Azobisformamide

IMIS **A705** CAS 123-77-3
SYN Azodiocarbonamide; Celogen AZ; Diazendiacarboxamide; Genitron; Kempore;

Nitropore; Porofor; Unifoam
NIOSH RTECS LQ1040000* DOT 3242 149
DESC A yellow to orange powder.
MW: 116.08 BP: Decomposes MP: 437 F FP: 205 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
COND Methanol desorption; Zorbax CN column; 77% hexane, 7% isopropanol, 16% methanol; 1.5 mL/min, 276 nm 254 nm, RT 6.9 min, DL 14 ng/inj C/P YC 5/88

Bacteria

IMIS **B418**
SYN Candida Fungus; E. Coli; Pseudomonas Aeruginosa; Pseudomonas Pyacyanea; Staphylococcus Aureus; Streptococcus Hemolytic
DESC Found in cutting oil bulks.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 Call Branch Chief CP for more information.

Basic Red 2

IMIS **0314** CAS 477-73-6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Beclomethasone Dipropionate

IMIS **R248** CAS 5534-09-8
SYN Aldecin; BP2; Pregna-1, 4-diene-3, 20-dione, 9-chloro-16-beta-methy-11-beta, 17,21-trihydroxy-17, 21-dipropionate; Beclacin; Becloval; Benconase
NIOSH RTECS TU3805000*
DESC MW: 521.0
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
COND Liquid Chromatography Column: LC-DB-8 Mobile Phase: (60/40) Methanol/Water
Detector: 232 nm Retention Time: approx 22 min
WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Isopropanol

Bendiocarb (Ficam)

IMIS **F108** CAS 22781-23-3
SYN Ficam; 2,2-dimethyl-1,3-benzodioxol-4-ol methylcarbamate
NIOSH RTECS FC1140000* DOT 2757 151
DESC White solid.
MW: 223.23
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Benefin

IMIS **0345** CAS 1861-40-1
SYN N-Butyl-N-ethyl-a, a, a-trifluoro-2, 6-dinitro-p-toluidine; Balan; Benefex; EL-110; Quilan; Pel-Tech

DOT 3077 171

DESC Yellow-orange crystalline solid.
MP: 65 to 66 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Benomyl (Respirable Fraction)

IMIS B405 CAS 17804-35-2
SYN Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate; Benlate; Tersan 1991
NIOSH RTECS DD6475000 DOT 2757 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC White crystalline solid with a faint, acrid odor. [fungicide] [Note: Decomposes without melting above 572°F.]
MW: 290.4 BP: Decomposes MP: >572 F (Decomposes)
INCOM Heat, strong acids, strong alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, upper respiratory system; skin sensitization; possible reproductive, teratogenic effects
ORGAN Eyes, skin, respiratory system, reproductive system
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 60 liters MAX F: 2.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Preceded by a SKC aluminum cyclone.
WIPE MEDIA: Glass Fiber Filter (37 mm)

Benomyl (Total Dust)

IMIS **B407** CAS 17804-35-2
SYN Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate
NIOSH RTECS DD6475000 DOT 2757 151(carbamate pesticide, solid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3
DESC White crystalline solid with a faint, acrid odor. [fungicide] [Note: Decomposes without melting above 572°F.]
MW: 290.4 BP: Decomposes MP: >572 F (Decomposes)
INCOM Heat, strong acids, strong alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, upper respiratory system; skin sensitization; possible reproductive, teratogenic effects
ORGAN Eyes, skin, respiratory system, reproductive system
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 60 liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)

Benzenephosphonic Acid

IMIS **B417** CAS 1571-33-1
SYN Phenylphosphonic Acid
NIOSH RTECS TA0350000*

DESC MW: 158.09
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Benzenesulfonic Acid

IMIS **B415** CAS 98-11-3
DOT 2583 153

DESC Slightly yellow to colorless liquid
MW: 158.18 MP: 109 to 111 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation skin, eyes, mucous membranes; corrosion of tissues on contact.

Benzenesulfonyl Chloride

IMIS **B148** CAS 98-09-9
SYN Benzene sulfonechloride, Benzenesulfonic chloride, Benzenesulfonic (acid) chloride, Benzenosulfochlorek, Benzenosulphochloride, Benzolsulfochloride, BSC-refine D, Phenylsulfonyl chloride
NIOSH RTECS DB875000* DOT 2225 156
DESC Colorless oily liquid.
MW: 176.62 BP: 484.7 F MP: 58.1 F FP: >233.6 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Benzidine

IMIS **0330** CAS 92-87-5
SYN Benzidine-based dyes, 4,4'-Bianiline, 1,1'-Biphenyl-4,4'-diamine, 4,4'-Biphenyldiamine, 4,4'-Diaminobiphenyl, p-Diaminodiphenyl [Note: Benzidine has been used as a basis for many dyes.]
NIOSH RTECS DC9625000 DOT 1885 153
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Grayish-yellow, reddish-gray, or white crystalline powder. [Note: Darkens on exposure to air and light.]
MW: 184.3 MP: 239 F BP: 752 F
INCOM Red fuming nitric acid
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [Benzidine (see Benzidine and Dyes Metabolized to Benzidine)]
IARC Group 1 - carcinogenic to humans - [Benzidine]
SYMPT Hematuria; secondary anemia from hemolysis; acute cystitis; acute liver disorders; dermatitis; painful and irregular urination; (carcinogenic)
ORGAN Bladder, kidney, liver, skin, blood [liver, kidney, and bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 65 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Filter must be transferred to a vial containing 2 mL of deionized water within 10 hours of sample collection. Samples must be shipped and stored under reduced temperatures to help minimize loss of analyte. Sample should be analyzed as soon as possible. Obtain coated filters from SLTC.

Benzidine Based Dyes

IMIS **B128** CAS 92-87-5
NIOSH RTECS DC9625000 DOT 1885 153
DESC Grayish-yellow, reddish-gray, or white crystalline powder. [Note: Darkens on

exposure to air and light.]
 MW: 184.3 MP: 239 F BP: 752 F

INCOM Red fuming nitric acid
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Human Carcinogen - [Benzidine (see Benzidine and Dyes Metabolized to Benzidine)]

IARC Group 1 - carcinogenic to humans - [Benzidine]
 SYMPT Hematuria; secondary anemia from hemolysis; acute cystitis; acute liver disorders; dermatitis; painful and irregular urination; (carcinogenic)

ORGAN Bladder, kidney, liver, skin, blood [liver, kidney, and bladder cancer]
 SLC1 MEDIA:
 MAX V: 500 Liters MIN V: 150 Liters MAX F: 3.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: NIOSH 5013 CLASS: Partially Validated by NIOSH
 NOTE: This method does not differentiate between different dyes. Keep samples dry and cool. Protect samples from heat and light.

WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Benzil

IMIS **R234** CAS 134-81-6
 SYN Dibenzoyl; Diphenyl-alpha, alpha-diketone; Diphenylethanedione; Diphenylglyoxal; 1,2-Diphenylethanedione; Bibenzoyl
 NIOSH RTECS DD19250000*
 DESC Yellow crystalline solid.
 MW: 210.24
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Benzo[a]Anthracene

IMIS **0350** CAS 56-55-3
 SYN Tetraphene; 1,2-benzanthracene; Benzanthrene; Benzo[a]anthracene
 NIOSH RTECS GF8655000* DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A) Coal Tar Pitch Volatile (As Benzene Solubles):
 TWA 0.2 mg/m3
 MW: 228.29 BP: 815 F MP: 315 to 318 F

INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Benz[a]anthracene (see Polycyclic Aromatic Hydrocarbons: 15 Listings)]

IARC Group 2B - possibly carcinogenic to humans - [Benz[a]anthracene]
 SYMPT Dermatitis, bronchitis, [potential occupational carcinogen]
 ORGAN Respiratory system, skin, bladder, kidneys [lung, kidney, and skin cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Benzene
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated by OSHA
 NOTE: Immediately after sampling, transfer filter to glass scintillation vial and seal

with Teflon-lined cap. Protect from light.

Benzo[e]Pyrene

IMIS **B129** CAS 192-97-2
SYN 1,2-Benzopyrene, 4,5-Benzopyrene, 1,2-Benzpyrene, B(e)P
NIOSH RTECS DJ4200000* DOT 3077 171
MIOSHA FINAL RULE (Table G-1-A) Coal Tar Pitch Volatile (As Benzene Solubles):
TWA 0.2 mg/m3
DESC Appears as colorless crystals or white crystalline solid.
MW: 252.3 BP: 918 F MP: 352 to 354 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Benzo[e]pyrene]
SLC1 MEDIA:
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap.
Sample must be protected from direct sunlight.

2,3-Benzofuran

IMIS **B717** CAS 271-89-6
SYN Diesel Exhaust Component; Coumarone; Benzofuran
NIOSH RTECS DF6423800* DOT 1993 128
DESC A colorless, sweet-smelling, oily liquid made by processing coal into coal oil.
MW: 118.13 BP: 345 F FP: 133 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
Group 2B - possibly carcinogenic to humans - [Benzofuran]
SLC1 Media:
ANL SOLVENT: (90/10) Methylene Chloride/Methanol
MAX V: 96 liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Benzoic acid

IMIS **B409** CAS 65-85-0
SYN Draclyic Acid; Retardex; Salvo Powder; Phenyl Carboxylic Acid
NIOSH RTECS DG0875000*
DESC White crystalline solid.
MW: 122.13 BP: 480 F MP: 252.3 F FP: 250 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 24 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Benzophenone

IMIS **B505** CAS 119-61-9
SYN Diphenylmethanone; Diphenyl ketone; Benzoylbenzene;
alpha-Oxodiphenylmethane; alpha-Oxiditane; Oxodiphenylmethane; Oxoditane
NIOSH RTECS DI9950000* DOT 1224 127
DESC White solid with flowery odor.

MW: 182.21 BP: 582.6 F MP: 119 F FP: >270 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Benzophenone]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated
COND 15 meter DB-Wax 0.25 u film 0.32 mm ID 70 deg for 2 min at 10 deg/min to 150 C

Benzophenonetetracarboxylic Acid Dianhydride

IMIS **B727** CAS 2421-28-5
SYN 5,5'-Carbonylbis-1, 3-Isobenzofurandione; Benzophenonetetracarboxylic Dianhydride; BTDA
DESC Other solid; light yellow powder.
MW: 322.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: (OSHA In-House File) CLASS: Not Validated

Benzothiazole

IMIS **B506** CAS 95-16-9
DESC Clear to amber liquid.
MW: 135.19
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Benzothiazolethiol

IMIS **0333** CAS 149-30-4
SYN 2-Mercaptobenzothiazole, Benzothiazole-2-thione, 2(3H)-Benzothiazolethione, 2-Benzothiazolyl mercaptan, Captax, Kaptax
NIOSH RTECS DL6475000* DOT 2811 154
DESC Pale monoclinic needles or leaflets with a disagreeable odor.
MW: 167.25 BP: decomposes MP: 351 to 358 F FP: 392 F
INCOM Strong oxidizing agents, acids, and acid fumes.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2A - probably carcinogenic to humans - [2-Mercaptobenzothiazole]
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Benzotrichloride

IMIS **B408** CAS 98-07-7
SYN Benzene (trichloromethyl)-;benzoyl chloride; benzenyl trichloride; benzoic trichloride
NIOSH RTECS XT9275000* DOT 2226 156
DESC A clear colorless to yellowish colored liquid with a penetrating odor. Denser than water and vapors are heavier than air. May be toxic by inhalation or ingestion. Burns skin, eyes, and mucous membranes. Insoluble in water. Used to make dyes and other chemicals.
MW: 195.48 BP: 429.4 F MP: 23 F
INCOM Acids or acid fumes

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Benzotrachloride]
 IARC Group 2A - probably carcinogenic to humans - [alpha-Chlorinated toluenes (benzal chloride, benzotrachloride, benzyl chloride) and benzoyl chloride (combined exposures)]
 SYMPT Irritation eyes, skin, respiratory tract
 ORGAN Eyes, skin, respiratory tract
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Tetrachloride
 MAX V: 12 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Benzoyl Chloride

IMIS **B507** CAS 98-88-4
 SYN Benzenecarbonyl Chloride; alpha-Chlorobenzaldehyde; Benzoic Acid, Chloride
 NIOSH RTECS DM6600000* DOT 1736 137
 DESC A colorless fuming liquid with a pungent odor.
 MW: 140.57 BP: 387 F MP: 30.2 F FP: 162 F
 INCOM Strong oxidizing agents, strong bases, alcohols; reacts violently or explosively with water, dimethyl sulfoxide, aluminum chloride and naphthalene
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2A - probably carcinogenic to humans - [alpha-Chlorinated toluenes (benzal chloride, benzotrachloride, benzyl chloride) and benzoyl chloride (combined exposures)]
 SYMPT Irritation skin, eyes, mucous membranes, cough, labored breathing, nausea, sore throat
 ORGAN Skin, eyes, respiratory tract
 SLC1 MEDIA:
 ANL SOLVENT: Xylene
 MAX V: 90 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated

Benzoyl Peroxide

IMIS **0335** CAS 94-36-0
 SYN Benzoperoxide, Dibenzoyl peroxide
 NIOSH RTECS DM8575000 DOT 3104 146
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC Colorless to white crystals or a granular powder with a faint, benzaldehyde-like odor. Colorless, odorless solid.
 MW: 242.2 BP: Decomposes Explosively VP: <1 mm MP: 217 F
 INCOM Combustible substances (wood, paper, etc.), acids, alkalis, alcohols, amines, ethers [Note: Containers may explode when heated. Extremely explosion-sensitive to shock, heat & friction.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Benzoyl peroxide]
 SYMPT Irritation eyes, skin, mucous membrane; sensitization dermatitis
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Methanol

MAX V: 400 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OHL2009S006 SAE: 0.10 CLASS: Validated In-House
NOTE: Immediately after sampling transfer filter to 20 mL scintillation vial before shipping. Ship refrigerated.

Benzyl Acetate

IMIS **B508** CAS 140-11-4
SYN Benzyl ethanoate; acetic acid benzyl ester; phenylmethyl acetate; α -acetoxytoluene; phenylmethyl ethanoate
DESC Colorless liquid with an odor of pears.
 MW: 150.18 BP: 419.9 F MP: -60.7 F FP: 195 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Benzyl acetate]
SLC1 MEDIA:
 ANL SOLVENT: Carbon disulfide
 ALT SOLVENT: (99/1) sec-n-Butyl Alcohol or (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liter MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Benzyl Bromide

IMIS **B107** CAS 100-39-0
 DOT 1737 156
DESC A colorless liquid with an agreeable odor.
 MW: 171.05 BP: 388 to 390 F MP: 27 to 30 F FP: 188 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SAM2 DET. TUBE: Sensidyne, 136, 25-850 ppm

Benzyl Chloride

IMIS **0340** CAS 100-44-7
SYN Chloromethylbenzene, α -Chlorotoluene
NIOSH RTECS XS8925000 DOT 1738 156
MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 5 mg/m³
DESC Colorless to slightly yellow liquid with a pungent, aromatic, irritating odor.
 MW: 126.6 BP: 354 F VP: 1 mm MP: -38 F
INCOM Oxidizers, acids, copper, aluminum, magnesium, iron, zinc, tin [Note: Can polymerize when in contact with all common metals except nickel & lead. Hydrolyzes in H₂O to benzyl alcohol.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
IARC Group 2A - probably carcinogenic to humans - [alpha-Chlorinated toluenes (benzal chloride, benzotrichloride, benzyl chloride) and benzoyl chloride (combined exposures)]
SYMPT Irritation eyes, skin, nose; lassitude (weakness, exhaustion); irritability; headache; skin eruption; pulmonary edema
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:

ANL SOLVENT: (99/1) Carbon Disulfide: Dimethylformamide
MAX V: 50 Liters MIN V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1003 SAE: 0.16 CLASS: Partially Validated by
NIOSH
SAM2 MIRAN IA: MIN. Det. Con. 2.5 ppm at 9.4 µm

Benzylidene Chloride

IMIS **D179** CAS 98-87-3
SYN Benzal Chloride; Benzyl dichloride; Benzylidene Chloride; Benzylene Chloride;
alpha, alpha-Dichlorotoluene
NIOSH RTECS CZ5075000* DOT 1886 156
DESC MW: 161.03 BP: 401 F MP: 2.48 F FP: 198 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2A - probably carcinogenic to humans - [alpha-Chlorinated toluenes (benzal
chloride, benzotrichloride, benzyl chloride) and benzoyl chloride (combined
exposures)]
SLC1 MEDIA:
ANL SOLVENT: Carbon Tetrachloride
MAX V: 12 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Betamethasone Acetate

IMIS **R245** CAS 987-24-6
SYN 9 alpha-Fluoro-16 beta-methyl-11 beta, 17 alpha, 21-trihydroxy-1,
4-pregnadiene- 3,20-dione 21-acetate
DESC MW: 434.5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
COND Liquid Chromatography Column: LC-DB-8 Mobile Phase: (60/40) Methanol/Water
Detector: 232 nm

Betamethasone Dipropionate

IMIS **R246** CAS 5593-20-4
DESC MW: 504.6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
COND Liquid Chromatography Column: LC-DB-8 Mobile Phase: (60/40) Methanol/Water
Detector: 232 nm Retention Time: approx 16.5 min

Betasan

IMIS **B509** CAS 741-58-2
SYN Bensulide; Prefar; S- (O, O-Diisopropylphosphorodithioate) ester of N- (2-
mercaptoethyl) benzenesulfonamide
NIOSH RTECS TE0250000*
DESC Used to control grasses and broad-leaf weeds in lawn. Colorless to white solid.
Viscous amber liquid above 34.4 C.
MW: 397.5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD

REF: (OSHA In-House File)

CLASS: Not Validated

NOTE: Obtain sampling tubes from SLTC.

WIPE

MEDIA: Glass Fiber Filter (37 mm)

BULK

Limit the amount of bulk submitted to one gram or one mL.

Bis(Chloromethyl) Ether

IMIS **2630**

CAS 542-88-1

SYN BCME, Chloromethyl ether, bis-CME, Dichlorodimethyl ether, Dichloromethyl ether, Oxybis(chloromethane)

NIOSH RTECS KN1575000

DOT 2249 131

MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):

DESC Colorless liquid with a suffocating odor.

MW: 115.0 BP: 223 F MP: -43 F FP: <66 F

INCOM Acids, water [Note: Reacts with water to form hydrochloric acid & formaldehyde.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Human Carcinogen - [Bis(chloromethyl) Ether (see Bis(chloromethyl) Ether and Technical-Grade Chloromethyl Methyl Ether)]

IARC Group 1 - carcinogenic to humans - [Bis(chloromethyl)ether; chloromethyl methyl ether (technical-grade)]

SYMPT Irritation eyes, skin, mucous membrane, respiratory system; pulmonary congestion, edema; corneal damage, necrosis; decreased pulmonary function, cough, dyspnea (breathing difficulty), wheezing; blood-stained sputum, bronchial secretions; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:

ANL SOLVENT: Hexane

MAX V: 50 Liters

MAX F: 0.5 L/min

ANL 1: Gas Chromatography; GC-ECD

REF: OSHA 10

SAE: 0.13

CLASS: Fully Validated by OSHA

NOTE: Derivatizing reagent: 16 g of 2,4,6-Trichlorophenol and 4.4 g of Sodium Methoxide dissolved in 1 Liter of Methanol. Obtain sampling solution from SLTC.

Bis(2-Dimethylaminoethyl) Ether

IMIS **R229**

CAS 3033-62-3

SYN NIAX® A99, NIAX® Catalyst A1, 2,2'-Oxybis(N,N-dimethyl ethylamine) [Note: A component (5%) of NIAX® Catalyst ESN, along with dimethylaminopropionitrile (95%).]

NIOSH RTECS KR9460000

DOT 2927 154

DESC Liquid.

MW: 160.3 BP: 372 F

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Possible urinary disturbance, neurological disorders; In Animals: irritation eyes, skin

ORGAN Eyes, skin, urinary tract, peripheral nervous system

Bismarck Brown

IMIS **B616**

CAS 5421-66-9

SYN Basic Brown 4; Bismarck Brown R; Color Index Number 21010

DESC MW: 461.4 MP: 222 C (Decomposes)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Black Powder

IMIS **B127**

DESC Black or gray granular solid.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Bladex

IMIS **0319** CAS 21725-46-2
 SYN 2-[(4-Chloro-6-ethylamino-1, 3,5-triazin-2-yl) amine]-2-methylpropionitrile; Cyanazine
 NIOSH RTECS UG1490000* DOT 2811 154
 DESC Colorless crystals. Non corrosive when dry. Used as a selective systemic herbicide.
 MW: 240.69 MP: 167.5 to 169 C
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Boiling Point Range

IMIS **B135**

Borates, Tetra, Sodium Salts, Anhydrous

IMIS **0374** CAS 1330-43-4
 SYN Anhydrous borax, Borax dehydrated, Disodium salt of boric acid, Disodium tetraborate, Fused borax, Sodium borate (anhydrous), Sodium tetraborate
 NIOSH RTECS ED4588000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 mg/m3
 DESC White to gray, odorless powder. [herbicide] [Note: Becomes opaque on exposure to air.]
 MW: 201.2 BP: 2867 F (Decomposes) MP: 1366 F
 INCOM Moisture [Note: Forms partial hydrate in moist air.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 SYMPT Irritation eyes, skin, upper respiratory system; dermatitis; epistaxis (nosebleed); cough, dyspnea (breathing difficulty)
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OHL2018S001 CLASS: Not Validated
 NOTE: Submit as a separate sample. When analysis of this compound is requested, an elemental analysis for Boron is performed and reported as the compound.
 Procedure based on OSHA method ID-125G.
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Borates, Tetra, Sodium Salts, Decahydrate

IMIS **0375** CAS 1303-96-4
 SYN Borax, Borax decahydrate, Sodium borate decahydrate, Sodium tetraborate decahydrate
 MIOSHA FINAL RULE (Table G-1-A):

TWA 10 mg/m3

DESC White, odorless, crystalline solid
MW: 381.4 BP: 608 F MP: 167 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample. When analysis of this compound is requested, an elemental analysis for Boron is performed and reported as the compound. Procedure based on OSHA method ID-125G. The stoichiometric factor for sodium tetraborate, decahydrate from sodium is 8.294.

WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Borates, Tetra, Sodium Salts, Pentahydrate

IMIS **0376** CAS 12179-04-3

SYN Borax pentahydrate, Sodium borate pentahydrate, Sodium tetraborate pentahydrate

MIOSHA FINAL RULE (Table G-1-A):

TWA 10 mg/m3

DESC Colorless or white, odorless crystals or free-flowing powder.

INCOM None Reported [Note: See the reactivities & incompatibilities reported for the related substance Borax decahydrate above.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

SYMPT Irritation eyes, skin, upper respiratory system; dermatitis; epistaxis (nosebleed); cough, dyspnea (breathing difficulty)

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample. When analysis of this compound is requested, an elemental analysis for Boron is performed and reported as the compound. Procedure based on OSHA method ID-125G. The stoichiometric factor for sodium tetraborate, pentahydrate from sodium is 6.335.

WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Boric Acid

IMIS **B141** CAS 10043-35-3

SYN Basilit B; boracic acid; borofax; boron trihydroxide; orthoboric acid; trihydroxyborone

DESC Odorless white solid.
MW: 61.83 BP: 572 F MP: 340 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:

MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL. If sample is considered a nuisance dust see Particulates not otherwise regulated (Total Dust). When analysis of this compound is requested, an elemental analysis for Boron is performed and reported as the compound.
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OHL2018S001 CLASS: Validated In-House
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Boron

IMIS **B142** CAS 7440-42-8
 DESC Solid compound that occurs in nature.
 MW: 10.81
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters REC F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 ANL SOLVENT: Deionized Water
 REF: OHL2018S001 SAE: 0.102 CLASS: Not Validated
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Boron Tribromide

IMIS **0381** CAS 10294-33-4
 SYN Boron bromide, Tribromoborane
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 1 ppm, 10 mg/m3
 DESC Colorless, fuming liquid with a sharp, irritating odor.
 MW: 250.5 BP: 194 F MP: -51 F
 INCOM Moisture, water, heat, potassium, sodium, alcohols [Note: Attacks metals, wood & rubber. Reacts with water to form boric acid and hydrogen bromide.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; dyspnea (breathing difficulty), pulmonary edema
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 MAX V: 5 Liters MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Chromatography; IC
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Sample hydrolyzed to Bromide. Analysis for Br- follows OSHA method ID-108. Submit as a separate sample.

Boron Trifluoride

IMIS **0382** CAS 7637-07-2

SYN Boron fluoride, Trifluoroborane
 NIOSH RTECS ED2275000 DOT 1008 125
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 1 ppm, 3 mg/m³
 DESC Colorless gas with a pungent, suffocating odor. [Note: Forms dense white fumes in moist air. Shipped as a nonliquefied compressed gas.]
 MW: 67.8 BP: -148 F VP: >50 atm MP: -196 F
 INCOM Alkali metals, calcium oxide [Note: Hydrolyzes in moist air or hot water to form boric acid, hydrogen fluoride & fluoboric acid.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT Irritation eyes, skin, nose, respiratory system; epistaxis (nosebleed); eye, skin burns;
 In Animals: pneumonitis; kidney damage
 ORGAN Eyes, skin, respiratory system, kidneys
 SLC1 MEDIA:
 MAX V: 15 Liters MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Specific Electrode; ISE
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as a separate sample. Analysis is for fluoroborate (BF₄⁻) ion.
 Samples must be stored and shipped in plastic bottles.
 SAM2 MIRAN IA & IB: MIN. Det. Con. 1.0 ppm at 7.4 um

Botran

IMIS **B585** CAS 99-30-9
 SYN 2,6-Dichloro-4-Nitroaniline; DCNA; Bortran; Dichloran
 NIOSH RTECS BX2975000*
 DESC Yellow crystals or solid with a slight aniline odor.
 MW: 207.07
 INCOM Acids, acid chlorides, acid anhydrides, and strong oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 400 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)

Bromacil

IMIS **B708** CAS 314-40-9
 SYN 5-Bromo-3-sec-butyl-6-methyluracil, 5-Bromo-6-methyl-3-(1-methylpropyl)uracil
 NIOSH RTECS YQ9100000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 10 mg/m³
 DESC Odorless, colorless to white, crystalline solid. [herbicide] [Note: Commercially available as a wettable powder or in liquid formulations.]
 MW: 261.2 BP: Sublimes MP: 317 F (Sublimes)
 INCOM Strong acids (decomposes slowly), oxidizers, heat, sparks, open flames
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, upper respiratory system; In Animals: thyroid injury
 ORGAN Eyes, skin, respiratory system, thyroid
 SLC1 MEDIA:
 MAX V: 50 Liters MAX F: 1.0 L/min

Bromelain

IMIS **B106** CAS 9001-00-7
SYN Bromelin; Ananase; Extranase; Inflamen; Traumanase
NIOSH RTECS EF8575000*
DESC Protein-digesting and milk-clotting enzymes found in pineapple fruit juice and stem tissue. Enzymes are distinguished as fruit bromelain and stem bromelain.
MW: Approx. 33,000
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Immunoradiometric Assay
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Before sampling, contact SLTC CP Branch for instructions.

Bromine

IMIS **0390** CAS 7726-95-6
SYN Molecular bromine
NIOSH RTECS EF9100000 DOT 1744 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.7 mg/m³
STEL 0.3 ppm, 2 mg/m³
DESC Dark reddish-brown, fuming liquid with suffocating, irritating fumes.
MW: 159.8 BP: 139 F VP: 172 mm MP: 19 F
INCOM Combustible organics (sawdust, wood, cotton, straw, etc.), aluminum, readily oxidizable materials, ammonia, hydrogen, acetylene, phosphorus, potassium, sodium [Note: Corrodes iron, steel, stainless steel & copper.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT Dizziness, headache; lacrimation (discharge of tears), epistaxis (nosebleed); cough, feeling of oppression, pulmonary edema, pneumonitis; abdominal pain, diarrhea; measles-like eruptions; eye, skin burns
ORGAN Respiratory system, eyes, central nervous system, skin
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Immunoradiometric Assay
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Before sampling, contact SLTC CP Branch for instructions.

Bromine Pentafluoride

IMIS **0391** CAS 7789-30-2
SYN Bromine fluoride
NIOSH RTECS EF9350000 DOT 1745 144
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.7 mg/m³
DESC Colorless to pale-yellow, fuming liquid with a pungent odor. [Note: A colorless gas above 105°F. Shipped as a compressed gas.]
MW: 174.9 BP: 105 F MP: -77 F VP: 328 mm

INCOM Acids, halogens, arsenic, selenium, sulfur, glass, organic materials, water [Note: Reacts with all elements except inert gases, nitrogen & oxygen.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT Irritation eyes, skin, respiratory system; corneal necrosis; skin burns; cough, dyspnea (breathing difficulty), pulmonary edema; liver, kidney injury
 ORGAN Eyes, skin, respiratory system, liver, kidneys
 SLC1 MEDIA:
 MAX V: 48 Liters MAX F: 0.2 L/min
 ANL 1: Ion Chromatography; IC
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as separate sample. Analysis is performed for total Bromide & total Fluoride. Method based on OSHA ID-108.
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Bromoacetic Acid

IMIS **B137** CAS 79-08-3
 DOT 1938 156
 DESC Colorless crystals.
 MW: 138-95 MP: 51 C
 INCOM Strong oxidizing agents, strong bases
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation skin, nose, throat, lungs, burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting, skin burns
 ORGAN Respiratory system, skin, eyes

Bromobenzene

IMIS **B419** CAS 108-86-1
 SYN Phenyl bromide, monobromobenzene
 DOT 2514 130
 DESC Mobile clear colorless liquid with a pungent odor.
 MW: 157.01 BP: 313 F MP: -24 F FP: 123.8 F
 INCOM Sensitive to light, oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SAM2 DET. TUBE: MSA, 93074, 10-800 ppm

p-Bromobenzylbromide

IMIS **R253** CAS 589-15-1
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Bromonaphthalene

IMIS **B108** CAS 90-11-9
 SYN alpha-Bromonaphthalene, 1-Bromonaphthalene, alpha-Naphthyl bromide, 1-Naphthyl bromide
 NIOSH RTECS QJ1545000*
 DESC MW: 207.07
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Bronkosol

IMIS **B428** CAS 50-96-4; 530-08-5
 SYN Isoetharine Hydrochloride; Asthmalitan; Numotac hydrochloride
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
MAX V: 800 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: (OSHA In-House File) CLASS: Not Validated

Brucine

IMIS **0405** CAS 357-57-3
SYN Brucin; Brucina; Dimethoxystrychnine DOT 1570 151
DESC A white crystalline solid.
MW: 394.5 MP: 352 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 180 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

1,3-Butanediol

IMIS **B147** CAS 107-88-0
SYN Butylene glycol, butane-1,3-diol
DESC Colorless viscous liquid.
MW: 90.12
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 60 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 5523 CLASS: Partially Validated by
NIOSH
NOTE: Ship cold to laboratory for analysis.

1,4-Butanediol Diglycidyl Ether

IMIS **D715** CAS 2425-79-8
DOT 3334 171
DESC Clear pale yellow liquid.
MW: 202. 25 BP: 311 to 320 F FP: >200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,2,4-Butanetriol, Trinitrate

IMIS **B149** CAS 6659-60-5
SYN BTTN, 1,2,4-Butanetriol trinitrate
DESC Colorless to brown liquid; Class 1.1 Explosive
MW: 241.11
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Butenes (All Isomers)

IMIS **B595** CAS 25167-67-3
SYN Buytylene
NIOSH RTECS EM2893000* DOT 1012 115
DESC An easily liquified colorless gas.
MW: 56.1
INCOM Mixtures with aluminum tetrahydroborate explode after an induction period.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Suffocation, on contact with liquid: frostbite
ORGAN Lungs, skin
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 1 Liter MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

1-(2-Butoxyethoxy) Ethanol

IMIS **R272** CAS 54446-78-5
SYN 2-butoxyethoxyethanol
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Butoxy-2-Propanol

IMIS **B145** CAS 5131-66-8
SYN IAQ; Propasol Solvent B; Propylene Glycol n-Butyl Ether
NIOSH RTECS UA7700000*
DESC MW: 132.23
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 30 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Butylamine

IMIS **0470** CAS 109-73-9
SYN n-Butylamine; 1-Aminobutane
NIOSH RTECS EO2975000 DOT 1125 132
MIOSHA FINAL RULE (Table G-1-A): CEIL 5 ppm, 15 mg/m3 (Skin)
DESC Colorless liquid with a fishy, ammonia-like odor.
MW: 73.2 BP: 172 F VP: 82 mm MP: -58 F
INCOM Strong oxidizers, strong acids [Note: May corrode some metals in presence of water.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT Irritation eyes, skin, nose, throat; headache; skin flush, burns
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (50/50) Methanol/Water
MIN T: 15 Minutes MAX F: 1.0 L/min (CEIL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2012 SAE: 0.231 CLASS: Fully Validated by NIOSH
SAM2 MIRAN IA: MIN. Det. Con. 0.8 ppm at 13.0 um

sec-Butylbenzene

IMIS **R235** CAS 135-98-8
SYN 2-Phenylbutane; (1-Methylpropyl) benzene; Butyl Benzene
NIOSH RTECS CY9100000 DOT 2708 128
DESC Colorless liquid

MW: 134.24 BP: 183.5 C MP: -82.7 C
INCOM Strong oxidizing agents
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation skin, eyes, respiratory system
ORGAN Skin, eyes, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

n-tert-Butyl-2-Benzothiazolesulfenamide

IMIS **0466** CAS 95-31-8
SYN N- (1,1-Dimethylethyl)-2-benzothiazolesulfenamide; Nocceler NS; Santocure NS; NTBBTS; Vulkacit NZ
NIOSH RTECS DL6200000*
DESC Cream to buff powder or pellets; slightly aromatic odor; soluble in benzene and methanol.
MW: 238.4 MP: 104 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Butyl Benzyl Phthalate

IMIS **B615** CAS 85-68-7
SYN Benzyl butyl phthalate DOT 3082 171
DESC A clear colorless liquid with a mild odor.
MW: 312.4 BP: 698 F MP: <-31 F FP: 390 F
INCOM Strong acids, nitrates, oxidizers, oxidizing agents, and strong bases.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Butyl benzyl phthalate]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 180 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Butyl Butyrate

IMIS **SLT1** CAS 109-21-7
SYN butylbutanoate; butyric acid butyl ester; n-butyl-n-butyrate DOT 3082 171
DESC A colorless liquid.
MW: 144.21 BP: 332 F MP: -133 F FP: 128 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/DMF
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID

tert-Butyl Glycidyl Ether

IMIS **B346** CAS 7665-72-7
 SYN tert-BGE; 1,1-Dimethylethoxymethyl oxirane DOT 3271 127

DESC Clear colorless liquid.
 MW: 130.19 BP: 306 F FP: 110 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 ALT SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Butyl Isocyanate

IMIS **B609** CAS 111-36-4
 SYN n-Butyl Isocyanate; BIC DOT 2485 155p

DESC A clear, colorless liquid with a pungent odor.
 MW: 99.14 FP: 66 F

INCOM Amines, aldehydes, alcohols, alkali metals, ketones, mercaptans, strong oxidizers, hydrides, phenols, and peroxides can cause vigorous releases of heat. Acids and bases initiate polymerization reactions in these materials.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 15 Liters MAX F: 0.05 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: The coated XAD-7 tube must be refrigerated until use.

n-Butyl Lactate (Butyl Lactate)

IMIS **0478** CAS 138-22-7
 SYN Butyl ester of 2-hydroxypropanoic acid, Butyl ester of lactic acid, Butyl lactate
 NIOSH RTECS OD4025000 DOT 1993 128(combustible liquids)
 MIOSHA FINAL RULE (Table G-1-A): TWA 5 ppm, 25 mg/m3

DESC Clear, colorless to white liquid with a mild, transient odor.
 MW: 146.2 BP: 370 F MP: -45 F FP: 160 F

INCOM Strong acids & bases, strong oxidizers, heat, sparks, open flames
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

SYMPT Irritation eyes, skin, nose, throat; drowsiness, headache, central nervous system depression; nausea, vomiting

ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

NOTE: Keep samples refrigerated when not in transit. Ship samples overnight with cold-packs as soon as possible.

tert-Butylmercaptan

IMIS **R217** CAS 75-66-1
SYN tert-Butyl Mercaptan; 2-Methyl-2-propanethiol
DOT 2347 130

DESC A foul-smelling organosulfur compound which is a colorless, clear liquid at ambient temperatures.
MW: 90.2 BP: 149 to 153 F MP: -32 F FP: <-20 F

INCOM Reacts with strong acids, strong bases, metals, strong oxidants, strong reducing agents to produce sulfur oxides.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
ART: Reference: Nishikawa, Yoshinori; Kuwata, Kazuhira. . "Analytical Chemistry" 57, 1985, pp1864-8. Title: Liquid Chromatographic Determination of Low. Molecular Weight Alkylthiols in Air via. Derivatization with NBD-Chloride. (7-Chloro-4-Nitro-2, 1,3-Benzoxadiazole) Collection: Sep-PAK Florisil coated with NBD-Cl (Tubes. used in OME 40 NBD-CL on XAD-7 may work) Air Vol and Flow rate: 100L at 0.8-1.2L/min Analysis: 2 mL of MeOH were used to dynamically desorb the derivative. The samples stood at room temp. for 15 minutes before analysis by HPLC. Column: Develosil ODS-3 10cmx4mm at 30 deg C Eluent: 45/55 acetonitrile/water at 1 mL/min. Detector: UV at 425nm or fluorescent at 425 nm excitation and 510 nm emission. Mercaptans studied: Methyl, ethyl, isopropyl, propyl, 2-methyl-2-propyl, 2-butyl, 2-methyl-1-propyl, and 1-butyl.

Butyl Mercaptan (Butanethiol)

IMIS **0480** CAS 109-79-5
SYN Butanethiol, 1-Butanethiol, n-Butanethiol, 1-Mercaptobutane
NIOSH RTECS EK6300000 DOT 2347 130
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 ppm, 1.5 mg/m3

DESC Colorless liquid with a strong, garlic-, cabbage-, or skunk-like odor.
MW: 90.2 BP: 209 F VP: 35 mm MP: -176 F FP: 35 F

INCOM Strong oxidizers (such as dry bleaches), acids

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Generally Low Risk Health Effects---Odor. (HE20)

SYMPT Irritation eyes, skin; muscle weak, malaise (vague feeling of discomfort), sweating, nausea, vomiting, headache, confusion; In Animals: narcosis, incoordination, lassitude (weakness, exhaustion); cyanosis, pulmonary irritation; liver, kidney damage

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys

SLC1 MEDIA:
ANL SOLVENT: Acetone
MAX V: 4 Liters MIN V: 1 Liter MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 2525 SAE: 0.14 CLASS: Fully Validated by NIOSH

SLC2 MEDIA:
ANL SOLVENT: 20 mL of 25% HCl and 5 mL 1,2-Dichloroethane.
MAX V: 150 Liters MIN V: 10 Liters MAX F: 0.2 L/min (TWA)
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 2542 CLASS: Partially Validated by

NIOSH
NOTE: Protect samples from light
SAM2 MIRAN 1A: MIN. Det. Con. 0.5 ppm at 3.4 um

Butyl Methacrylate

IMIS **B139** CAS 97-88-1
SYN n-butyl methacrylate, butylmethacrylate, butyl 2-methylprop-2-enoate
DOT 2227 130p
DESC A clear colorless liquid.
MW: 142.2 BP: 326.3 to 338.9 F MP: <-58 F FP: 126 F
INCOM May accumulate static electrical charges and cause ignition of its vapors.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Butyl methacrylate]

tert-Butylperoxide

IMIS **B617** CAS 110-05-4
SYN Di-tert-Butylperoxide; Di-tert-Butyl Peroxide; tert-Butyl Peroxide
DOT 3107 145
DESC Clear, colorless liquid.
MW: 146.2 BP: 232 F MP: -40 F FP: 65 F
INCOM Strong reducing agents, powdered metals, strong bases
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

o-sec-Butylphenol

IMIS **B705** CAS 89-72-5
SYN 2-sec-Butylphenol, 2-(1-Methylpropyl)phenol
NIOSH RTECS SJ890000 DOT 3145 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 30 mg/m3 (Skin)
DESC Colorless liquid or solid (below 61°F)
MW: 150.2 BP: 227 F MP: 61 F FP: 225 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; skin burns
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) SAE: 0.09 CLASS: Partially Validated

p-tert-Butylphenol

IMIS **B109** CAS 98-54-4
SYN 4-tert-Butyl Phenol; Butylphen; 4-(1,1-Dimethylethyl) Phenol
NIOSH RTECS SJ8925000 DOT 2430 153
DESC Crystals or white flakes with disinfectant-type odor.
MW: 150.22 BP: 463.1 F MP: 214 F FP: 235 F
INCOM Bases, acid chlorides, acid anhydrides, oxidizing agents, brass, copper.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritating to eyes, noses and throat. If inhaled, will cause difficult breathing.
ORGAN Respiratory system, eyes
SLC1 MEDIA:
ANL SOLVENT: Methanol

MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) SAE: 0.09 CLASS: Partially Validated

4-tert-Butylphenyl-Glycidyl Ether

IMIS **B125** CAS 3101-60-8
SYN [[4-(1,1-Dimethylethyl) phenoxy] methyl]-Oxirane; p-tert-Butylphenyl glycidyl ether; 4-tert-Butylphenyl 2,3-epoxypropyl ether
DESC Clear light yellow liquid.
MW: 206.29 BP: 329 to 338 F (14 mm) FP: 215 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Butyl Stearate

IMIS **B706** CAS 123-95-5
DESC Colorless liquid.
MW: 340.6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

p-tert-Butyltoluene

IMIS **0485** CAS 98-51-1
SYN 4-tert-Butyltoluene, 1-Methyl-4-tert-butylbenzene
NIOSH RTECS XS8400000 DOT 2667 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 60 mg/m3
STEL 20 ppm, 120 mg/m3
DESC Colorless liquid with a distinct aromatic odor, somewhat like gasoline.
MW: 148.3 BP: 379 F VP: <1 mm MP: -62 F FP: 155 F
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin; dry nose, throat; headache; low blood pressure, tachycardia, abnormal cardiovascular system stress; central nervous system, hematopoietic depression; metallic taste; liver, kidney injury
ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, bone marrow, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide:Dimethylformamide
MAX V: 29 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1501 SAE: 0.207 CLASS: Fully Validated by NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 2.0 ppm at 12.3 µm

Butyraldehyde

IMIS **B707** CAS 123-72-8
DOT 1129 129p
DESC A clear liquid with a pungent odor.
MW: 72.11 BP: 167 F MP: -146 F FP: 20 F
INCOM Oxidizing materials, reacts vigorously with chlorosulfonic acid, /nitric acid/, oleum,

/sulfuric acid/
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Butyraldehyde Oxime

IMIS **0487** CAS 110-69-0
SYN n-Butyraldoxime DOT 2840 129
DESC A liquid.
MW: 87.14 BP: 306 F MP: -21.1 F FP: 136 F
INCOM Oxidizing materials
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Butyric Acid

IMIS **B709** CAS 107-92-6
SYN Butanoic Acid; Ethylacetic Acid; Propylformic Acid DOT 2820 153
DESC A colorless liquid with a penetrating and unpleasant odor.
MW: 88.11 BP: 326.3 F MP: 17.8 F FP: 170 F
INCOM Oxidizing agents, bases and reducing agents, may attack aluminum and other light metals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (1/99) Formic Acid/Water
MAX V: 18 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

beta-Butyrolactone

IMIS **B427** CAS 3068-88-0
SYN 4-Methyl-2-Oxetanone; Hydroxybutyric Acid Lactone; beta-Lactone 3-Hydroxybutanoic Acid; beta-Lactone 3-Hydroxybutyric Acid DOT 1993 128
DESC Clear colorless liquid with an acetone-like odor.
MW: 86.09 BP: 160 to 163 F (29 mm) MP: -46.3 F FP: -140 F
INCOM Strong oxidizers and bases.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [beta-Butyrolactone]
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

gamma-Butyrolactone

IMIS **B715** CAS 96-48-0
SYN gamma-6480; gamma-BL; BLO; BLON; Hydroxybutanoic Acid Lactone; gamma-Lactone 4-Hydroxy-Butyric Acid; 4-Butanolide; 1,2-Butanolide; 1,4-Butanolide; Butyrolactone; Butyric Acid lactone; NCI-C55878; 4-Butyrolactone; alpha-Butyrolactone; 4-Hydroxybutyric Acid Lactone; Tetrahydro-2-Furanone Dihydro-2(3H)-Furanone
DESC Clear colorless oily liquid with a pleasant odor.
MW: 86.09 BP: 399 to 401 F MP: -49 F FP: 209 F
INCOM Oxidizing materials, inorganic acids and bases, alcohols and amines. This generates

fire and explosion hazard. Decomposes on burning. This produces irritating fumes.
 See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [gamma-Butyrolactone]
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Cadmium

IMIS **C141** CAS 7440-43-9
 DESC Metal: Silver-white, blue-tinged lustrous, odorless solid.
 OSHA GENERAL INDUSTRY PEL: 29 CFR 1910.1027 (Federal Register 57 (178) 42388-9 Sep 14, 1992) 29 CFR 1926.63 (Federal Register 57 (178) 42452-3 Sep 14, 1992), TWA 5 µg/m3, Action Level 2.5 µg/m3. SECALS [29 CFR 1910.1027 (FR 57 (178) 42390 Sep 14, 1992)]

Industry	Process	Secal (µg/m3)
Nickel Cadmium Battery	Plate making, plate preparation	50 µg/m3
	All other processes	15 µg/m3
Zinc/Cadmium Refining*	Cadmium refining, casting, melting, oxide production, sinter plant	50 µg/m3
Pigment Manufacture	Calcine, crushing, milling, blending	50 µg/m3
	All other processes	15 µg/m3
Stabilizers*	Calcium oxide charging, crushing, drying, blending	50 µg/m3
Lead Smelting*	Sinter plant, blast furnace, baghouse, yard area	50 µg/m3
Plating*	Mechanic plating	15 µg/m3

*Processes in these industries that are not specified in this table must achieve the PEL using engineering controls and work practices as required in f (1)(i).

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Cancer---Currently regulated by OSHA as carcinogen. (HE1)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Asphyxiants, Anoxiants. (HE17)
 NTP Human Carcinogen - [Cadmium (see Cadmium and Cadmium Compounds)]
 IARC Group 1 - carcinogenic to humans - [Cadmium and cadmium compounds]
 SYMPT Pulmonary edema; dyspnea, coughing, tight chest, substernal pain; headaches; chills, muscle aches; nausea, vomiting, diarrhea; anosmia; emphysema; proteinuria;

mild anemia; (carcinogenic)
 ORGAN Respiratory system, kidneys, prostate, blood
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters REC F: 2.0 L/min (TWA)
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 ANL SOLVENT: Nitric Acid
 REF: OHL2018S001 SAE: 0.076 CLASS: Validated In-House
 NOTE: If the filter is not overloaded, samples should be collected up to an 8-hour period or for the duration of the cadmium exposure. Short-term screening samples must be indicated as such on the sample submission form. Requests for ICP analysis must specifically include cadmium. This will alert the laboratory to take the sample to the AAS/GF if additional analytical sensitivity is needed. Unless requested, cadmium will not be reported routinely from ICP analyses.

Calcium Bromide

IMIS **0503** CAS 7789-41-5
 SYN Calcium dibromide, calciumbromide, kalziumbormid
 DESC Deliquescent odorless solid; turns yellow on extended exposure to air.
 MW: 199.89
 INCOM Potassium
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 NOTE: If total dust sample results are greater than PEL, then analyze for Calcium Oxide.

Camphene

IMIS **C118** CAS 79-92-5
 SYN Camphene; 2,2-dimethyl-3-methylenenorbornane; DL-camphene
 DOT 1325 133
 DESC A colorless to white crystalline solid with an insipid camphor-like odor.
 MW: 136 BP: 310 F MP: 122 F FP: 92 F
 INCOM Strong oxidizing agents, reducing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Camphor

IMIS **0522** CAS 76-22-2
 SYN 2-Camphonone; Synthetic camphor; Gum camphor; Laurel camphor
 NIOSH RTECS EX1225000 DOT 2717 133
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 mg/m3
 DESC Colorless or white crystals with a penetrating, aromatic odor.
 MW: 152.3 BP: 399 F MP: 345 F FP: 150 F
 INCOM Strong oxidizers (especially chromic anhydride & potassium permanganate)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 SYMPT Irritation eyes, skin, mucous membrane; nausea, vomiting, diarrhea; headache, dizziness, excitement, epileptiform convulsions
 ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:

ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 ALT SOLVENT: (99/1) Carbon Disulfide/Methanol
 MAX V: 25 Liters MIN V: 1 Liter MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1301 SAE: 0.12 CLASS: Partially Validated by
 NIOSH

Captafol

IMIS **0528** CAS 2425-06-1
 SYN Captafol, Difolatan®, N-((1,1,2,2-Tetrachloroethyl)thio)-4-cyclohexene-1,2-dicarboximide
 NIOSH RTECS GW4900000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3
 DESC White, crystalline solid with a slight, characteristic pungent odor. [fungicide] [Note: Available commercially as a wettable powder or in liquid form.]
 MW: 349.1 BP: decomposes MP: 321 F (Decomposes)
 INCOM Acids, acid vapors, strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [Captafol]
 IARC Group 2A - probably carcinogenic to humans - [Captafol]
 SYMPT Irritation eyes, skin, respiratory system; dermatitis, skin sensitization; conjunctivitis; bronchitis, wheezing; diarrhea, vomiting; liver, kidney injury; high blood pressure; In Animals: teratogenic effects; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys, cardiovascular system [in animals: tumors at many sites]
 SLC1 MEDIA:
 MAX V: 240 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated
 WIPE MEDIA: Whatman 41 Filter Paper

Captan

IMIS **0529** CAS 133-06-2
 SYN Captane, N-Trichloromethylmercapto-4-cyclohexene-1,2-dicarboximide
 NIOSH RTECS GW5075000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC Odorless, white, crystalline powder. [fungicide] [Note: Commercial product is a yellow powder with a pungent odor.]
 MW: 300.6 BP: Decomposes MP: 352 F (Decomposes)
 INCOM Strong alkaline materials (e.g., hydrated lime) [Note: Corrosive to metals.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Captan]
 SYMPT Irritation eyes, skin, upper respiratory system; blurred vision; dermatitis, skin sensitization; dyspnea (breathing difficulty); diarrhea, vomiting; [potential

occupational carcinogen]
ORGAN Eyes, skin, respiratory system, gastrointestinal tract, liver, kidneys [in animals:
duodenal tumors]
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)

Carbadox

IMIS **C723** CAS 6804-07-5
SYN 3-(2-Quinoxalinylmethylene) Carbazic Acid Methyl Ester N, N'-Dioxide; Mecadox;
Fortigro
DESC Minute yellow crystals; practically insoluble in water.
MW: 262.22 MP: 239.5 to 240 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Samples must be protected from light at all times.

Carbaryl

IMIS **0525** CAS 63-25-2
SYN 1-Naphthyl N-Methyl-carbamate, α -Naphthyl N-methyl-carbamate, Sevin®
NIOSH RTECS FC5950000 DOT 2757 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC White or gray, odorless solid. [pesticide]
MW: 201 BP: Decomposes VP: 0.002 mm (40 C) MP: 142 C
INCOM Strong oxidizers, strongly alkaline pesticides
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Carbaryl]
SYMPT Miosis, blurred vision, tear; rhinorrhea (discharge of thin nasal mucus), salivation;
sweating; abdominal cramps, nausea, vomiting, diarrhea; tremor; cyanosis;
convulsions; irritation skin; possible reproductive effects
ORGAN Respiratory system, central nervous system, cardiovascular system, skin, blood
cholinesterase, reproductive system
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 63 SAE: 0.08 CLASS: Fully Validated by OSHA
WIPE MEDIA: Glass Fiber Filter (37 mm)

Carbazole

IMIS **C627** CAS 86-74-8
DESC White crystals, plates, leaflets or light tan powder. Sublimes readily.
MW: 167.21 BP: 671 F MP: 473 to 475 F

INCOM Strong oxidizing agents. Nitrogen oxides, potassium hydroxide fusion yields a salt.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Carbazole]
 SYMPT Irritation, dermatitis, bronchitis, coughing, dyspnea, and respiratory distress
 ORGAN Skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Isopropanol
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated
 ART: Leach, John M. Chung, and Lambert. Analytical Chemistry Vol 59 pg 58-62
 1987.

Carbofuran

IMIS **0526** CAS 1563-66-2
 SYN 2,3-Dihydro-2,2-dimethyl-7-benzofuranyl methylcarbamate, Furacarb®, Furadan®
 NIOSH RTECS FB9450000 DOT 2757 151
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m³
 DESC Odorless, white or grayish, crystalline solid. [insecticide] [Note: May be dissolved in a liquid carrier.]
 MW: 221.3 MP: 304 F
 INCOM Alkaline substances, acid, strong oxidizers (e.g., perchlorates, peroxides, chlorates, nitrates, permanganates)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 SYMPT Miosis, blurred vision; sweating, salivation, abdominal cramps, diarrhea, headache, nausea, vomiting; lassitude (weakness, exhaustion), muscle twitching, incoordination, convulsions
 ORGAN Central nervous system, peripheral nervous system, blood cholinesterase
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 WIPE MEDIA: Whatman 41 Filter Paper

Carbon Disulfide

IMIS **0540** CAS 75-15-0
 SYN Carbon bisulfide
 NIOSH RTECS FF6650000 DOT 1131 131
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 4 ppm, 12 mg/m³ (Skin)
 STEL 12 ppm, 36 mg/m³ (Skin)
 OSHA FINAL RULE (TABLE Z-2):
 CEIL 30 ppm, 93 mg/m³
 PEAK 100 ppm, 311 mg/m³ (max 30 min)
 DESC Colorless to faint-yellow liquid with a sweet ether-like odor. [Note: Reagent grades are foul smelling.]
 MW: 76.1 BP: 116 F VP: 297 mm MP: -169 F FP: -22 F
 INCOM Strong oxidizers; chemically-active metals such as sodium, potassium & zinc; azides; rust; halogens; amines [Note: Vapors may be ignited by contact with ordinary light bulb.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
SYMPT Dizziness, headache, poor sleep, lassitude (weakness, exhaustion), anxiety,
 anorexia, weight loss; psychosis; polyneuropathy; Parkinson-like syndrome; ocular
 changes; coronary heart disease; gastritis; kidney, liver injury; eye, skin burns;
 dermatitis; reproductive effects
ORGAN Central nervous system, peripheral nervous system, cardiovascular system, eyes,
 kidneys, liver, skin, reproductive system
SLC1 MEDIA:
 ANL SOLVENT: Toluene
 ALT SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 25 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 MIN T: 5 Minutes MAX F: 0.2 L/min (Peak)
 MIN T: 30 Minutes MAX F: 0.2 L/min (CEIL)
 ANL 1: Gas Chromatography; GC-FPD
 REF: OSHA Modified NIOSH 1600 SAE: 0.10 CLASS: Validated
 by OSHA/NIOSH
 NOTE: Dryer attached to charcoal, refrigerated
WIPE Wipe with charcoal pad, seal in glass vial for shipment.

Carbon Tetrabromide

IMIS **0565** CAS 558-13-4
SYN Carbon bromide, Methane tetrabromide, Tetrabromomethane
NIOSH RTECS FG4725000 DOT 2516 151
MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 1.4 mg/m3
 STEL 0.3 ppm, 4 mg/m3
DESC Colorless to yellow-brown crystals with a slight odor.
 MW: 331.7 BP: 374 F MP: 194 F
INCOM Strong oxidizers, hexacyclohexyldilead, lithium
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation eyes, skin, respiratory system; lacrimation (discharge of tears); lung, liver,
 kidney injury; In Animals: corneal damage
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated

Carbon Tetrafluoride

IMIS **C325** CAS 75-73-0
SYN Carbon Fluoride; Freon 14; Halon 14; Perfluoromethane; Tetrafluoromethane; FC
 14; R 14 (Refrigerant)
 DOT 1982 126

DESC Colorless, nonflammable gas.
MW: 88.0 MP: -183.6 C BP: -127.9 C
INCOM Aluminum and its alloys, powdered metals
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: Gas Chromatography; GC-FID
REF: (WOHL) CLASS: Not Validated

Carbonyl Fluoride

IMIS **C105** CAS 353-50-4
SYN Carbon difluoride oxide, Carbon fluoride oxide, Carbon oxyfluoride, Carbonyl difluoride, Fluoroformyl fluoride, Fluorophosgene
NIOSH RTECS FG6125000 DOT 2417 125
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 5 mg/m³
STEL 5 ppm, 15 mg/m³
DESC Colorless gas with a pungent and very irritating odor. [Note: Shipped as a liquefied compressed gas.]
MW: 66.0 BP: -118 F MP: -173 F
INCOM Heat, moisture, hexafluoroisopropyl-ideneamino-lithium [Note: Reacts with water to form hydrogen fluoride & carbon dioxide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, mucous membrane, respiratory system; eye, skin burns; lacrimation (discharge of tears); cough, pulmonary edema, dyspnea (breathing difficulty); chronic exposure: gastrointestinal pain, muscle fibrosis, skeletal fluorosis; liquid: frostbite
ORGAN Eyes, skin, respiratory system, bone
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min (TWA)
MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
ANL 1: Ion Specific Electrode; ISE
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as a separate sample; analyte hydrolyzes instantly to fluoride in water. Analysis is for total F-. Proposed method follows OSHA method ID-110.

Carbonyl Sulfide

IMIS **R220** CAS 463-58-1
SYN Carbon Oxide Sulfide; Carbon Oxysulfide
DOT 2204 119
DESC A colorless, poisonous, flammable gas with a distinct sulfide odor.
MW: 60.07 BP: -50 C MP: -138.8 C
INCOM Strong oxidizing agents
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 10 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Article from J of Chromatography; V 99, pg 661-672
ART: Leiber, Mark A.; Berk, Howard C. "Analytical Chemistry", 1985, 57, 2792-96. .
Title: Determination of Carbonyl Sulfide in Air by Derivatization with 1,3-Diaminopropane and Capillary Gas Chromatographic Analysis. . Collection: Coated Resin but with pre-impinger of NaOH to remove CO₂ which causes low results for COS. This is not convenient.

Carbophenothion

IMIS **C605** CAS 786-19-6
 SYN Carbofenotion, Oleoakarithion, Trithion
 DOT 3018 152
 DESC An off-white to amber liquid with a mild odor of rotten eggs.
 MW: 342.85 BP: 180 F (0.01 mm)
 INCOM Strong reducing agents, oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Carboxin

IMIS **0573** CAS 5234-68-4
 SYN Vitavax; Carboxine; Carbathiin
 DESC Off-white crystals.
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 200 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

3-Carene

IMIS **R266** CAS 13466-78-9
 SYN Isodiprene, δ -3-carene
 DOT 2319 128
 DESC Colorless liquid with a sweet, turpentine-like odor.
 MW: 136.24 BP: 338 F
 INCOM Strong oxidizing agents, reducing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 30 Liters MIN V: 2 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1552 CLASS: Partially Validated by
 NIOSH

Carisoprodol

IMIS **C606** CAS 78-44-4
 DESC White powder.
 MW: 260.38 MP: 198 to 199 F
 INCOM Strong acids and bases, strong reducing agents, peroxides
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Catechol

IMIS **0571** CAS 120-80-9
 SYN 1,2-Benzenediol, o-Benzenediol, 1,2-Dihydroxybenzene, o-Dihydroxybenzene, 2-Hydroxyphenol, Pyrocatechol
 NIOSH RTECS UX1050000 DOT 2811 154
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 20 mg/m³
 DESC Colorless, crystalline solid with a faint odor. [Note: Discolors to brown in air & light.]
 MW: 110.1 BP: 474 F MP: 221 F FP: 261 F
 INCOM Strong oxidizers, nitric acid

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

IARC Group 2B - possibly carcinogenic to humans - [Catechol]

SYMPT Irritation eyes, skin, respiratory system; skin sensitization, dermatitis; lacrimation (discharge of tears), burns eyes; convulsions, increased blood pressure, kidney injury

ORGAN Eyes, skin, respiratory system, central nervous system, kidneys

LESS1 MEDIA:
 ANL SOLVENT: Methanol
 REC V: 24 Liters REC F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OHL2004S020 CLASS: Validated In-House

Cellulose Acetate

IMIS **C137** CAS 9004-35-7

DESC White solid; thermoplastic resin; white powder or flakes.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cerium

IMIS **C119** CAS 7440-45-1
 DOT 1333 170

DESC A gray colored, ductile rare-earth metal.
 MW: 140.12

INCOM Zinc, antimony, bismuth, phosphorus, mineral acids and alkalis

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 ANL SOLVENT: Nitric Acid
 REF: OHL2018S001 CLASS: Not Validated
 NOTE: Submit as separate sample. If the filter is not overloaded samples may be collected up to eight hours. An elemental analysis is performed for Cerium.

Cesium Hydroxide

IMIS **0576** CAS 21351-79-1

SYN Cesium hydrate, Cesium hydroxide dimer

NIOSH RTECS FK9800000 DOT 2682 157; 2681 154(solution)

MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 mg/m3

DESC Colorless or yellowish, crystalline solid. [Note: Hygroscopic (i.e., absorbs moisture from the air).]
 MW: 149.9 MP: 522 F

INCOM Water, acids, CO2, metals (e.g., Al, Pb, Sn, Zn), oxygen [Note: CsOH is a strong base, causing the generation of considerable heat in contact with water or moisture.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

SYMPT Irritation eyes, skin, upper respiratory system; eye, skin burns

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS

REF: (OSHA In-House File)

CLASS: Not Validated

NOTE: Submit as a separate sample. If the filter is not over loaded, samples may be collected up to an 8 hr. period. When the analysis of a compound is requested, an elemental Cesium analysis is performed and reported as the compound.

Chloramine-T

IMIS **C327** CAS 127-65-1
SYN para-Toluene Chlorosulfonamide Acid; n-Sodium, n-chloro, -para-toluene Sulfonamide; Chloramine T Trihydrate; Sodium p-Toluenesulfonchloramide Trihydrate
DESC White or slightly yellow crystals or crystalline powder
MW: 227.64
INCOM The anhydrous material explodes when heated to 175 °C. Mixtures with calcium carbonate plus isonitriles explode when warmed.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation skin, cough, sore throat, wheezing, nausea, vomiting, diarrhoea
ORGAN Skin, respiratory system, gastrointestinal system
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Protect samples from light.
COND Column: CN Mobile Phase: 70:30:0.2 H2O: Acetonitrile: H3PO4 Detector: UV-254nm

Chloramphenicol

IMIS **R276** CAS 56-75-7
SYN Anacetin; Chlorocid; Chloromycetin
DESC White to greyish-white or yellowish-white fine crystalline powder or fine crystals, needles or elongated plates.
MW: 323.13
INCOM Acids, acid chlorides, acid anhydrides, oxidizing agents.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Chloramphenicol]
IARC Group 2A - probably carcinogenic to humans - [Chloramphenicol]
ORGAN Bone marrow, nervous system, digestive system
SLC1 MEDIA:
ANL SOLVENT: Acidified Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Could not find supplier of analytical grade material, Had to use bulk material from company.
COND Column: 3.3 cm x 4.6 mm 3 u LC18 DB Mobile: 90/10 Acetonitrile/Water
Wavelength: 278nm

Chlordane

IMIS **0611** CAS 57-74-9
SYN Chlordan, Chlordano, 1,2,4,5,6,7,8,8-Octachloro-3a,4,7,7a-tetrahydro-4,7-methanoindane
NIOSH RTECS PB9800000 DOT 2762 131
MIOSHA FINAL RULE (Table G-1-A):

TWA 0.5 mg/m³ (Skin)

DESC Amber-colored, viscous liquid with a pungent, chlorine-like odor. [insecticide]
 MW: 409.8 BP: Decomposes MP: 217 to 228 F

INCOM Strong oxidizers, alkaline reagents

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

IARC Group 2B - possibly carcinogenic to humans - [Chlordane]

SYMPT Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria; In Animals: lung, liver, kidney damage; [potential occupational carcinogen]

ORGAN Central nervous system, eyes, lungs, liver, kidneys [in animals: liver cancer]

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 67 SAE: 0.13 CLASS: Fully Validated by OSHA

BULK Limit the amount of bulk submitted to one gram or one mL.

Chlordimeform

IMIS **C139** CAS 6164-98-3

SYN N'- (4-Chloro-o-tolyl)-N, N-dimethylformamidine; Bermat; Fundal; Fundex; Galecon

DESC Colorless crystals.
 MW: 196.67

INCOM Alkaline materials

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Chlordimeform]

Chlorinated Camphene (Toxaphene)

IMIS **0612** CAS 8001-35-2

SYN Chlorocamphene, Octachlorocamphene, Polychlorocamphene, Toxaphene

NIOSH RTECS XW5250000 DOT 2761 151

MIOSHA FINAL RULE (Table G-1-A):

TWA 0.5 mg/m³ (Skin)
 STEL 1 mg/m³ (Skin)

DESC Amber, waxy solid with a mild, piney, chlorine- and camphor-like odor. [insecticide]
 MW: 413.8 BP: Decomposes MP: 149 to 194 F

INCOM Strong oxidizers [Note: Slightly corrosive to metals under moist conditions.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

NTP Suspect Human Carcinogen - [Toxaphene]

IARC Group 2B - possibly carcinogenic to humans - [Toxaphene (Polychlorinated camphenes)]

SYMPT Nausea, confusion, agitation, tremor, convulsions, unconsciousness; dry, red skin; [potential occupational carcinogen]

ORGAN Central nervous system, skin [in animals: liver cancer]

SLC1 MEDIA:
 MAX V: 30 Liters MIN V: 2 Liters FLOW: 0.2 to 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: NIOSH 5039 SAE: 0.12 CLASS: Fully Validated
 NOTE: Within 1 hour after the sample has been collected, transfer the filter to a

clean screw cap vial.

Chlorinated Diphenyl Oxide

IMIS **0613** CAS 31242-93-0
SYN Hexachlorodiphenyl oxide; Chlorinated Diphenyl Ether
NIOSH RTECS KO4200000* DOT 3077 171
MIOSHA FINAL RULE (Table G-1-A): TWA 0.5 mg/m3
DESC Appearance and odor vary depending upon the specific compound.
MW: 376.86
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
SYMPT Acne-form dermatitis, liver damage
ORGAN Skin, liver
SLC1 MEDIA:
ANL SOLVENT: Isooctane
MAX V: 200 Liters MAX F: 1.5 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA Modified NIOSH 5025) SAE: 0.12 CLASS: Validated by
NIOSH/OSHA
NOTE: Remove filter and backup pad from cassette and place in scintillation vial
within one hour after sampling

Chlorine (as Available Chlorine)

IMIS **C110** CAS 7782-50-5; 2893-78-9; 87-90-1;
7778-54-3; 2782-57-2
SYN Trichloroisocyanuric acid; Sodium dichloroisocyanurate; Calcium hypochlorite; N-
chloro compounds; Dichloroisocyanuric Acid; Hypochlorites
NIOSH RTECS FO2100000 DOT 1017 124
DESC Greenish-yellow gas with a pungent, irritating odor. [Note: Shipped as a liquefied
compressed gas.]
Properties vary depending upon the specific substance.
INCOM Reacts explosively or forms explosive compounds with many common substances
such as acetylene, ether, turpentine, ammonia, fuel gas, hydrogen & finely divided
metals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Burning of eyes, nose, mouth; lacrimation (discharge of tears), rhinorrhea (discharge
of thin nasal mucus); cough, choking, substernal (occurring beneath the sternum)
pain; nausea, vomiting; headache, dizziness; syncope; pulmonary edema;
pneumonitis; hypoxemia (reduced O₂ in the blood); dermatitis; liquid: frostbite
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Ion Specific Electrode; ISE
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Submit as separate sample. If Chlorine expected also use a PTFE
membrane/ polypropylene cassette, followed by a Midget Fritted Glass Bubbler
(MFGB) containing 15 mL 0.1% Sulfamic Acid for Chlorine Collection. Sample
analyzed for equivalent chlorine levels. After sampling transfer membrane to
separate vial containing 5 mL 0.1% Sulfamic acid. Seal and ship to SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: 0.1% Sulfamic Acid

Chlorine Dioxide

IMIS	0614	CAS	10049-04-4
SYN	Chlorine oxide, Chlorine peroxide		
NIOSH	RTECS FO3000000	DOT	9191 143
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.1 ppm, 0.3 mg/m ³
		STEL	0.3 ppm, 0.9 mg/m ³
DESC	Yellow to red gas or a red-brown liquid (below 52°F) with an unpleasant odor similar to chlorine and nitric acid.		
	MW: 67.5	BP: 52 F	VP: >1 atm MP: -74 F
INCOM	Organic materials, heat, phosphorus, potassium hydroxide, sulfur, mercury, carbon monoxide [Note: Unstable in light. A powerful oxidizer.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Respiratory Effects---Acute lung damage/edema or other. (HE11) Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)		
SYMPT	Irritation eyes, nose, throat; cough, wheezing, bronchitis, pulmonary edema; chronic bronchitis		
ORGAN	Respiratory system, eyes		
SLC1	MEDIA:		
	MAX V: 120 Liters	MAX F: 0.5 L/min (TWA)	
	MAX V: 7.5 Liters	MAX F: 0.5 L/min (STEL)	
	ANL 1: Ion Chromatography; IC		
	REF: OSHA ID-202	SAE: 0.13	CLASS: Fully Validated by OSHA
	MEDIA: Two Midget Impingers (each containing 15 mL of 9.46 x 10 ⁻⁶ M Chlorophenol Red solution) in series, preceded by a Silica Gel Tube (100/50 mg sections) impregnated with Sulfamic Acid and Sodium Hydroxide		
	MAX V: 30 Liters	MAX F: 0.2 L/min (TWA)	
	MAX V: 4.5 Liters	MAX F: 0.3 L/min (STEL)	
	ANL 1: Colorimetric		
	REF: NIOSH Research Report for Chlorine Dioxide May 1982 Contract No. 210-80-0067. U.S. Dept Health and Human Services; NIOSH Division of Physical Sciences & Engineering, Cincinnati, OH. CLASS: Not Validated		
	NOTE: Submit as a separate sample.		
SAM2	DET. TUBE: Sensidyne, 8La, 0.33-16 ppm MSA, 82399, 0.05-15 ppm Kitagawa, 116, 1-20 ppm Draeger, CH 24301, 0.1-1.5 ppm		

Chlorine Trifluoride

IMIS	0615	CAS	7790-91-2
SYN	Chlorine fluoride, Chlorotrifluoride		
NIOSH	RTECS FO2800000	DOT	1749 124
MIOSHA	FINAL RULE (Table G-1-A):		
		CEIL	0.1 ppm, 0.4 mg/m ³
DESC	Colorless gas or a greenish-yellow liquid (below 53°F) with a somewhat sweet, suffocating odor. [Note: Shipped as a liquefied compressed gas.]		
	MW: 92.5	BP: 53 F	VP: >1 atm MP: -105 F
INCOM	Oxidizers, water, acids, combustible materials, sand, glass, metals (corrosive) [Note: Reacts with water to form chlorine & hydrofluoric acid.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14) Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,		

mutagen (except Code HE1 chemicals). (HE2)
 SYMPT Eye, skin burns (liquid or high vapor concentration); resp irritation; In Animals: lacrimation (discharge of tears), corneal ulcer; pulmonary edema
 ORGAN Skin, eyes, respiratory system
 SLC1 MEDIA:
 MAX V: 15 Liters MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Specific Electrode; ISE
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as a separate sample. The sample is analyzed for total F- &/or Cl- and reported as the compound. Proposed sampling and analytical method follows OSHA ID-110.

Chloroacetaldehyde (2-Chloroethanal)

IMIS **0617** CAS 107-20-0
 SYN 2-Chloroethanal, Chloroacetaldehyde (40% aqueous solution), 2-Chloroacetaldehyde
 NIOSH RTECS AB2450000 DOT 2232 153
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 1 ppm, 3 mg/m3
 DESC Colorless liquid with an acrid, penetrating odor. [Note: Typically found as a 40% aqueous solution.]
 MW: 78.5 BP: 186 F MP: -3 F (40% solution) VP: 100 mm
 INCOM Oxidizers, acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT Irritation skin, eyes, mucous membrane; skin burns; eye damage; pulmonary edema; skin, respiratory system sensitization
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MIN V: 7.5 Liters MIN T: 15 Minutes MAX F: 0.5 L/min (CEIL)
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 76 SAE: 0.13 CLASS: Fully Validated by OSHA
 NOTE: After receipt by laboratory, store samples in freezer until analysis. Samples should be shipped on ice, as well.

alpha-Chloroacetophenone

IMIS **0618** CAS 532-27-4
 SYN 2-Chloroacetophenone, Chloromethyl phenyl ketone, Mace®, Phenacyl chloride, Phenyl chloromethyl ketone, Tear gas
 NIOSH RTECS AM6300000 DOT 1697 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 ppm, 0.3 mg/m3
 DESC Colorless to gray crystalline solid with a sharp, irritating odor.
 MW: 154.6 BP: 472 F MP: 134 F VP: 0.005 mm FP: 244 F
 INCOM Water, steam, strong oxidizers [Note: Slowly corrodes metals.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, respiratory system; pulmonary edema
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 12 Liters MAX F: 0.2 L/min

ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA Modified NIOSH 291) CLASS: Partially Validated by
 NIOSH/OSHA
 SLC2 MEDIA:
 ANL SOLVENT: Ethanol
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 COND Column: Zorbax ODS (25 cm x 4.6 mm) Mobile Phase: 60:40 Methanol: Water
 0.1% H3PO4, 0.1% Di-n-butylamine

Chloroacetyl Chloride

IMIS **C145** CAS 79-04-9
 SYN Chloroacetic Acid Chloride; Chloroacetic Chloride; Monochloroacetyl Chloride
 NIOSH RTECS AO6475000 DOT 1752 156
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 ppm, 0.2 mg/m3
 DESC Colorless to yellowish liquid with a strong, pungent odor.
 MW: 112.9 BP: 223 F MP: -7 F VP: 19 mm
 INCOM Water, alcohols, bases, metals (corrosive), amines [Note: Decomposes in water to
 form chloroacetic acid & hydrogen chloride gas.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; cough, wheezing, dyspnea
 (breathing difficulty); lacrimation (discharge of tears)
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 10 Liters MAX F: 0.05 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

o-Chloroaniline

IMIS **C226** CAS 95-51-2
 DOT 2019 152
 DESC Clear amber liquid with an amine odor.
 MW: 127.57 BP: 406 to 410 F MP: 28.5 F FP: 208 F
 INCOM Acids, acid chlorides, acid anhydrides, chloroformates and strong oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

p-Chloroaniline

IMIS **C138** CAS 106-47-8
 SYN 4-Chloroaniline; 4-Chlorobenzeneamine; p-Chlorophenylamine; 1-Amino-4-
 Chlorobenzene
 NIOSH RTECS BX0700000* DOT 2018 152
 DESC A white or pale yellow solid.
 MW: 127.57 BP: 450 F MP: 162.5 F FP: 235 F VP: 0.015 mm
 INCOM Oxidizing agents, acids, acid chlorides, acid anhydrides, chloroformates, and nitrous
 acid.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [para-Chloroaniline]
 SYMPT Inhalation or ingestion causes bluish tint to fingernails, lips, and ears indicative of
 cyanosis; headache, drowsiness, and nausea, followed by unconsciousness. Liquid
 can be absorbed through skin and cause similar SYMPToms. Contact with eyes

causes irritation.
 ORGAN Central nervous system, skin, eyes
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 6 Liters MAX F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

o-Chlorobenzylidene Malononitrile

IMIS **0623** CAS 2698-41-1
 SYN 2-Chlorobenzalmalonitrile, CS, OCBM
 NIOSH RTECS OO3675000 DOT 2810 153
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.05 ppm, 0.4 mg/m3 (Skin)
 DESC White crystalline solid with a pepper-like odor.
 MW: 188.6 BP: 590 to 599 F VP: 0.00003 mm MP: 203 to 205 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 SYMPT Pain, burn eyes, lacrimation (discharge of tears), conjunctivitis; erythema (skin redness) eyelids, blepharospasm; irritation throat, cough, chest tightness; headache; erythema (skin redness), vesiculation skin
 ORGAN Respiratory system, skin, eyes
 SLC1 MEDIA:
 ANL SOLVENT: 20% Methylene Chloride in Hexane
 MAX V: 90 Liters MAX F: 1.5 L/min (TWA)
 MIN T: 15 Minutes MAX F: 1.5 L/min (CEIL)
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA Modified NIOSH 304 SAE: 0.17 CLASS: Fully Validated by NIOSH/OSHA

Chlorodifluoromethane

IMIS **0628** CAS 75-45-6
 SYN Difluorochloromethane, Fluorocarbon-22, Freon® 22, Genetron® 22, Monochlorodifluoromethane, Refrigerant 22
 NIOSH RTECS PA6390000 DOT 1018 126
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 3500 mg/m3
 DESC Colorless gas with a faint, sweetish odor. [Note: Shipped as a liquefied compressed gas.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Asphyxiants, Anoxiants. (HE17)
 Nervous System Disturbances---Narcosis. (HE8)
 Acute Toxicity---Short-term high risk effects. (HE4)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Chlorodifluoromethane]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 1 Liter MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated
 SAM2 MIRAN 1A: Min. Det. Conc. 0.03 ppm at 9.2 um

Chlorodiphenyl (1016)

IMIS **A622** CAS 12674-11-2
SYN Polychlorinated Biphenyl; Aroclor 1016; PCB; Chlorodiphenyl (41% Cl)
NIOSH RTECS TQ1351000* DOT 2315 171
DESC Viscous oily liquid.
BP: 725 to 788 F FP: 286 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Polychlorinated biphenyls]
IARC Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated by
OSHA
BULK Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.

Chlorodiphenyl (21% Cl)

IMIS **C106** CAS 11104-28-2
SYN Arochlor 1221; Aroclor 1221; Polychlorinated Biphenyl; PCB
DOT 2315 171
DESC Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.
BP: 527 to 608 F FP: 286 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Polychlorinated biphenyls]
IARC Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated by
OSHA
NOTE: Collect a sample of the bulk substance and send to the lab in a separate mailing container at the time the air samples are submitted. Indicate on the sample sheet that a bulk sample has been submitted.
BULK Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.

Chlorodiphenyl (32% Cl)

IMIS **C108** CAS 1141-16-5
SYN Arochlor 1232; Aroclor 1232; Polychlorinated Biphenyl; PCB
DOT 2315 171
DESC Colorless to light-colored, viscous liquid with a mild, hydrocarbon odor.
BP: 554 to 617 F FP: 286 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Polychlorinated biphenyls]
IARC Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated by
OSHA
NOTE: Collect a sample of the bulk substance and send to the lab in a separate mailing container at the time the air samples are submitted. Indicate on the sample

sheet that a bulk sample has been submitted.
BULK Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.

Chlorodiphenyl, 42% CI (PCB)

IMIS **0630** CAS 53469-21-9
SYN Arochlor 1242; Aroclor 1242; Polychlorinated Biphenyl; PCB
NIOSH RTECS TQ1356000 DOT 2315 171
MIOSHA FINAL RULE (Table G-1-A): TWA 1.0 mg/m³ (Skin)
DESC Colorless to dark brown liquid with a mild hydrocarbon odor.
MW: 258 BP: 617 to 691 F VP: 0.001 mm MP: -2 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
NTP Suspect Human Carcinogen - [Polychlorinated biphenyls]
IARC Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]
SYMPT Irritation eyes; chloracne; liver damage; reproductive effects; [potential occupational
carcinogen]
ORGAN Skin, eyes, liver, reproductive system [in animals: tumors of the pituitary gland &
liver, leukemia]
LESS1 MEDIA (43): OVS-2 (270/140 mg)
ANL SOLVENT: Toluene
MAX V: 60 Liters REC F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OHL2012S007 CLASS: Partially Validated by
OSHA
NOTE: Collect a sample of the bulk substance and send to the lab in a separate
mailing container at the time the air samples are submitted. Indicate on the sample
sheet that a bulk sample has been submitted.
BULK Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.

Chlorodiphenyl (48% CI)

IMIS **C225** CAS 12672-29-6
SYN Arochlor 1248; Aroclor 1248; Polychlorinated Biphenyl; PCB
NIOSH RTECS TQ1358000 DOT 2315 171
DESC Colorless to dark brown liquid with a mild hydrocarbon odor.
INCOM Strong Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Polychlorinated biphenyls]
IARC Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]
SYMPT Irritation skin, eyes
ORGAN Skin, eyes
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated by OSHA
NOTE: Collect a sample of the bulk substance and send to the lab in a separate
mailing container at the time the air samples are submitted. Indicate on the sample
sheet that a bulk sample has been submitted.
BULK Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.

Chlorodiphenyl, 54% CI (PCB)

IMIS	0631	CAS	11097-69-1
SYN	Arochlor 1254; Aroclor 1254; Polychlorinated Biphenyl; PCB		
NIOSH	RTECS TQ1360000	DOT	2315 171
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.5 mg/m3 (Skin)
DESC	Colorless to pale-yellow, viscous liquid or solid (below 50°F) with a mild, hydrocarbon odor.		
	MW: 326	BP: 689 to 734 F	VP: 6x10E-5 mm MP: 50 F
INCOM	Strong oxidizers		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)		
NTP	Suspect Human Carcinogen - [Polychlorinated biphenyls]		
IARC	Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]		
SYMPT	Irritation eyes, chloracne; liver damage; reproductive effects; [potential occupational carcinogen]		
ORGAN	Skin, eyes, liver, reproductive system. [in animals: tumors of the pituitary gland & liver, leukemia]		
LESS1	MEDIA (43): OVS-2 (270/140 mg) ANL SOLVENT: Toluene MAX V: 60 Liters REC F: 1.0 L/min ANL 1: Gas Chromatography; GC-ECD REF: OHL2012S007 CLASS: Partially Validated by OSHA		
	NOTE: Collect a sample of the bulk substance and send to the lab in a separate mailing container at the time the air samples are submitted. Indicate on the sample sheet that a bulk sample has been submitted.		
BULK	Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.		

Chlorodiphenyl (60% CI)

IMIS	C107	CAS	11096-82-5; 27323-18-8
SYN	Arochlor 1260; Aroclor 1260; Polychlorinated Biphenyl; PCB		
		DOT	2315 171
DESC	Viscous oily liquid.		
	BP: 725 to 788 F	FP: 286 F	
INCOM	Strong oxidizers		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
NTP	Suspect Human Carcinogen - [Polychlorinated biphenyls]		
IARC	Group 1 - carcinogenic to humans - [Polychlorinated biphenyls]		
SLC1	MEDIA: MAX V: 60 Liters MAX F: 1.0 L/min ANL 1: Gas Chromatography; GC-ECD REF: (OSHA In-House File) CLASS: Partially Validated by OSHA		
	NOTE: Collect a sample of the bulk substance and send to the lab in a separate mailing container at the time the air samples are submitted. Indicate on the sample sheet that a bulk sample has been submitted.		
BULK	Limit the amount of bulk submitted to one gram or one mL for oil and 20 g for soil.		

tris-(2-Chloroethyl) Amine

IMIS	R262	CAS	555-77-1
SYN	HN3; HN-3; Trichlormethine; TS 160		

NIOSH RTECS YE2625000*
DESC Colorless to pale yellow liquid with a faint odor of fish and soap, no odor when pure.
A chemical warfare blister agent.
MW: 204.54 BP: 493 F MP: 25 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

bis-(2-Chloroethyl)Sulfide

IMIS **R263** CAS 505-60-2
SYN HD; Mustard Gas
NIOSH RTECS WQ0900000* DOT 2810 153
DESC Clear amber colored oily liquid with a faint odor of mustard/garlic. A chemical warfare blister agent.
MW: 159.08 BP: 419 to 423 F MP: 55 to 57 F FP: 221 F
INCOM Bleaching powder, strong oxidizing materials, acid or acid fumes.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [Mustard Gas]
IARC Group 1 - carcinogenic to humans - [Mustard gas (see Sulfur mustard)]

5-Chloro-2-Methyl-4-Isothiazolin-3-One

IMIS **C626** CAS 26172-55-4
SYN Kathon CG 5243
DESC Liquid
MW: 149.59 MP: 54 to 55 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Chloromethyl Methyl Ether

IMIS **2640** CAS 107-30-2
SYN Chlorodimethyl ether, Chloromethoxymethane, CMME, Dimethylchloroether, Methylchloromethyl ether
NIOSH RTECS KN6650000 DOT 1239 131
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Colorless liquid with an irritating odor.
MW: 80.5 BP: 138 F MP: -154 F FP: (oc) 32 F
INCOM Water [Note: Reacts with water to form hydrochloric acid & formaldehyde.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)
NTP Human Carcinogen - [Chloromethyl Methyl Ether (see Bis(chloromethyl) Ether and Technical-Grade Chloromethyl Methyl Ether)]
IARC Group 1 - carcinogenic to humans - [Chloromethyl methyl ether (see Bis(chloromethyl)ether; chloromethyl methyl ether)]
SYMPT Irritation eyes, skin, mucous membrane; pulmonary edema, pulmonary congestion, pneumonitis; skin burns, necrosis; cough, wheezing, pulmonary congestion; blood stained-sputum; weight loss; bronchial secretions; [potential occupational carcinogen]
ORGAN Eyes, skin, respiratory system. [in animals: skin & lung cancer]
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 50 Liters MAX F: 0.5 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 10 CLASS: Fully Validated by OSHA
NOTE: Derivatizing reagent: 16 g of 2,4,6-Trichlorophenol and 4.4 g of Sodium Methoxide dissolved in 1 Liter of Methanol. Obtain sampling solution from SLTC.

4-Chloro-3-Methylphenol

IMIS **R201** CAS 59-50-7
SYN Chlorocresol; 4-chloro-3-methyl phenol; Chloromethylphenol; Chloromethyl Phenol
DOT 2669 152(solution); 3437 152(solid)
DESC A pinkish to white crystalline solid with a phenolic odor.
MW: 142.58 BP: 455 F MP: 151 F FP: 230 F
INCOM Bases, acid chlorides, acid anhydrides, and oxidizing agents.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

6-Chloro-m-Toluidine-4-Sulfonic Acid

IMIS **C117** CAS 88-53-9
SYN 2-Amino-5-Chloro-4-Methylbenzenesulfonic Acid
DESC Solid.
MW: 221.66
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

alpha-Chloronaphthalene

IMIS **C228** CAS 90-13-1
DOT 3082 171(international)
DESC Clear colorless to amber oily viscous liquid.
MW: 162.62 BP: 505 F MP: -9 to -4 F FP: 250 F
INCOM Strong oxidizing agents
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Chloro-2-Nitrobenzene

IMIS **R282** CAS 88-73-3
SYN O-nitrochlorobenzene
DOT 1578 152
DESC Yellow to green crystals with an aromatic odor.
MW: 157.56 BP: 475 F MP: 90 to 91 F FP: 261 F
INCOM Strong bases and strong oxidizing agents, ammonia.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Chloro-1-Nitropropane

IMIS **0660** CAS 600-25-9
SYN Korax®, Lanstan®
NIOSH RTECS TX5075000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 10 mg/m3
DESC Colorless liquid with an unpleasant odor. [fungicide]
MW: 123.6 BP: 289 F VP: 6 mm (77 F) FP: (oc) 144 F
INCOM Strong oxidizers, acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT In Animals: irritation eyes; pulmonary edema; liver, kidney, heart damage
ORGAN Respiratory system, liver, kidneys, cardiovascular system, eyes
SLC1 MEDIA:
ANL SOLVENT: Ethyl Acetate
MAX V: 12 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S211 SAE: 0.15 CLASS: Fully Validated by
NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 1.6 ppm at 12.4 um

Chloropentafluoroethane

IMIS **C135** CAS 76-15-3
SYN Fluorocarbon-115, Freon® 115, Genetron® 115, Halocarbon 115, Monochloropentafluoroethane
NIOSH RTECS KH7877500 DOT 1020 126
MIOSHA FINAL RULE (Table G-1-A): TWA 1000 ppm, 6320 mg/m3
DESC Colorless gas with a slight, ethereal odor. [Note: Shipped as a liquefied compressed gas.]
MW: 154.5 BP: -38 F MP: -223 F
INCOM Alkalis, alkaline earth metals (e.g., aluminum powder, sodium, potassium, zinc)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Dyspnea (breathing difficulty); dizziness, incoordination, narcosis; nausea, vomiting; heart palpitations, cardiac arrhythmias, asphyxia; liquid: frostbite, dermatitis
ORGAN Skin, central nervous system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 2.5 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Chlorophene

IMIS **C109** CAS 120-32-1
SYN o-Benzyl-p-Chlorphenol; 4-Chloro-alpha-Phenyl-o-Cresol; Chlorophene; Santophen; Septiphene
NIOSH RTECS GO7175000 DOT 3077 171
DESC White to light tan or pink flakes or white crystals.
MW: 218.68 BP: 320 to 324 F MP: 119.3 F FP: 370 F
INCOM Acids and oxidizing agents.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Drowsiness, loss of consciousness, irregular pulse and cyanosis. Irritation skin and throat.
ORGAN Skin, eyes, cardiovascular system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

o-Chlorophenol

IMIS **0672** CAS 95-57-8
SYN 2-Chlorophenol
NIOSH RTECS SK2800000* DOT 2021 153
DESC A colorless to amber liquid with an unpleasant, penetrating odor.
MW: 128.56 BP: 347 to 349 F MP: 48.2 F FP: 147 F
INCOM Oxidizing agents, acid chlorides, and acid anhydrides
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 40 Liters MIN V: 1.5 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV

p-Chlorophenol

IMIS **0673** CAS 106-48-9
SYN 4-Chlorophenol
NIOSH RTECS SK2800000* DOT 2020 153
DESC White crystals with a strong phenol odor.
MW: 128.56 BP: 428 F MP: 109.8 to 110.7 F FP: 250 F
INCOM Acid chlorides, acid anhydrides and oxidizing agents.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Polychlorophenols and their sodium salts (mixed exposures) (see Pentachlorophenol; 2,4,6-Trichlorophenol)]
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 40 Liters MIN V: 1.5 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 2014 SAE: 0.15 CLASS: Fully Validated by
NIOSH

Chloropicrin

IMIS **0675** CAS 76-06-2
SYN Nitrotrichloromethane; Trichloronitromethane; Nitrochloroform
NIOSH RTECS PB6300000 DOT 1580 154; 1583 154(mixture, n.o.s.)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.7 mg/m3
DESC Colorless to faint-yellow, oily liquid with an intensely irritating odor. [pesticide]
MW: 164.4 BP: 234 F VP: 18 mm MP: -93 F
INCOM Strong oxidizers [Note: The material may explode when heated under confinement.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT Irritation eyes, skin, respiratory system; lacrimation (discharge of tears); cough,
pulmonary edema; nausea, vomiting
ORGAN Respiratory system, skin, eyes
SLC1 MEDIA:
ANL SOLVENT: Ethyl acetate
MAX V: 5 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated
SAM2 DET. TUBE: Sensidyne, 134, 1-60 ppm
MIRAN IA & IB: MIN. Det. Con. 0.1 ppm at 11.5 um

beta-Chloroprene (2-Chloro-1,3-Butadiene)

IMIS **0680** CAS 126-99-8
SYN Chlorobutadiene, 2-Chloro-1,3-butadiene, Chloroprene
NIOSH RTECS EI9625000 DOT 1991 131p(inhibited)
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 35 mg/m3 (Skin)
DESC Colorless liquid with a pungent, ether-like odor.
MW: 88.5 BP: 139 F VP: 188 mm MP: -153 F FP: -4 F
INCOM Peroxides & other oxidizers [Note: Polymerizes at room temperature unless inhibited
with antioxidants.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

NTP Suspect Human Carcinogen - [Chloroprene]

IARC Group 2B - possibly carcinogenic to humans - [Chloroprene]

SYMPT Irritation eyes, skin, respiratory system; anxiety, irritability; dermatitis; alopecia; reproductive effects; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system, reproductive system

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 6 Liters MAX F: 0.05 L/min (TWA)
 MAX V: 1.5 Liters MAX F: 0.1 L/min (STEL)
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 112 SAE: 0.15 CLASS: Fully Validated by OSHA

SLC2 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 8 Liters MIN V: 1.5 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1002 SAE: 0.12 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 0.7 ppm at 11.4 um

WIPE Wipe with charcoal pad, seal in glass vial for shipment.

o-Chlorostyrene

IMIS **0682** CAS 2039-87-4

SYN 1-Chloro-2-ethenylbenzene, 2-Chlorostyrene, ortho-Chlorostyrene

NIOSH RTECS WL4160000

MIOSHA FINAL RULE (Table G-1-A):
 TWA 50 ppm, 285 mg/m3
 STEL 75 ppm, 428 mg/m3

DESC Colorless liquid.
 MW: 138.6 BP: 372 F MP: -82 F FP: 138 F

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT In Animals: irritation eyes, skin; hematuria (blood in the urine), proteinuria, acidosis; enlarged liver, jaundice

ORGAN Eyes, skin, liver, kidneys, central nervous system, peripheral nervous system

SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 20 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA Modified NIOSH 1003 CLASS: Not Validated

Chlorothalonil

IMIS **C629** CAS 1897-45-6

SYN Bravo; Tetrachloroisophthalonitrile; Chlorthalonil; Daconil; Forturf

NIOSH RTECS NT2600000 DOT 3276 151

DESC Colorless crystals or granules or light gray powder, used as a fungicide.
 MW: 265.91 BP: 662 F MP: 482 to 484 F

INCOM Strong oxidizing agents, peroxides and epoxides
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Chloroethalonil]
 SYMPT Dermatitis and gastrointestinal, skin and upper respiratory tract irritation.
 ORGAN Skin, respiratory system, gastrointestinal system
 SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 180 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

m-Chlorotoluene

IMIS **C609** CAS 108-41-8
 DOT 2238 129
 DESC Colorless liquid.
 MW: 126.58 BP: 324 F MP: -54 F FP: 126 F
 INCOM Generally unreactive. May be incompatible with strong oxidizing and reducing agents. May be incompatible with many amines, nitrides, azo/diazo compounds, alkali metals, and epoxides.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

o-Chlorotoluene

IMIS **0683** CAS 95-49-8
 SYN 1-chloro-2-methylbenzene; 2-chloro-1-methylbenzene; 2-chlorotoluene; o-tolyl chloride
 NIOSH RTECS XS9000000 DOT 2238 129
 MIOSHA FINAL RULE (Table G-1-A): TWA 50 ppm, 250 mg/m3
 DESC Colorless liquid with an aromatic odor.
 MW: 126.6 BP: 320 F MP: -31 F FP: 96 F
 INCOM Acids, alkalis, oxidizers, reducing materials, water
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 SYMPT Irritation eyes, skin, mucous membrane; dermatitis; drowsiness, incoordination, anesthesia; cough; liver, kidney injury
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

p-Chlorotoluene

IMIS **0688** CAS 106-43-4
 SYN 4-Chlorotoluene
 DESC A colorless liquid.
 MW: 126.58
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Chloro-6-(Trichloromethyl) Pyridine (Nitrapyrin) (Respirable Fraction)

IMIS **C147** CAS 1929-82-4
 SYN 2-Chloro-6-(trichloro-methyl)pyridine, Nitrapyrin, N-serve®, 2,2,2,6-Tetrachloro-2-picoline

NIOSH RTECS US7525000 DOT 2811 154
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC Colorless or white, crystalline solid with a mild, sweet odor.
 MW: 230.9 MP: 145 F
 INCOM Aluminum, magnesium [Note: Emits oxides of nitrogen and chloride ion when heated to decomposition.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT No adverse effects noted in ingestion studies with animals.
 ORGAN Eyes, skin
 SLC1 MEDIA:
 MAX V: 1200 Liters MAX F: 2.5 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV or Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Preceded by a SKC aluminum cyclone.

2-Chloro-6-(Trichloromethyl) Pyridine (Nitrapyrin) (Total Dust)

IMIS **0684** CAS 1929-82-4
 SYN 2-Chloro-6-(trichloro-methyl)pyridine, Nitrapyrin, N-serve®, 2,2,2,6-Tetrachloro-2-picoline
 NIOSH RTECS US7525000 DOT 2811 154
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 15 mg/m3
 DESC Colorless or white, crystalline solid with a mild, sweet odor.
 MW: 230.9 MP: 145 F
 INCOM Aluminum, magnesium [Note: Emits oxides of nitrogen and chloride ion when heated to decomposition.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT No adverse effects noted in ingestion studies with animals.
 ORGAN Eyes, skin
 SLC1 MEDIA:
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV or Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated

Chlorotrifluoroethylene

IMIS **C329** CAS 79-38-9
 SYN 2-Chloro-1, 1,2-trifluoroethylene; CTFE; Trithene; Trifluorochloroethylene; Fluoroplast 3; Genetron 1113; Daiflon; Trifluorovinyl Chloride
 NIOSH RTECS KV0525000* DOT 1082 119
 Hazard Class = 2.3 (Poison Gas)
 DESC Colorless gas with a faint ethereal odor.
 MW: 116.5 BP: -18 F
 INCOM Strong oxidizing and reducing agents, with many amines; nitrides; azo/diazo compounds; alkali metals; strong oxidizers such as chlorine perchlorate, oxygen, bromine; and epoxides.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 10 Liters MAX F: 0.25 L/min

1-Chloro-4-Trifluoromethylbenzene

IMIS **R249** CAS 98-56-6
SYN Benzene 1-chloro-4-(trifluoromethyl); p-chlorobenzotrifluoride; (p-chlorophenyl)trifluoromethane; p-(trifluoromethyl)chlorobenzene; p-trifluoromethylphenyl chloride; p-chloro- α , α , α -trifluorotoluene
NIOSH RTECS XS9145000* DOT 2234 130
DESC Clear colorless liquid with aromatic color.
MW: 180.56 BP: 277 to 280 F MP: -33 F FP: 117 F
INCOM Oxidizing materials, permanganates, dichromates, strong bases, and sodium dimethyl
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [4-Chlorobenzotrifluoride]
SYMPT Irritation skin, eyes, respiratory system, central nervous system depression and dermatitis due to defatting of the skin, coughing, wheezing, a burning sensation, laryngitis, shortness of breath, headache, nausea, vomiting, lung irritation, chest pain, edema (which may be fatal), and irritation to mucous membranes.
ORGAN Skin ,eyes, central nervous system, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (WOHL) CLASS: Not Validated

Chlorpyrifos

IMIS **0681** CAS 2921-88-2
SYN Chlorpyrifos-ethyl, O,O-Diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate, Dursban®
NIOSH RTECS TF6300000 DOT 2738 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3 (Skin)
DESC Colorless to white, crystalline solid with a mild, mercaptan-like odor. [pesticide]
[Note: Commercial formulations may be combined with combustible liquids.]
MW: 350.6 BP: 320 F (Decomposes) MP: 108 F
INCOM Strong acids, caustics, amines [Note: Corrosive to copper & brass.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Wheezing, laryngeal spasms, salivation; bluish lips, skin; miosis, blurred vision; nausea, vomiting, abdominal cramps, diarrhea
ORGAN Respiratory system, central nervous system, peripheral nervous system, plasma cholinesterase
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: OSHA 62 SAE: 0.15 CLASS: Fully Validated by OSHA
WIPE MEDIA: Glass Fiber Filter (37 mm)

Chromium (VI) (Hexavalent Chromium)

IMIS **0689** (TWA), **0691** (ACTION LEVEL), **0694** (AEROSPACE PAINT)
IMIS Codes History: **0686**, Chromic Acid & Chromates (as CrO₃) prior to 5/30/2006;

	and 0473 , tert-Butyl Chromate (as CrO ₃) prior to 5/30/2006
SYN	Ammonium Dichromate (7789-09-5); Barium Chromate (10294-40-3); tert-Butyl Chromate (1189-85-1); Calcium Chromate (13765-19-0); Chromium (VI) Trioxide (1333-82-0); Chromium (VI) ion (7440-47-3); Hexavalent Chromium (18540-29-9); Lead Chromate (7758-97-6); Potassium Chromate (7789-00-6); Potassium Dichromate (7778-50-9); Silver Chromate (7784-01-2); Sodium Chromate (7775-11-3); Sodium Dichromate (10588-01-9); Strontium Chromate (7789-06-2); Zinc Chromate (13530-65-9); Zinc Dichromate (14018-95-2)
NIOSH	RTECS GB6650000 DOT 1463 141; 1755 154
MIOSHA	FINAL RULE (Table G-1-A) Chromium (VI) In General Industry (29 CFR 1910.1026): TWA 5 µg/m ³ AL 2.5 µg/m ³ CEIL 0.1 mg/m ³ *
	*If the exposure limit in OH Part 315. "Chromium (VI) in General Industry is stayed or otherwise not in effect, the exposure limit is a ceiling of 0.1 mg/m ³ .
OSHA	FINAL RULE (TABLE Z-1) Permissible Exposure Limit for General Industry (29 CFR 1910.1000 – 29 CFR 1910.1026): TWA 0.005 mg/m ³ or 5 µg/m ³ AL 0.0025 mg/m ³ or 2.5 µg/m ³ FINAL RULE (TABLE Z-1) Painting of aerospace industry's aircraft or large aircraft parts (29 CFR 1910.1000 – 29 CFR 1910.1026): TWA 0.025 mg/m ³ or 25 µg/m ³ FINAL RULE (TABLE Z-1) Permissible Exposure Limit for Construction Industry (29 CFR 1926.55 Appendix A -- 29 CFR 1926.1126): TWA 0.005 mg/m ³ or 5 µg/m ³ AL 0.0025 mg/m ³ or 2.5 µg/m ³ FINAL RULE (TABLE Z-1) Permissible Exposure Limit for Maritime (29 CFR 1915.1000 Table Z-Shipyards -- 29 CFR 1915.1026) TWA 0.005 mg/m ³ or 5 µg/m ³ AL 0.0025 mg/m ³ or 2.5 µg/m ³
	NOTE: Applies to all occupational exposures to Chromium (VI) except application of pesticides regulated by the Environmental Protection Agency or another Federal government agency (e.g., the treatment of wood with preservatives); portland cement; or where the employer has objective data demonstrating that a material containing chromium or a specific process, operation, or activity involving chromium cannot release dusts, fumes, or mists of chromium (VI) in concentrations at or above 0.5 µg/m ³ as a TWA under any expected conditions of use.
DESC	Appearance and odor vary depending upon specific compound; CrO ₃ Dark-red, odorless flakes or powder.
	MW: 100.0 BP: 482 F (Decomposes) MP: 387 F (Decomposes)
INCOM	Combustible, organic, or other readily oxidizable materials: paper, wood, sulfur, aluminum, plastics, etc. corrosive to metals
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2) Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14) Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
NTP	Human Carcinogen - [Chromium (VI) (see Chromium Hexavalent Compounds)]
IARC	Group 1 - carcinogenic to humans - [Chromium (VI) compounds] NOTE: NIOSH Immediately Dangerous To Life or Health Concentration (IDLH): 15 mg/m ³ [as Cr (VI)]
SYMPT	Irritation respiratory system; nasal septum perforation; liver, kidney damage; leukocytosis (increased blood leukocytes), leukopenia (reduced blood leukocytes),

	eosinophilia; eye injury, conjunctivitis; skin ulcer, sensitization dermatitis; [potential occupational carcinogen]
ORGAN	Blood, respiratory system, liver, kidneys, eyes, skin [lung cancer] NOTES: 1) OSHA's new Hexavalent Chromium Standard (29 CFR 1910.1026; 1915.1026; and 1926.1126) was published on 2/28/06. 2) Studies with cultured human lung cells demonstrate that hexavalent chromium can cause damage to DNA (clastogenicity). 3) Skin-patch testing of patients sensitive to chromium (VI) showed a minimum eczema elicitation threshold at 0.03-µg/cm ² /48 hr (1 ppm) of chromium (VI) and at 0.18-µg/cm ² /48 hr (6 ppm) of chromium (III). 4) EPA's oral reference dose (RfD, the daily oral exposure likely to be without an appreciable risk of deleterious effects during a lifetime) of chromium (VI) is 0.003 mg/kg/day. EPA's reference concentration (RfC) for particulate chromium (VI) is 0.0001 mg/m ³ .
SLC1	MEDIA: For Welding and Painting Operations use Hexavalent Chromium Filters and Cassettes (37 mm PVC) or (25 mm PVC). For Plating Operations use 37 mm Quartz Fiber Filter coated with 1% NaOH. CAUTION: Do not use the coated quartz fiber filters for any operation other than chromium plating. ANL SOLVENT: Carbonate/Bicarbonate Buffer MAX V: 960 Liters MAX F: 2.0 L/min (TWA) MIN V: 30 Liters MAX F: 2.0 L/min (CEIL) ANL 1: Ion Chromatography; IC-UV following post column derivatization. REF: OSHA ID-215 SAE: 0.18 CLASS: Fully Validated by OSHA NOTE: All samples taken for CHROMIUM VI COMPOUNDS should be shipped to the OSHA SLTC within 24 hours after sampling by overnight delivery for stabilization and analysis.
WIPE	MEDIA: 37-mm PVC filter or 37-mm binderless quartz fiber filters REF: OSHA W4001 CLASS: Fully Validated by OSHA NOTE: All samples taken for CHROMIUM VI COMPOUNDS should be shipped to the OSHA SLTC within 24 hours after sampling by overnight delivery for stabilization and analysis.

C.I. Direct Orange 6, Disodium Salt

IMIS	C328	CAS	6637-88-3
SYN	Nippon Orange GG; NSC 47742		
DESC	Reddish-brown powder. MW: 588.53		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Cinamaldehyde

IMIS	C615	CAS	104-55-2
DESC	Clear to yellow oily liquid with a cinnamon odor. MW: 132.16		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Citric Acid

IMIS	C136	CAS	77-92-9
DESC	Colorless, odorless crystals with an acid taste MW: 192.14 BP: Decomposes MP: 307 F (anhydrous)		
INCOM	Oxidizing agents, bases, reducing agents and metal nitrates		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Clopidol (Respirable Fraction)

IMIS	C148	CAS	2971-90-6
SYN	Coyden®, 3,5-Dichloro-2,6-dimethyl-4-pyridinol		

NIOSH RTECS UU7711500
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC White to light-brown, crystalline solid.
MW: 192.1 MP: >608 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
SYMPT Irritation eyes, skin, nose, throat; cough
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 204 Liters MAX F: 2.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Preceded by a SKC aluminum cyclone.

Clopidol (Total Dust)

IMIS **0693** CAS 2971-90-6
SYN Coyden®, 3,5-Dichloro-2,6-dimethyl-4-pyridinol
NIOSH RTECS UU7711500;
MIOSHA FINAL RULE (Table G-1-A):
TWA 15 mg/m3
DESC White to light-brown, crystalline solid.
MW: 192.1 MP: >608 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
SYMPT Irritation eyes, skin, nose, throat; cough
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Cobalt Acetate

IMIS **C604** CAS 71-48-7
SYN Cobaltous acetate
DESC Red-violet crystalline solid. Vinegar-like odor.
MW: 249.1 MP: 284 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Cobalt Acetate (see Cobalt-Related Exposures)]
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 SAE: 0.12 CLASS: Not Validated
NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. When analysis of this compound is requested, an elemental analysis for Cobalt is performed and reported as the compound. [OSHA ID-125G]

Cobalt Carbonyl (as Co)

IMIS **C100** CAS 10210-68-1

SYN Di-mu-Carbonylhexacarbonyldicobalt, Cobalt octacarbonyl, Cobalt tetracarbonyl dimer, Dicobalt carbonyl, Dicobalt Octacarbonyl, Octacarbonyldicobalt
NIOSH RTECS GG0300000 DOT 3190 135
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3
DESC Orange to dark-brown, crystalline solid. [Note: The pure substance is white.]
MW: 341.9 BP: 126 F (Decomposes) MP: 124 F
INCOM Air [Note: Decomposes on exposure to air or heat; stable in atmosphere of hydrogen & carbon monoxide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, mucous membrane; cough, decreased pulmonary function, wheezing, dyspnea (breathing difficulty); In Animals: liver, kidney injury, pulmonary edema
ORGAN Eyes, skin, respiratory system, blood, central nervous system
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Analysis is for total Cobalt. Proposed sampling and analytical procedure follows OSHA Method ID-121.

Cobalt Hydrocarbonyl (as Co)

IMIS **C102** CAS 16842-03-8
SYN Hydrocobalt tetracarbonyl, Tetracarbonylhydridocobalt, Tetracarbonylhydrocobalt
NIOSH RTECS GG0900000 DOT 3281 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3
DESC Gas with an offensive odor
MW: 172.0 MP: -15 F
INCOM Air [Note: Unstable gas that decomposes rapidly in air at room temperature to cobalt carbonyl & hydrogen.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation respiratory system; dyspnea (breathing difficulty), cough, decreased pulmonary function, pulmonary edema
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: This unstable catalytic intermediate decomposes on contact with air. Proposed sampling and analytical method follows OSHA Method ID-121 for total Cobalt.

Cocaine

IMIS **C726** CAS 50-36-2
SYN 1-alpha-H,S-alpha-H-Tropane-2-Beta-Carboxylic Acid, 3-beta-Hydroxy-, Methyl Ester, Benzoate; Methylbenzoylecgonine
NIOSH RTECS YM2800000*
DESC MW: 303.35
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Coke Oven Emissions

IMIS **0725**

NIOSH RTECS GH0346000
MIOSHA FINAL RULE (Table G-1-A) Coke Oven Emissions (29 CFR 1910.1029):
TWA 150 µg/m³

DESC Emissions released during the carbonization of bituminous coal for the production of coke.

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)

NTP Human Carcinogen - [Coke Oven Emissions]

IARC Group 1 - carcinogenic to humans - [Coke production]

SYMPT Irritation eyes, respiratory system; cough, dyspnea (breathing difficulty), wheezing; [potential occupational carcinogen]

ORGAN Skin, respiratory system, urinary system

SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: OSHA 58 SAE: 0.14 CLASS: Fully Validated by OSHA
NOTE: Validation in conjunction with Coal Tar Pitch Volatiles and Coke Oven Emissions.
NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight.

% Combustible Dust

IMIS **E200**

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Combustible Material

IMIS **M110**

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Command

IMIS **C229** CAS 81777-89-1

SYN Clomazone; dimethazone, Command herbicide, Gamit

DESC Clear colorless to light brown viscous liquid.
MW: 239.7 BP: 527 F MP: 77 F FP: 106 to 109 F

INCOM Strong oxidizing agents and alkaline materials

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated

Co-Ral

IMIS **0736** CAS 56-72-4

SYN Coumaphos; O,O-diethyl O-(3-chloro-4-methyl-2-oxo(2H)-1-benzopyran-7-yl)phosphorothioate; Diolice; Meldane; Muscatox; Resistox; Asuntol; Bay 21/199; Bazmix; Umbethion

NIOSH RTECS GN6300000* DOT 2783 152(solid); 3018 152(liquid)
 DESC Tan crystalline solid; used in controlling livestock insects.
 MW: 362.78 BP: 68 F (1x10-7 mm) MP: 196 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)

Coronene

IMIS **C116** CAS 191-07-1
 NIOSH RTECS GM5400000
 DESC Dark yellow powder.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Coronene]
 SLC1 MEDIA:
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Cotton Dust (Raw)

IMIS **0735**
 NIOSH RTECS GN2275000 DOT 1365 133(cotton)
 MIOSHA FINAL RULE (Table G-1-A) Cotton Dust (29 CFR 1910.1043):
 TWA 1 mg/m3
 NOTE: This 8-hour TWA applies to respirable dust as measured by a vertical elutriator cotton dust sampler or equivalent instrument. The time-weighted average applies to the cotton waste processing operations of waste recycling (sorting, blending, cleaning, and willowing) and garretting. See also 1910.1043 for cotton dust limits applicable to other sectors.
 DESC Colorless, odorless solid.
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
 Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
 SYMPT Byssinosis: chest tightness, cough, wheezing, dyspnea (breathing difficulty); decreased forced expiratory volume; bronchitis; malaise (vague feeling of discomfort); fever, chills, upper resp SYMPToms after initial exposure
 ORGAN Cardiovascular system, respiratory system
 SLC1 MEDIA:
 MAX V: 2664 Liters MAX F: 7.4 L/min
 ANL 1: Field Gravimetric Method
 REF: 1910.1043 [Appendix A] CLASS: Fully Validated by OSHA
 NOTE: If sample weight exceeds PEL in slashing/weaving, sample may be submitted for oil mist analysis. In order to avoid filter-overloading, sampling time may be shortened when sampling in dusty areas.

Coumarin

IMIS **C618** CAS 91-64-5
SYN Coumarin; 1,2-Benzopyrone-2H-1-benzopyran-2-one; Lactone; Coumaric Acid; Tonka Bean Camphor; Diesel Exhaust Component cis-o-coumaric acid lactone
NIOSH RTECS GN4200000* DOT 2811 154
DESC Colorless crystals, flakes or colorless to white powder with a pleasant fragrant vanilla odor and a bitter aromatic burning taste.
MW: 146.15 BP: 568 F MP: 154 to 158 F FP: 304 F
INCOM Strong acids, bases, and oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
Group 3 - not classifiable as to its carcinogenicity to humans - [Coumarin]
SYMPT Narcosis, irritation and liver damage.
ORGAN Skin, liver
SLC1 MEDIA:
ANL SOLVENT: (90/10) Methylene Chloride/Methanol
MAX V: 96 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Crag Herbicide (Sesone) (Respirable Fraction)

IMIS **C149** CAS 136-78-7
SYN Crag® herbicide No. 1, 2-(2,4-Dichlorophenoxy)ethyl sodium sulfate, Sesone
NIOSH RTECS KK4900000
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC Colorless to white crystalline, odorless solid. [herbicide]
MW: 309.1 BP: Decomposes MP: 473 F (Decomposes) VP: 0 mm (approx.)
INCOM Strong oxidizers, acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin; liver, kidney damage; In Animals: central nervous system effects, convulsions
ORGAN Eyes, skin, central nervous system, liver, kidneys
SLC1 MEDIA:
MAX V: 1200 Liters MIN V: 600 Liters MAX F: 2.0 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
ANL 2: Colorimetric
REF: NIOSH S356 SAE: 0.09 CLASS: Fully Validated by NIOSH
NOTE: Preceded by a SKC aluminum cyclone

Crag Herbicide (Sesone) (Total Dust)

IMIS **0737** CAS 136-78-7
SYN Sodium 2,4-dichlorophenoxyethyl sulphate; Sodium 2,4-Dichlorophenyl Cellosolve Sulfate; Sesone; Disul-sodium
NIOSH RTECS KK4900000
MIOSHA FINAL RULE (Table G-1-A):

TWA 10 mg/m³

DESC Colorless to white crystalline, odorless solid. [herbicide]
 MW: 309.1 BP: Decomposes MP: 473 F (Decomposes) VP: 0 mm (approx.)

INCOM Strong oxidizers, acids

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

SYMPT Irritation eyes, skin; liver, kidney damage; In Animals: central nervous system effects, convulsions

ORGAN Eyes, skin, central nervous system, liver, kidneys

SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
 ANL 2: Colorimetric
 REF: NIOSH S356 SAE: 0.09 CLASS: Fully Validated by NIOSH

Creosote

IMIS **C129** CAS 8001-58-9

SYN Wood-tar creosote mixture of phenols and phenolic derivatives-- Synonyms-Creosote and Beechwood Coal-tar Creosote contains significant amounts of naphthalene and anthracene-- Synonyms-Creosote Oil, Liquid Pitch Oil, and Tar Oil

DOT 3082 171

DESC A colorless to yellowish oily liquid with a smoky odor and caustic burning taste.
 MW: Varies BP: 397 F FP: 165 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]

IARC Group 2A - probably carcinogenic to humans - [Creosotes]

SLC1 MEDIA:
 NOTE: Suggested chemicals for sampling would be phenol, cresols, naphthalene, or PNA's.

Crotonaldehyde

IMIS **0770** CAS 123-73-9; 4170-30-3

SYN 2-Butenal, β -Methyl acrolein, Propylene aldehyde

NIOSH RTECS GP9625000 DOT 1143 131p

MIOSHA FINAL RULE (Table G-1-A):
 style="text-align: right;">TWA 2 ppm, 6 mg/m³

DESC Water-white liquid with a suffocating odor. [Note: Turns pale-yellow on contact with air.]
 MW: 70.1 BP: 219 F VP: 19 mm MP: -101 F FP: 45 F

INCOM Caustics, ammonia, strong oxidizers, nitric acid, amines [Note: Polymerization may occur at elevated temperatures, such as in fire conditions.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)

IARC Group 2B - possibly carcinogenic to humans - [Crotonaldehyde]

SYMPT Irritation eyes, respiratory system; In Animals: dyspnea (breathing difficulty),

pulmonary edema, irritation skin
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 6 Liters MAX F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 81 SAE: 0.12 CLASS: Fully Validated by OSHA
 NOTE: Collect the sample open-faced, protect samples from light and heat.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.3 ppm at 8.7 um

Crufomate

IMIS **0776** CAS 299-86-5
 SYN 4-t-Butyl-2-chlorophenylmethyl methylphosphoramidate, Dowco® 132, Ruelene®
 NIOSH RTECS TB3850000 DOT 3077 171(international)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC White, crystalline solid in pure form. [pesticide] [Note: Commercial product is a yellow oil.]
 MW: 291.7 BP: Decomposes MP: 140 F
 INCOM Strongly alkaline & strongly acidic media [Note: Unstable over long periods in aqueous preparations or above 140°F.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 SYMPT Irritation eyes, skin, respiratory system; wheezing, dyspnea (breathing difficulty); blurred vision, lacrimation (discharge of tears); sweating; abdominal cramps, diarrhea, nausea, anorexia
 ORGAN Eyes, skin, respiratory system, blood cholinesterase
 SLC1 MEDIA:
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated

Cryptococcus Neoformans

IMIS **0778**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cumene Hydroperoxide

IMIS **C616** CAS 80-15-9
 NIOSH RTECS MX2450000 DOT 3109 145
 DESC Colorless to light yellow liquid with a sharp, irritating odor.
 MW: 152.21 BP: Decomposes (261 F) MP: <-40 F FP: 135 F
 INCOM May react explosively with reducing agents. Violent reaction occurs upon contact with copper, copper alloys, lead alloys, and mineral acids. Contact with charcoal powder gives a strong exothermic reaction.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Inhalation of vapor causes headache and burning throat. Liquid causes severe irritation of eyes; on skin, causes burning, throbbing sensation, irritation, and blisters. Ingestion causes irritation of mouth and stomach.
 ORGAN Throat, eyes, skin, mouth, stomach
 SLC1 MEDIA:
 MAX V: 120 Liters MAX F: 1.0 mL/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Cyanamide

IMIS **0782** CAS 420-04-2
SYN Amidocyanogen, Carbimide, Carbodiimide, Cyanogen nitride, Hydrogen cyanamide
[Note: Cyanamide is also a synonym for Calcium cyanamide.]
NIOSH RTECS GS5950000 DOT 2811 154
MIOSHA FINAL RULE (Table G-1-A): TWA 2 mg/m3
DESC Crystalline solid
MW: 42.1 BP: 500 F (Decomposes) MP: 113 F FP: 286 F
INCOM Above 104°F: Moisture, acids, or alkalis; 1,2-phenylene diamine salts [Note:
Polymerization may occur on evaporation of aqueous solutions.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; miosis, salivation,
lacrimation (discharge of tears), twitching; Antabuse-like effects
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Cyanide (as Cn)

IMIS **0790** CAS 57-12-5; 151-50-8; 143-33-9; 592-01-8
SYN Synonyms vary between cyanide compounds: Cyanide; potassium cyanide; sodium
cyanide, calcium cyanide
NIOSH RTECS TS8750000; VZ752000; EW0700000
DOT 1588 157
MIOSHA FINAL RULE (Table G-1-A): TWA 5 mg/m3 (Skin)
DESC Generally white crystals or powders, but possibly colored.
MW: 26.0
INCOM Strong oxidizers, such as nitrates, chlorates, acids, acid salts
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Asphyxia & death can occur; weakness; headache; confusion; nausea, vomiting;
incoherentness; rates in respiration, slow gasping respiration; eye, skin irritation
ORGAN Cardiovascular system, central nervous system, pulmonary system, liver, kidneys,
skin
LESS1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 90 liters MIN V: 2 Liters MAX F: 0.2 L/min
ANL 1: Spectrophotometry; VA
REF: NIOSH 6010 CLASS: Fully Validated by
NIOSH

Cyanoethyl Acrylate

IMIS **C608** CAS 106-71-8
DESC Colorless liquid.
MW: 125.13
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cyanogen

IMIS **0800** CAS 460-19-5
SYN Carbon nitride, Dicyan, Dicyanogen, Ethanedinitrile, Oxalonitrile
NIOSH RTECS GT1925000 DOT 1026 119
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 20 mg/m3
DESC Colorless gas with a pungent, almond-like odor. [Note: Shipped as a liquefied compressed gas. Forms cyanide in the body.]
MW: 52.0 BP: -6 F MP: -18 F VP: 5.1 atm (70 F)
INCOM Acids, water, strong oxidizers (e.g., dichlorine oxide, fluorine) [Note: Slowly hydrolyzed in water to form hydrogen cyanide, oxalic acid, or ammonia.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Irritation eyes, nose, upper respiratory system; lacrimation (discharge of tears); cherry red lips, tachypnea, hypernea, bradycardia; headache, convulsions; dizziness, loss of appetite, weight loss; liquid: frostbite
ORGAN Eyes, respiratory system, central nervous system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 12 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Partially Validated
SAM2 DET. TUBE: MSA, 91624, 2-100 ppm, Pyrolyzer required
MIRAN IA & IB: Min. Det. Con. 20 ppm at 4.7 um

Cyanogen Chloride

IMIS **C146** CAS 506-77-4
SYN Chlorcyan, Chlorine cyanide, Chlorocyanide, Chlorocyanogen
NIOSH RTECS GT2275000 DOT 1589 125(inhibited)
MIOSHA FINAL RULE (Table G-1-A):
CEIL 0.3 ppm, 0.6 mg/m3
DESC MW: 61.5 BP: 55 F MP: 20 F
INCOM Water, acids, alkalis, ammonia, alcohols [Note: Can react very slowly with water to form hydrogen cyanide. May be stabilized to prevent polymerization.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, upper respiratory system; cough, delayed pulmonary edema; lassitude (weakness, exhaustion), headache, dizziness, confusion, nausea, vomiting; irreg heartbeat; irritation skin (liquid)
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Toluene
MIN T: 5 Minutes MAX F: 0.2 L/min (Ceil)
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Partially Validated

Cyanoguanidine

IMIS **C125** CAS 461-58-5
DESC Pellets of large crystals; white odorless solid.
MW: 84.08
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cyanuric Acid

IMIS **R216** CAS 108-80-5
SYN 2,4,6-Trihydroxy-1, 3,5-triazine; Isocyanuric Acid; 1,3,5-Triazine-2, 4,6(1H, 3H, 5H)-trione
DESC Crystals
MW: 129.08 BP: Decomposes MP: >680 F (Decomposes)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (5/95) Methanol/Water (10 minutes in sonic bath)
MAX V: 1000 Liters MIN V: 10 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 5030 CLASS: Partially Validated by NIOSH
NOTE: Trichloroisocyanuric acid will interfere because it reacts with water to form cyanuric acid.
COND Column: C18 Mobile Phase: 0.005 M Na₂HPO₄ 5:95 Methanol: Water Detector: 225 nm

Cyanuric Chloride

IMIS **C127** CAS 108-77-0
DOT 2670 157
DESC A colorless crystalline solid with a pungent odor.
MW: 184.41
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cyclohexanol

IMIS **0820** CAS 108-93-0
SYN Anol, Cyclohexyl alcohol, Hexahydrophenol, Hexalin, Hydralin, Hydroxycyclohexane
NIOSH RTECS GV7875000 DOT 1993 128(combustible liquid n.o.s.)
MIOSHA FINAL RULE (Table G-1-A):
TWA 50 ppm, 200 mg/m³ (Skin)
DESC Sticky solid or colorless to light-yellow liquid (above 77°F) with a camphor-like odor.
MW: 100.2 BP: 322 F VP: 1 mm MP: 77 F FP: 154 F
INCOM Strong oxidizers (such as hydrogen peroxide & nitric acid)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Narcosis. (HE8)
SYMPT Irritation eyes, skin, nose, throat; narcosis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1402 SAE: 0.13 CLASS: Partially Validated by NIOSH
NOTE: Ship and store refrigerated.
SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.3 μm
WIPE Wipe with charcoal pad, seal in glass vial for shipment.

n-Cyclohexyl-2-Benzothiazolesulfenamide

IMIS **0843** CAS 95-33-0
SYN Thiohexam; Conac H; Curax; Royal CBTS; Santocure; Vulkacite CZ; Sufenax CB; Rhodifax 16; Accelerator CZ
NIOSH RTECS DL6250000*
DESC Cream-colored solid; Off-white powder or white to off-white granules [Note: insoluble in water; soluble in benzene]
MW: 264.4 MP: 93 to 100 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 500 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Cyclonite

IMIS **2224** CAS 121-82-4
SYN Cyclotrimethylenetrinitramine, Hexahydro-1,3,5-trinitro-s-triazine, RDX, Trimethylenetrinitramine, 1,3,5-Trinitro-1,3,5-triazacyclohexane
NIOSH RTECS XY9450000 DOT 0483 112
MIOSHA FINAL RULE (Table G-1-A):
TWA 1.5 mg/m3 (Skin)
DESC White, crystalline powder. [Note: A powerful high explosive.]
MW: 222.2 MP: 401 F FP: Explodes
INCOM Strong oxidizers, combustible materials, heat [Note: Detonates on contact with mercury fulminate.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin; headache, irritability, lassitude (weakness, exhaustion), tremor, nausea, dizziness, vomiting, insomnia, convulsions
ORGAN Eyes, skin, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Cyclopentadiene

IMIS **0845** CAS 542-92-7
SYN 1,3-Cyclopentadiene
NIOSH RTECS GY1000000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 75 ppm, 200 mg/m3
DESC Colorless liquid with an irritating, terpene-like odor.
MW: 66.1 BP: 107 F MP: -121 F FP: (oc) 77 F
INCOM Strong oxidizers, fuming nitric acid, sulfuric acid [Note: Polymerizes to dicyclopentadiene upon standing.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, nose
ORGAN Eyes, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Ethyl Acetate

Cypermethrin

IMIS **C628** CAS 52315-07-8
SYN 3-(2,2-dichloroethenyl)-2,2-di-methylcyclopropane carboxylic acid cyano-(3-phenoxyphenyl)-methyl ether; Cypercopal; Cyperkill; Cypermar
DESC Yellow viscous liquid-to-paste with characteristic odor.
MW: 416.3 MP: 158 F
INCOM Strong oxidizers, lime and soap
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: OSHA personnel may obtain sampling tubes from SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

2,4-D

IMIS **0846** CAS 94-75-7
SYN Dichlorophenoxyacetic acid, 2,4-Dichlorophenoxyacetic acid
NIOSH RTECS AG6825000 DOT 2765 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3
DESC White to yellow, crystalline, odorless powder. [herbicide].
MW: 221.0 BP: Decomposes MP: 280 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
IARC Group 2B - possibly carcinogenic to humans - [2,4-D (2,4-dichlorophenoxyacetic acid) (See also Chlorophenoxy herbicides)]
SYMPT Lassitude (weakness, exhaustion), stupor, hyporeflexia, muscle twitching; convulsions; dermatitis; In Animals: liver, kidney injury
ORGAN Skin, central nervous system, liver, kidneys
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA Modified NIOSH 5001 SAE: 0.08 CLASS: Fully Validated by NIOSH/OSHA

2,4-D Butyl Ester

IMIS **B728** CAS 94-80-4
SYN (2,4-Dichlorophenoxy)acetic acid, butyl ester
NIOSH RTECS AG8050000* DOT 3082 171
DESC Clear colorless to light brown liquid.
MW: 277.16 BP: 295 to 297 F
INCOM Strong oxidizing agents,
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: Gas Chromatography; GC-ECD
REF: (WOHL) CLASS: Not Validated

D & C Red #19

IMIS **0848** CAS 81-88-9
 SYN Rhodamine B; C.I. food red 15
 NIOSH RTECS BP3675000*
 DESC Green crystals or reddish-violet powder.
 MW: 479.01
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Rhodamine B]
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V:240 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS-FLU
 REF: (OSHA In-House File) CLASS: Partially Validated
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

2,4-D, Dimethylamine Salt

IMIS **D155** CAS 2008-39-1
 DOT 3082 171
 SYN (2,4-Dichlorophenoxy) acetic acid, dimethylamine salt
 NIOSH RTECS AG8400000*
 DESC Clear colorless to light brown liquid.
 MW: 266.12 BP: 295 to 297 F
 INCOM Isocyanates, halogenated organics, peroxides, phenols (acidic), epoxides, anhydrides, and acid halides.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 NOTE: See 2,4-D

DDT

IMIS **0847** CAS 50-29-3
 SYN p,p'-DDT, Dichlorodiphenyltrichloroethane, 1,1,1-Trichloro-2,2-bis(p-chlorophenyl)ethane
 NIOSH RTECS KJ3325000 DOT 2761 151
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 mg/m3 (Skin)
 DESC Colorless crystals or off-white powder with a slight, aromatic odor. [pesticide]
 MW: 354.5 BP: 230 F(Decomposes) MP: 227 F FP: 162 to 171 F
 INCOM Strong oxidizers, alkalis
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Dichlorodiphenyltrichloroethane]
 IARC Group 2A - probably carcinogenic to humans - [DDT (4,4'-dichlorodiphenyltrichloroethane)]
 SYMPT Irritation eyes, skin; paresthesia tongue, lips, face; tremor; anxiety, dizziness, confusion, malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion); convulsions; paresis hands; vomiting; [potential occupational carcinogen]
 ORGAN Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system [in animals: liver, lung & lymphatic tumors]
 SLC1 MEDIA:
 ANL SOLVENT: Isooctane
 MAX V: 90 Liters MAX F: 1.5 L/min

ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH S274 SAE: 0.10
NIOSH

CLASS: Fully Validated by

Decaborane

IMIS **0853** CAS 17702-41-9
DESC Decaboron tetradecahydride
NIOSH RTECS HD1400000 DOT 1868 134
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.05 ppm, 0.3 mg/m³ (Skin)
STEL 0.15 ppm, 0.9 mg/m³ (Skin)
DESC Colorless to white crystalline solid with an intense, bitter, chocolate-like odor.
MW: 122.2 BP: 415 F MP: 211 F FP: 176 F
INCOM Oxidizers, water, halogenated compounds (especially carbon tetrachloride) [Note:
May ignite SPONTANEOUSLY on exposure to air. Decomposes slowly in hot water.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Dizziness, headache, nausea, drowsiness; incoordination, localized muscle spasm,
tremor, convulsions; lassitude (weakness, exhaustion); In Animals: dyspnea
(breathing difficulty); lassitude (weakness, exhaustion); liver, kidney damage
ORGAN Central nervous system, liver, kidneys
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min (TWA)
MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as separate sample. Analysis is performed for total Boron. Proposed
sampling and analytical procedure follows OSHA Method ID-125G.
SAM2 REAGENT KIT: MSA, Reagent# 82099, Filter# 82388, 0.01-1.0 ppm

Decabromodiphenyl Oxide

IMIS **D105** CAS 1163-19-5
SYN DBDPO; bis (Pentabromophenyl) ether
NIOSH RTECS KN3525000*
DESC White to off-white powder with a chemical odor.
MW: 959.22 MP: 569.1 to 576.5 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Not Validated

trans-Decahydronaphthalene

IMIS **D907** CAS 91-17-8
SYN Decalin; Perhydronaphthalene; Bicyclo (4.4.0) decane; Naphthane
NIOSH RTECS QJ3150000* DOT 1147 130
DESC A clear colorless liquid with an aromatic odor.
MW: 138.2 BP: 353 F MP: -44 F FP: 134 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Decabromodiphenyl
oxide]

Decamethylcyclopentasiloxane

IMIS **M207** CAS 541-02-6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Decane

IMIS **D166** CAS 124-18-5
DOT 2247 128
DESC A colorless liquid.
MW: 142.29 BP: 345.4 F MP: -21.5 F FP: 115 F
INCOM Oxidizing agents
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Decyl Alcohol

IMIS **D727** CAS 112-30-1
SYN n-Decanol; Decylic Alcohol; Nonylcarbinol
NIOSH RTECS HE4375000* DOT 1987 127
DESC A clear colorless liquid with a sweet fat-like odor.
MW: 158.29 BP: 446 F MP: 44 F FP: 180 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Dehydroabietic Acid

IMIS **D167** CAS 1740-19-8
NIOSH RTECS TP8710000*
DESC Dry powder; other solid
MW: 300.4
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 200 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Demeton (Systox)

IMIS **0857** CAS 8065-48-3
SYN o-o-Diethyl o(and s)-z-(ethylthio)ethyl phosphorothioate mixture; Systox; Bayer 8169;
Demeton-o + Demeton-s; Demox; E-1059; Mercaptophos
NIOSH RTECS TF3150000 DOT 3017 131
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3 (Skin)
DESC Amber, oily liquid with a sulfur-like odor. [insecticide]
MW: 258.3 BP: Decomposes MP: <-13 F FP: 113 F
INCOM Strong oxidizers, alkalis, water
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
SYMPT Irritation eyes, skin; miosis, ache eyes, rhinorrhea (discharge of thin nasal mucus),

headache; chest tightness, wheezing, laryngeal spasm, salivation, cyanosis; anorexia, nausea, vomiting, abdominal cramps, diarrhea; localized sweating; muscle fasciculation, lassitude (weakness, exhaustion), paralysis; dizziness, confusion, ataxia; convulsions, coma; low blood pressure; cardiac irreg

ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, blood cholinesterase

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.

SAM2 DET TUBE: Draeger, CH 27501, 1 microgram
 WIPE MEDIA: Glass Fiber Filter (37 mm)

Demosan

IMIS **D106** CAS 2675-77-6
 SYN 1,4 Dichloro-2,5-dimethoxybenzene; Chloroneb
 NIOSH RTECS CZ4750000* DOT 3077 171
 DESC White to tan solid or beige powder. Musty odor.
 MW: 207.06 BP: 514 F MP: 271 to 275 F FP: 322 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: o-Xylene
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated

Denatonium Benzoate

IMIS **0858** CAS 3734-33-6
 SYN Bitrex
 DESC White odorless solid.
 MW: 446.6
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Desflurane

IMIS **R218** CAS 57041-67-5
 SYN 1,2,2,2-Tetrafluoroethyl difluoromethylether; Tetrafluoro ethyl difluoro methyl ether; Suprane
 DESC Colorless liquid.
 MW: 168.04 BP: 22.8 C
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 3 Liters MAX F: 0.05 L/min (TWA)
 MAX V: 0.75 Liters MAX F: 0.05 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 106 SAE: 0.09 CLASS: Fully Validated by OSHA

Desmedipham

IMIS **D678** CAS 13684-56-5
SYN 3-Ethoxycarbonylamino-phenyl-N-Phenylcarbamate; Desmediphan; Betanex; Ethyl
m-Hydroxycarbonylcarbanilate carbanilate, ester; Betanal AM
NIOSH RTECS FD0425000* DOT 3077 171
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Desmodur N

IMIS Use Hexamethylene Diisocyanate, (**1377**)
CAS 11142-52-2
SYN Diisocyanate Biuret, (D668)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diallyl Disulfide

IMIS **D736** CAS 2179-57-9
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Trichloroethylene
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated

2,4-Diaminoanisole

IMIS **D808** CAS 615-05-4
SYN 1,3-Diamino-4-methoxybenzene, 4-Methoxy-1,3-benzene-diamine, 4-Methoxy-m-
phenylene-diamine
NIOSH RTECS BZ8580500 DOT 2811 154
DESC Colorless solid (needles). [Note: The primary use (including its salts such as 2,4-
diaminoanisole sulfate) is a component of hair & fur dye formulations.]
MW: 138.2 MP: 153 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [2,4-Diaminoanisole]
SYMPT In Animals: irritation skin; thyroid, liver changes; teratogenic effects; [potential
occupational carcinogen]
ORGAN Skin, thyroid, liver, reproductive system. [in animals: thyroid, liver, skin & lymphatic
sys tumors]
BULK ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Limit the amount of bulk submitted to one gram or one mL.

Diaminocyclohexane

IMIS **D108** CAS 3385-21-5
SYN 1,3-Cyclohexanediamine
NIOSH RTECS GU8750000*
DESC MW: 114.19
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

o-Dianisidine

IMIS **0873** CAS 119-90-4
SYN Dianisidine, 3,3'-Dianisidine, 3,3'-Dimethoxybenzidine
NIOSH RTECS DD0875000 DOT 2811 154
DESC Colorless crystals that turn a violet color on standing. [Note: Used as a basis for
many dyes.]

MW: 244.3 MP: 279 F FP: 403 F

INCOM Oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Suspect Human Carcinogen - [3,3'-Dimethoxybenzidine (see 3,3'-Dimethoxybenzidine and Dyes Metabolized to 3,3'-Dimethoxybenzidine)]

IARC Group 2B - possibly carcinogenic to humans - [3,3'-Dimethoxybenzidine (ortho-Dianisidine)]

SYMPT Irritation skin; In Animals: kidney, liver damage; thyroid, spleen changes; [potential occupational carcinogen]

ORGAN Skin, kidneys, liver, thyroid, liver. [in animals: bladder, liver, stomach & mammary gland tumors]

SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 71 SAE: 0.13 CLASS: Fully Validated by OSHA
 NOTE: Within ten hours after sampling, transfer filter to glass vial containing 2 mL deionized water. Sample must be shipped and stored frozen. Analyze as soon as possible. Filters may be obtained from SLTC.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BIOL MEDIA: Urine sample VOLUME: 20-200 mL
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: 1) Stabilize urine samples at the time of collection with 30% (w/v) citric acid solution; 1 mL acid to 100 mL urine.
 2) Seal samples securely, freeze them, and send them to the SLTC in an insulated container by express mail. Call the Branch Chief, C/P at SLTC to notify of shipment.
 3) Citric acid solution may be obtained from the SLTC.

BULK Limit the amount of bulk submitted to one gram or one mL.

o-Dianisidine-Based Dyes

IMIS **D116** CAS 119-90-4

SYN Dianisidine, 3,3'-Dianisidine, 3,3'-Dimethoxybenzidine

NIOSH RTECS DD0875000 DOT 2811 154

DESC Colorless crystals that turn a violet color on standing. [Note: Used as a basis for many dyes.]

MW: 244.3 MP: 279 F FP: 403 F

INCOM Oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Suspect Human Carcinogen - [3,3'-Dimethoxybenzidine (see 3,3'-Dimethoxybenzidine and Dyes Metabolized to 3,3'-Dimethoxybenzidine)]

IARC Group 2B - possibly carcinogenic to humans - [3,3'-Dimethoxybenzidine (ortho-Dianisidine)]

SYMPT Irritation skin; In Animals: kidney, liver damage; thyroid, spleen changes; [potential occupational carcinogen]

ORGAN Skin, kidneys, liver, thyroid, liver. [in animals: bladder, liver, stomach & mammary gland tumors]

SLC1 MEDIA:
 MAX V: 500 Liters MIN V: 150 Liters MAX F: 3.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: NIOSH 5013 CLASS: Partially Validated by NIOSH
 NOTE: This method does not differentiate between different dyes. Keep samples dry and cool. Protect samples from heat and light.

WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

SLC2 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: This method differentiates between different o-dianisidine based dyes. See individual dye of interest. Protect samples from heat & light.

WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Diazinon

IMIS **2720** CAS 333-41-5
 SYN O, O-Diethyl O- (2-isopropyl-4-methyl-6-pyrimidinyl)-phosphorothioate; Spectracide
 NIOSH RTECS TF3325000 DOT 2783 152
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3 (Skin)

DESC Colorless liquid with a faint ester-like odor. [insecticide] [Note: Technical grade is pale to dark brown.]
 MW: 304.4 BP: Decomposes FP: 180 F

INCOM Strong acids & alkalis, copper-containing compounds [Note: Hydrolyzes slowly in water & dilute acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

IARC Group 2A - probably carcinogenic to humans - [Diazinon]
 SYMPT Irritation eyes; miosis, blurred vision; dizziness, confusion, lassitude (weakness, exhaustion), convulsions; dyspnea (breathing difficulty); salivation, abdominal cramps, nausea, vomiting

ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, blood cholinesterase

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: OSHA 62 SAE: 0.09 CLASS: Fully Validated by OSHA

Diazomethane

IMIS **0861** CAS 334-88-3
 SYN Azimethylene; Diazirine, Azomethylene
 NIOSH RTECS PA7000000 DOT 1953 119
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 ppm, 0.4 mg/m3

DESC Yellow gas with a musty odor. [Note: Shipped as a liquefied compressed gas.]
 MW: 42.1 BP: -9 F MP: -229 F

INCOM Alkali metals, water, drying agents such as calcium arsenate [Note: May explode violently on heating, exposure to sunlight, or contact with rough edges such as

ground glass.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Diazomethane]
 SYMPT Irritation eyes; cough, short breath; headache, lassitude (weakness, exhaustion);
 flush skin, fever; chest pain, pulmonary edema, pneumonitis; asthma; liquid: frostbite
 ORGAN Eyes, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 30 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2515 SAE: 0.14 CLASS: Partially Validated by
 NIOSH

Dibenz[A,H]Anthracene

IMIS **D156** CAS 53-70-3
 SYN DBA, 1,2:5,6-Benzanthracene
 NIOSH RTECS HN2625000* DOT 3077 171
 DESC White crystals or pale yellow solid.
 MW: 278.35 BP: 975 F MP: 511 to 513 F
 INCOM Strong oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Dibenz[a,h]anthracene (see Polycyclic Aromatic
 Hydrocarbons: 15 Listings)]
 IARC Group 2A - probably carcinogenic to humans - [Dibenz[a,h]anthracene]
 SLC1 MEDIA:
 ANL SOLVENT: Benzene
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Immediately after sampling, transfer filter to glass scintillation vial and seal
 with Teflon-lined cap.
 BULK Limit the amount of bulk submitted to one gram or one mL.

Dibenzofuran

IMIS **D639** CAS 132-64-9
 SYN Diphenylene Oxide
 DOT 3077 171
 DESC Colorless white crystalline solid.
 MW: 168.19 BP: 549 F MP: 187 to 189 F
 INCOM Sensitive to prolonged exposure to light
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA: Bulk
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Limit the amount of bulk submitted to one gram or one mL.
 BULK Limit the amount of bulk submitted to one gram or one mL.

Diborane

IMIS **0862** CAS 19287-45-7
 SYN Boroethane; Diboron hexahydride, Boron hydride
 NIOSH RTECS HQ9275000 DOT 1911 119

MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.1 mg/m³

DESC Colorless gas with a repulsive, sweet odor. [Note: Usually shipped in pressurized cylinders diluted with hydrogen, argon, nitrogen, or helium.]
MW: 27.7 BP: -135 F MP: -265 F

INCOM Water, halogenated compounds, aluminum, lithium, oxidized surfaces, acids [Note: Will ignite spontaneously in moist air at room temperature. Reacts with water to form hydrogen & boric acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)

SYMPT Chest tightness, precordial pain, short breath, nonproductive cough, nausea; headache, dizziness, chills, fever, lassitude (weakness, exhaustion), tremor, muscle fasciculation; In Animals: liver, kidney damage; pulmonary edema; hemorrhage

ORGAN Respiratory system, central nervous system, liver, kidneys

SLC1 MEDIA:
ANL SOLVENT: 3% Hydrogen Peroxide
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: NIOSH 6006 CLASS: Not Validated

SAM2 DET. TUBE: Draeger, 67 18101, 0.05-3 ppm
REAGENT KIT: MSA, Reagent 82099, Filter 82388, 0.1-3.0 ppm
MIRAN IA & IB: MIN. Det. Con. 0.6 ppm at 3.8 um

1,2-Dibromo-3-Chloropropane

IMIS **0935** CAS 96-12-8

SYN 1-Chloro-2,3-dibromopropane, DBCP, Dibromochloropropane

NIOSH RTECS TX8750000 DOT 2872 159

OSHA FINAL RULE (TABLE Z-1) 1,2-Dibromo-3-Chloropropane (29 CFR 1910.1044):
TWA 0.001 ppm or 1 ppb

DESC Dense yellow or amber liquid with a pungent odor at high concentrations. [pesticide]
[Note: A solid below 43°F.]
MW: 236.4 BP: 384 F VP: 0.8 mm MP: 43 F

INCOM Chemically-active metals such as aluminum, magnesium & tin alloys [Note: Corrosive to metals.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

NTP Suspect Human Carcinogen - [1,2-Dibromo-3-chloropropane]

IARC Group 2B - possibly carcinogenic to humans - [1,2-Dibromo-3-chloropropane]

SYMPT Irritation eyes, skin, nose, throat; drowsiness; nausea, vomiting; pulmonary edema; liver, kidney injury; sterility; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys, spleen, reproductive system, digestive system. [in animals: cancer of the nasal cavity, tongue, pharynx, lungs, stomach, adrenal & mammary glands]

SLC1 MEDIA:
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) SAE: 0.12 CLASS: Partially Validated

SAM2 PID Photoionization Detector

Dimethyl-1,2-Dibromo-2,2-Dichloroethyl Phosphate (Naled)

IMIS **0932** CAS 300-76-5
SYN Dibrom®, 1,2-Dibromo-2,2-dichloroethyl dimethyl phosphate, Naled
NIOSH RTECS TB9450000 DOT 3018 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 3 mg/m3 (Skin)
DESC Colorless to white solid or straw-colored liquid (above 80°F) with a slightly pungent odor. [insecticide]
MW: 380.8 BP: Decomposes VP: 0.0002 mm MP: 80 F
INCOM Strong oxidizers, acids, sunlight, water [Note: Corrosive to metals. Hydrolyzed in presence of water.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin; miosis, lacrimation (discharge of tears); headache; chest tightness, wheezing, laryngeal spasm; salivation; cyanosis; anorexia, nausea, vomiting, abdominal cramp, diarrhea; lassitude (weakness, exhaustion), twitching, paralysis; dizziness, ataxia, convulsions; low blood pressure; cardiac irreg
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC. Sampling and analytical method follows OSHA method 62.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Dibutylamine

IMIS **D128** CAS 111-92-2
SYN Di-N-Butylamine
NIOSH RTECS HR7780000* DOT 2248 132
DESC A yellow-colored liquid with an amine-like odor.
MW: 129.29 BP: 318 to 320 F MP: -76 to -74 F FP: 125 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

2-n-Dibutylaminoethanol (Dibutylaminoethanol)

IMIS **0866** CAS 102-81-8
SYN Dibutylaminoethanol, 2-Dibutylaminoethanol, 2-Di-N-butylaminoethanol, 2-Di-N-butylaminoethyl alcohol, N,N-Dibutylethanolamine
NIOSH RTECS KK3850000 DOT 2873 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 14 mg/m3
DESC Colorless liquid with a faint, amine-like odor.
MW: 173.3 BP: 446 F FP: 195 F
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,

respiratory, hematologic or reproductive. (HE3)
SYMPT In Animals: irritation eyes, skin, nose; dermatitis; skin, corneal necrosis; weight loss
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (4/1) Methanol/Water
MAX V: 24 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA Modified NIOSH 2007 CLASS: Validated by
NIOSH/OSHA
NOTE: Immediately after sampling, transfer each section of the tube to separate vials containing 2 mL desorbing solution [0.12 M HCl in 4:1 methanol:water]. Obtain vials containing solution from SLTC.

Di-n-Butyl Ether

IMIS **D638** CAS 142-96-1
DOT 1149 128
DESC A clear colorless liquid with an ethereal odor.
MW: 130.23 BP: 288 F MP: -144 F FP: 77 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dibutyl Phosphate

IMIS **0863** CAS 107-66-4
SYN Dibutyl acid o-phosphate; di-n-Butyl hydrogen phosphate; Dibutyl phosphoric acid
NIOSH RTECS TB9605000 DOT 1718 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 5 mg/m³
STEL 2 ppm, 10 mg/m³
DESC Pale-amber, odorless liquid.
MW: 210.2 BP: 212 F (Decomposes) VP: 1 mm
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin, respiratory system; headache
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 250 Liters MAX F: 3.0 L/min (TWA)
MAX V: 45 Liters MAX F: 3.0 L/min (STEL)
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 5017 SAE: 0.09 CLASS: Partially Validated by
NIOSH

Dibutylthiourea

IMIS **D605** CAS 109-46-6
DESC Dry powder.
MW: 188.34
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dicamba

IMIS **B345** CAS 1918-00-9
SYN Banvel D; MDBA; Banex; 3,6-Dichloro-o-anisic acid
NIOSH RTECS DG7525000* DOT 3082 171

DESC White solid dissolved in a liquid carrier.
MW: 221 MP: 237.2 to 240.8 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Dicamba, Sodium Salt

IMIS **D607** CAS 1982-69-0
NIOSH RTECS DG7525100* DOT 3077 171
DESC Solid crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Dichloroacetylene

IMIS **0865** CAS 7572-29-4
SYN DCA, Dichloroethyne [Note: DCA is a possible decomposition product of trichloroethylene or trichloroethane.]
NIOSH RTECS AP1080000
MIOSHA FINAL RULE (Table G-1-A): CEIL 0.1 ppm, 0.4 mg/m3
DESC Volatile oil with a disagreeable, sweetish odor. [Note: A gas above 90°F. DCA is not produced commercially.]
MW: 94.9 BP: 90 F (Explodes) MP: -58 to -87 F
INCOM Oxidizers, heat, shock
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Dichloroacetylene]
SYMPT Headache, loss of appetite, nausea, vomiting, intense jaw pain, cranial nerve palsy;
In Animals: kidney, liver, brain injury; weight loss; [potential occupational carcinogen]
ORGAN Central nervous system [in animals: kidney tumors]
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MIN T: 15 Minutes MAX F: 0.2 L/min (CEIL)
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

3,4-Dichloroaniline

IMIS **D928** CAS 95-76-1
SYN 4,5-Dichloroaniline; 3,4-Dichlorobenzeneamine; 1-Amino-3, 4-Dichlorobenzene
NIOSH RTECS BX2625000* DOT 3442 153
DESC Light tan to dark gray crystals or brown solid.
MW: 162.02 BP: 522 F MP: 162 F FP: 331 F
INCOM Oxidizing agents, acids, acid chlorides and acid anhydrides.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:

MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: (WOHL) CLASS: Not Validated

m-Dichlorobenzene

IMIS **D149** CAS 541-73-1
NIOSH RTECS CZ4499000* DOT 2810 153
DESC Colorless liquid.
 MW: 147.01 BP: 343 F MP: -12.6 F FP: 146 F
INCOM Oxidizing agents, aluminum and its alloys.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [meta-Dichlorobenzene]
SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA Modified NIOSH 1003 CLASS: Not Validated

o-Dichlorobenzene

IMIS **0867** CAS 95-50-1
SYN o-DCB, 1,2-Dichlorobenzene, ortho-Dichlorobenzene, o-Dichlorobenzol
NIOSH RTECS CZ4500000 DOT 1591 152
MIOSHA FINAL RULE (Table G-1-A):
 CEIL 50 ppm, 300 mg/m3
DESC Colorless to pale yellow liquid with a pleasant, aromatic odor. [herbicide]
 MW: 147.0 BP: 357 F VP: 1 mm MP: 1 F FP: 151 F
INCOM Strong oxidizers, aluminum, chlorides, acids, acid fumes
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [ortho-Dichlorobenzene]
SYMPT Irritation eyes, nose; liver, kidney damage; skin blisters
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (CEIL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1003 SAE: 0.09 CLASS: Partially Validated by NIOSH

p-Dichlorobenzene

IMIS **0868** CAS 106-46-7
SYN p-DCB, 1,4-Dichlorobenzene, para-Dichlorobenzene, Dichlorocide
NIOSH RTECS CZ4550000 DOT 3077 171
MIOSHA FINAL RULE (Table G-1-A):
 TWA 75 ppm, 450 mg/m3
 STEL 110 ppm, 675 mg/m3
DESC Colorless or white crystalline solid with a mothball-like odor. [insecticide]

MW: 147.0 BP: 345 F VP: 1.3 mm MP: 128 F FP: 150 F

INCOM Strong oxidizers (such as chlorine or permanganate)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

NTP Suspect Human Carcinogen - [1,4-Dichlorobenzene]

IARC Group 2B - possibly carcinogenic to humans - [para-Dichlorobenzene]

SYMPT Eye irritation, swelling periorbital (situated around the eye); profuse rhinitis; headache, anorexia, nausea, vomiting; weight loss, jaundice, cirrhosis; In Animals: liver, kidney injury; [potential occupational carcinogen]

ORGAN Liver, respiratory system, eyes, kidneys, skin [in animals: liver & kidney cancer]

SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1003 SAE: 0.09 CLASS: Partially Validated by NIOSH

3,3'-Dichlorobenzidine

IMIS **0869** CAS 91-94-1

SYN 4,4'-Diamino-3,3'-dichlorobiphenyl, Dichlorobenzidine base, o,o'-Dichlorobenzidine, 3,3'-Dichlorobiphenyl-4,4'-diamine, 3,3'-Dichloro-4,4'-biphenyldiamine, 3,3'-Dichloro-4,4'-diaminobiphenyl

NIOSH RTECS DD0525000 DOT 2811 154

MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):

DESC Gray to purple, crystalline solid.
MW: 253.1 BP: 788 F MP: 271 F

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)

NTP Suspect Human Carcinogen - [3,3'-Dichlorobenzidine (see 3,3'-Dichlorobenzidine and Its Dihydrochloride)]

IARC Group 2B - possibly carcinogenic to humans - [3,3'-Dichlorobenzidine]

SYMPT Skin sensitization, dermatitis; headache, dizziness; caustic burns; frequent urination, dysuria; hematuria (blood in the urine); gastrointestinal upset; upper resp infection; [potential occupational carcinogen]

ORGAN Bladder, liver, lung, skin, gastrointestinal tract [in animals: liver & bladder cancer]

SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 65 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Filter must be transferred to a vial containing 2 mL of deionized water within 10 hours of sample collection. Samples must be shipped and stored under reduced temperatures to help minimize loss of analyte. Sample should be analyzed as soon as possible. Obtain coated filters from SLTC.

Dichlorobenzyl Chloride

IMIS **D606** CAS 38721-71-0

DESC Colorless liquid with a penetrating odor
MW: 195.5

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,2-Dichloro-1,1-Difluoroethane

IMIS **D679** CAS 1649-08-7
SYN Dichlorodifluoroethane
NIOSH RTECS KI0950000* DOT 3082 171
DESC Colorless odorless liquid.
MW: 134.94
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 5 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File)

Dichlorodifluoromethane

IMIS **0871** CAS 75-71-8
SYN Difluorodichloromethane, Fluorocarbon 12, Freon® 12, Genetron® 12, Halon® 122, Propellant 12, Refrigerant 12
NIOSH RTECS PA8200000 DOT 1028 126
MIOSHA FINAL RULE (Table G-1-A):
TWA 1000 ppm, 4950 mg/m3
DESC Colorless gas with a characteristic ether-like odor at >20% by volume.
MW: 120.9 BP: -22 F VP: 5.7 atm MP: -252 F
INCOM Chemically active metals: sodium, potassium, calcium, powdered aluminum, zinc, and magnesium
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Narcosis. (HE8)
Asphyxiants, Anoxiants. (HE17)
SYMPT Dizziness, tremor, asphyxia, unconsciousness, cardiac arrhythmias, cardiac arrest; liquid: frostbite
ORGAN Cardiovascular system, peripheral nervous system
SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 4 Liters MIN V: 1 Liter FLOW: 0.01 to 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1018 SAE: 0.128 CLASS: Fully Validated by NIOSH
NOTE: Refrigerate samples after collection and during shipment to SLC.

1,3-Dichloro-5,5-Dimethyl Hydantoin

IMIS **0872** CAS 118-52-5
SYN Dactin, DDH, Halane
NIOSH RTECS MU0700000 DOT 1479 140
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3
STEL 0.4 mg/m3
DESC White powder with a chlorine-like odor.
MW: 197.0 MP: 270 F FP: 346 F
INCOM Water, strong acids, easily oxidized materials, such as ammonia salts, sulfides, etc.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, mucous membrane, respiratory system
ORGAN Eyes, respiratory system

Dichlorodiphenyldichloroethane

IMIS **D119** CAS 72-54-8
 DOT 2761 151

DESC A colorless crystalline solid.
 MW: 350.46 BP: 379 F MP: 228 to 230 F

INCOM Alkali and strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

p, p'-Dichlorodiphenyldichloroethylene

IMIS **D906** CAS 72-55-9
 SYN DDE DOT 3077 171

DESC White crystalline solid or thire powder.
 MW: 318.03 BP: 601.7 F MP: 190 to 194 F

INCOM Strong oxidizing agents and strong bases

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dichloroethyl Ether

IMIS **0880** CAS 111-44-4
 SYN bis(2-Chloroethyl)ether, 2,2'-Dichlorodiethyl ether, 2,2'-Dichloroethyl ether
 NIOSH RTECS KN0875000 DOT 1916 152
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 30 mg/m3 (Skin)
 STEL 10 ppm, 60 mg/m3 (Skin)

DESC Colorless liquid with a chlorinated solvent-like odor.
 MW: 143.0 BP: 352 F VP: 0.7 mm MP: -58 F

INCOM Strong oxidizers [Note: Decomposes in presence of moisture to form hydrochloric acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Bis(2-chloroethyl)ether]

SYMPT Irritation nose, throat, respiratory system; lacrimation (discharge of tears); cough; nausea, vomiting; In Animals: pulmonary edema; liver damage; [potential occupational carcinogen]

ORGAN Eyes, respiratory system, liver [in animals: liver tumors]

SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 15 Liters MIN V: 2 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1004 SAE: 0.10 CLASS: Fully Validated by
 NIOSH

1,1-Dichloro-1-Fluoroethane

IMIS **D238** CAS 1717-00-6
 SYN Dichlorofluoroethane; Dichloromonofluoroethane; Freon 141b

DESC Colorless liquid at ambient conditions.
 MW: 116.95 BP: 87.8 F MP: -154.3 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Narcosis. (HE8)

SLC1 MEDIA:

ANL SOLVENT: Carbon Disulfide
MAX V: 1 Liter MAX F: 0.05 L/min
MIN V: 0.75 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA 113 CLASS: Fully Validated by OSHA

SLC2 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 3 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

SAM2 MIRAN 1A: MIN. Det. Con. 0.06 ppm at 9.3 um

Dichloromonofluoromethane

IMIS **0887** CAS 75-43-4
SYN Dichlorofluoromethane, Fluorodichloromethane, Freon® 21, Genetron® 21, Halon®
112, Refrigerant 21

NIOSH RTECS PA8400000 DOT 1029 126
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 40 mg/m3

DESC Colorless gas with a slight, ether-like odor. [Note: A liquid below 48°F. Shipped as a
liquefied compressed gas.]
MW: 102.9 BP: 48 F MP: -211 F

INCOM Chemically-active metals such as sodium, potassium, calcium, powdered aluminum,
zinc & magnesium; acid; acid fumes

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
Asphyxiants, Anoxiants. (HE17)

SYMPT Asphyxia, cardiac arrhythmias, cardiac arrest; liquid: frostbite

ORGAN Respiratory system, cardiovascular system

SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 3 Liters MIN V: 0.25 Liters FLOW: 0.01 to 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2516 SAE: 0.133 CLASS: Fully Validated by
NIOSH

NOTE: Separate front and backup tubes to avoid migration.

SAM2 MIRAN 1A: MIN. Det. Con. 0.08 ppm at 9.4 um

2,5-Dichloro-4-Nitroaniline

IMIS **0889** CAS 6627-34-5
NIOSH RTECS BX2950000*
DESC MW: 207.01
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,1-Dichloro-1-Nitroethane

IMIS **0890** CAS 594-72-9
SYN Dichloronitroethane
NIOSH RTECS K11050000 DOT 2650 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 10 mg/m3

DESC Colorless liquid with an unpleasant odor. [fumigant]
MW: 143.9 BP: 255 F VP: 15 mm FP: 136 F

INCOM Strong oxidizers [Note: Corrosive to iron in presence of moisture.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT In Animals: irritation eyes, skin; liver, heart, kidney damage; pulmonary edema, hemorrhage
 ORGAN Eyes, skin, respiratory system, liver, kidneys, cardiovascular system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 15 Liters MIN V: 1.5 Liters FLOW: 0.01 to 1 L/min (TWA)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1601 SAE: 0.09 CLASS: Fully Validated by NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.1 µm

2,4-Dichlorophenol

IMIS **0895** CAS 120-83-2
 DOT 2020 153
 DESC Colorless crystalline solid with a medicinal odor.
 MW: 163 BP: 410 F MP: 113 F FP: 237 F
 INCOM Acid chlorides and acid anhydrides.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Chlorophenols (see Polychlorophenols)]
 BULK Limit the amount of bulk submitted to one gram or one mL.

1,3-Dichloropropene

IMIS **D177** CAS 542-75-6
 SYN 3-Chloroallyl chloride, DCP, 1,3-Dichloro-1-propene, 1,3-Dichloropropylene, Telone®
 NIOSH RTECS UC8310000 DOT 2047 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 5 mg/m³ (Skin)
 DESC Colorless to straw-colored liquid with a sharp, sweet, irritating, chloroform-like odor. [insecticide] [Note: Exists as mixture of cis- & trans-isomers.]
 MW: 111.0 BP: 226 F MP: -119 F VP: 28 mm FP: 77 F
 INCOM Aluminum, magnesium, halogens, oxidizers [Note: Epichlorohydrin may be added as a stabilizer.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [1,3-Dichloropropene (see 1,3-Dichloropropene [Technical Grade])]
 IARC Group 2B - possibly carcinogenic to humans - [1,3-Dichloropropene (technical-grade)]
 SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; lacrimation (discharge of tears); headache, dizziness; in animals; liver, kidney damage; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys [in animals: cancer of the bladder, liver, lung & forestomach]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 5 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA Modified NIOSH 1003 CLASS: Not Validated

3,4-Dichloropropionanilide

IMIS **D809** CAS 709-98-8
SYN Propanil; N- (3,4-Dichlorophenyl) propanamide; Propanex; Stampede; Rogue
DOT 3077 171
DESC Colorless to brown crystals.
MP: 85 to 89 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
WIPE MEDIA: Glass Fiber Filter (37 mm) or Whatman 41 Filter Paper

2,2-Dichloropropionic Acid

IMIS **D176** CAS 75-99-0
SYN Dalapon, 2,2-Dichloropropanoic acid, α,α -Dichloropropionic acid
NIOSH RTECS UF0690000 DOT 1760 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 6 mg/m³
DESC Colorless liquid with an acrid odor. [herbicide] [Note: A white to tan powder below 46°F. The sodium salt, a white powder, is often used.]
MW: 143.0 BP: 374 F MP: 46 F
INCOM Metals [Note: Very corrosive to aluminum & copper alloys. Reacts slowly in water to form hydrochloric & pyruvic acids.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, upper respiratory system; skin burns; lassitude (weakness, exhaustion), loss of appetite, diarrhea, vomiting, slowing of pulse; central nervous system depression
ORGAN Eyes, skin, respiratory system, gastrointestinal tract, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

1,1-Dichlorotetrafluoroethane

IMIS **T336** CAS 374-07-2
SYN 1,1-Dichloro-1, 2,2,2-tetrafluoroethane
DOT 1958 126
DESC Colorless, odorless gas.
MW: 170.92 BP: 3.4 C MP: -56.6 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 2 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA Modified NIOSH 1018 CLASS: Not Validated

Dichlorotetrafluoroethane

IMIS **0900** CAS 76-14-2; 1320-37-2 (mixed isomers)
SYN 1,2-Dichlorotetrafluoroethane, Freon® 114, Genetron® 114, Halon® 242, Refrigerant 114
NIOSH RTECS KI1101000 DOT 1958 126
MIOSHA FINAL RULE (Table G-1-A):
TWA 1000 ppm, 7000 mg/m³
DESC Colorless gas with a faint, ether-like odor at high concentrations. [Note: A liquid

below 38°F. Shipped as a liquefied compressed gas.]
 MW: 170.9 BP: 38 F MP: -137 F VP: 1.9 atm (70 F)

INCOM Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium; acids; acid fumes

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)

SYMPT Irritation respiratory system; asphyxia; cardiac arrhythmias, cardiac arrest; liquid: frostbite

ORGAN Respiratory system, cardiovascular system

SLC1 MEDIA:
 ANL SOLVENT: Methylene Chloride
 MAX V: 4 Liters MIN V: 1 Liter MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1018 SAE: 0.11 CLASS: Fully Validated by NIOSH

NOTE: Refrigerate samples after collection and during shipment to SLTC.

SAM2 MIRAN 1A: MIN. Det. Con. 0.06 ppm at 8.7 um

1,2-Dichloro-1,1,2-Trifluoroethane

IMIS **D109** CAS 354-23-4

SYN Dichlorotrifluoroethane; 1,1,2-Trifluoro-1, 2-Dichloroethane

NIOSH RTECS KI1106000* DOT 3163 126

DESC Colorless nonflammable gas. Nearly odorless.
 MW: 152.93

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dichlorvos (DDVP)

IMIS **0850** CAS 62-73-7

SYN DDVP, 2,2-Dichlorovinyl dimethyl phosphate

NIOSH RTECS TC0350000 DOT 2783 152

MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 mg/m3 (Skin)

DESC Colorless to amber liquid with a mild, chemical odor. [Note: Insecticide that may be absorbed on a dry carrier.]
 MW: 221.0 BP: Decomposes VP: 0.01 mm FP: 175 F

INCOM Strong acids, strong alkalis [Note: Corrosive to iron & mild steel.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)

IARC Group 2B - possibly carcinogenic to humans - [Dichlorvos]

SYMPT Irritation eyes, skin; miosis, ache eyes; rhinorrhea (discharge of thin nasal mucus); headache; chest tightness, wheezing, laryngeal spasm, salivation; cyanosis; anorexia, nausea, vomiting, diarrhea; sweating; muscle fasciculation, paralysis, dizziness, ataxia; convulsions; low blood pressure, cardiac irregularities

ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, blood cholinesterase

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FPD
 REF: OSHA 62 SAE: 0.09 CLASS: Fully Validated by OSHA

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.
SAM2 MIRAN 1A: MIN. Det. Con. 0.09 ppm at 9.4 um

Dicofol

IMIS **D126** CAS 115-32-2
SYN Kelthane; 2,2,2-trichloro-1, 1-Di- (4-Chlorophenyl) ethanol
NIOSH RTECS DC8400000* DOT 3082 171
DESC White crystalline, wettable powder dissolved in a liquid carrier, (water).
MW: 370.5 BP: 437 F MP: 173.3 to 175.1 F FP: 75 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Dicofol]
WIPE MEDIA: Whatman 41 Filter Paper
BULK Limit the amount of bulk submitted to one gram or one mL.

Dicrotophos

IMIS **0902** CAS 141-66-2
SYN Bidrin®, Carbicron®, 2-Dimethyl-cis-2-dimethylcarbamoyl-1-methylvinylphosphate
NIOSH RTECS TC3850000 DOT 3017 131
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.25 mg/m3 (Skin)
DESC Yellow-brown liquid with a mild, ester odor. [insecticide]
MW: 237.2 BP: 752 F VP: 0.0001 mm FP: >200 F
INCOM Metals [Note: Corrosive to cast iron, mild steel, brass & stainless steel.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Headache, nausea, dizziness, anxiety, restlessness, muscle twitching, lassitude
(weakness, exhaustion), tremor, incoordination, vomiting, abdominal cramps,
diarrhea; salivation, sweating, lacrimation (discharge of tears), rhinitis; anorexia,
malaise (vague feeling of discomfort)
ORGAN Central nervous system, blood cholinesterase
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Dicumyl Peroxide

IMIS **D620** CAS 80-43-3
DOT 3110 145
DESC White powder with a characteristic odor.
MW: 270.4 BP: 266 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dicyclohexylamine

IMIS **0901** CAS 101-83-7
DOT 2565 153
DESC A colorless liquid with a faint fishlike odor.
MW: 181.31 BP: 492.4 F MP: 68 F FP: >210 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dieldrin

IMIS **0905** CAS 60-57-1
SYN HEOD, 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,exo-5,8-dimethanonaphthalene
NIOSH RTECS IO1750000* DOT 2761 151
MIOSHA FINAL RULE (Table G-1-A): TWA 0.25 mg/m3 (Skin)

DESC Colorless to light-tan crystals with a mild, chemical odor. [insecticide]
MW: 380.9 BP: Decomposes MP: 349 F VP: 8x10⁻⁷ mm (77F)

INCOM Strong oxidizers, active metals such as sodium, strong acids, phenols
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2A - probably carcinogenic to humans - [Dieldrin (see Dieldrin, and aldrin metabolized to dieldrin)]

SYMPT Headache, dizziness; nausea, vomiting, malaise (vague feeling of discomfort), sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; ; In Animals: liver, kidney damage [potential occupational carcinogen]

ORGAN Central nervous system, liver, kidneys, skin [in animals: lung, liver, thyroid & adrenal gland tumors]

SLC1 MEDIA:
ANL SOLVENT: Isooctane
REC V: 180 Liters REC F: 1.5 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH S283 SAE: 0.14 CLASS: Fully Validated by NIOSH
NOTE: Within 1 hour after the sample has been collected, transfer the filter to a clean screw cap vial.

Diethylamine

IMIS **0910** CAS 109-89-7
SYN Diethylamine, N,N-Diethylamine, N-Ethylethanamine
NIOSH RTECS HZ8750000 DOT 1154 132
MIOSHA FINAL RULE (Table G-1-A): TWA 10 ppm, 30 mg/m3
STEL 25 ppm, 75 mg/m3

DESC Colorless liquid with a fishy, ammonia-like odor.
MW: 73.1 BP: 132 F VP: 192 mm MP: -58 F

INCOM Strong oxidizers, strong acids, cellulose nitrate
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

SYMPT Irritation eyes, skin, respiratory system; in animals; myocardial degeneration
ORGAN Eyes, skin, respiratory system, cardiovascular system

SLC1 MEDIA:
ANL SOLVENT: Tetrahydrofuran
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: High Performance Liquid Chromatography; HPLC-VIS
REF: OSHA 41 SAE: 0.12 CLASS: Fully Validated by OSHA

Diethylamino Ethanol (2-Diethylaminoethanol)

IMIS **0920** CAS 100-37-8
SYN Diethylaminoethanol, 2-Diethylaminoethyl alcohol, N,N-Diethylethanolamine, Diethyl-(2-hydroxyethyl)amine, 2-Hydroxytriethylamine
NIOSH RTECS KK5075000 DOT 2686 132
MIOSHA FINAL RULE (Table G-1-A): TWA 10 ppm, 50 mg/m3 (Skin)
DESC Colorless liquid with a nauseating, ammonia-like odor.
MW: 117.2 BP: 325 F VP: 1 mm MP: -94 F FP: 126 F
INCOM Strong oxidizers, strong acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; nausea, vomiting
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: 0.2 N HCl in (4/1) Methanol/Water
MAX V: 24 Liters MIN V: 4 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA Modified NIOSH 2007 CLASS: Partially Validated
by NIOSH/OSHA
NOTE: Immediately after sampling, transfer each section of the tube to separate vials containing 2 mL desorbing solvent, 0.2 N HCl in methanol/water (4/1). Obtain vials containing solvent from SLTC.
SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.4 um

Diethylaminopropylamine

IMIS **0859** CAS 104-78-9
SYN DEP
NIOSH RTECS TX7350000* DOT 2684 132
DESC A water-white liquid with a fishlike odor.
MW: 130.27
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

n,n-Diethylaniline

IMIS **D608** CAS 91-66-7
DOT 2432 153
DESC A colorless to yellow liquid with a fishlike odor, that is strongly corrosive.
MW: 149.24 BP: 419.9 F MP: -37.8 FP: 185 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

m-Diethylbenzene

IMIS **D159** CAS 141-93-5
SYN 1,3-Diethylbenzene
DESC Colorless liquid.
MW: 134.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

o-Diethylbenzene

IMIS **D158** CAS 135-01-3
SYN 1,2-Diethylbenzene

DESC Colorless liquid.
MW: 134.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

p-Diethylbenzene

IMIS **D165** CAS 105-05-5
SYN 1,4-Diethylbenzene
DESC Colorless liquid.
MW: 134.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diethyl Carbonate

IMIS **D807** CAS 105-58-8
SYN Carbonic Ether, Diatol
DOT 2366 128
DESC A colorless liquid with a mild pleasant odor.
MW: 118.15 BP: 259 F MP: -45 F FP: 77 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diethylene Glycol Monobutyl Ether Acetate

IMIS **M316** CAS 124-17-4
SYN 2-(2-Butoxyethoxy) ethanol Acetate; 2-(2-butoxyethoxy) ethyl Acetate; Diethylene Glycol Butyl Ether Acetate; Butyl Carbitol Acetate
NIOSH RTECS KJ9275000*
DESC MW: 204.3 BP: 4775 F MP: -27 F FP: 240 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Diethylene Glycol Monoethyl Ether Acetate (Carbitol Acetate)

IMIS **C128** CAS 112-15-2
SYN Carbitol acetate; ektasolve acetate; glycol ether DE acetate; 2-(2-Ethoxyethoxy)ethanol acetate
DESC A colorless liquid
MW: 176 BP: 423.32 F MP: -13 F FP: 230 F
INCOM Strong oxidizing acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Di-(2-Ethylhexyl) Adipate

IMIS **D107** CAS 103-23-1
SYN Dioctyl Adipate; DOA
NIOSH RTECS AU9700000*
DESC Colorless to straw-colored liquid with a mild odor.
MW: 370.57 BP: 783 F MP: -90 F FP: 385 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Di(2-ethylhexyl) adipate]
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Diethyl Ketone

IMIS **D707** CAS 96-22-0
SYN DEK, Dimethylacetone, Ethyl ketone, Metacetone, 3-Pentanone, Propione
NIOSH RTECS SA8050000 DOT 1156 127
MIOSHA FINAL RULE (Table G-1-A):
TWA 200 ppm, 705 mg/m³
DESC Colorless liquid with an acetone-like odor
MW: 86.2 BP: 215 F MP: -44 F VP: 35 mm (77 F) FP: (oc) 55 F
INCOM Strong oxidizers, alkalis, mineral acids, (hydrogen peroxide + nitric acid)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, mucous membrane, respiratory system; cough, sneezing
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
SAM2 Century Organic Vapor Analyzer
MIRAN IA & IB: Min. Det. Con. 0.4 ppm at 9 um

Diethyl Sulfate

IMIS **0913** CAS 64-67-5
SYN Diethyl Sulphate
NIOSH RTECS WJ7875000* DOT 1594 152
DESC A clear colorless liquid with a peppermint odor.
MW: 154.18 BP: 409 F MP: -12 F FP: 220 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Diethyl Sulfate]
IARC Group 2A - probably carcinogenic to humans - [Diethyl sulfate]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 15 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated
SAM2 DET. TUBE: MSA, 95300, 5-50 ppm

Difluorodibromomethane

IMIS **0922** CAS 75-61-6
SYN Dibromodifluoromethane, Freon® 12B2, Halon® 1202
NIOSH RTECS PA7525000 DOT 1941 171
MIOSHA FINAL RULE (Table G-1-A):
TWA 100 ppm, 860 mg/m³
DESC Colorless, heavy liquid or gas (above 76°F) with a characteristic odor.
MW: 209.8 BP: 76 F VP: 620 mm MP: -231 F
INCOM Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Narcosis. (HE8)

SYMPT In Animals: irritation respiratory system; central nervous system symptoms; liver damage

ORGAN Respiratory system, central nervous system, liver

SLC1 MEDIA:
 ANL SOLVENT: Isopropanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1012 SAE: 0.15 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 0.04 ppm at 9.2 um

Difluorodimethylsilane

IMIS **F107** CAS 353-66-2

DESC Compressed gas or liquid with an acrid odor of hydrogen fluoride.
 MW: 96.15

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Difurfurylidene Pentaerythritol

IMIS **D926** CAS 5115-25-3

DESC MW: 292.28

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diglycidyl Ether (DGE)

IMIS **0923** CAS 2238-07-5

SYN DGE, Diallyl ether dioxide, Di(2,3-epoxypropyl) ether, 2-Epoxypropyl ether, bis(2,3-Epoxypropyl) ether

NIOSH RTECS KN2350000 DOT 2922 154

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 0.5 mg/m³

MIOSHA FINAL LIMITS (Table 2) Air Contaminants for Construction (R 325.60156):
 CEIL 0.5 ppm, 2.8 mg/m³

DESC Colorless liquid with a strong, irritating odor.
 MW: 130.2 BP: 500 F VP: 0.09 mm (77 F) FP: 147 F

INCOM Strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

SYMPT Irritation eyes, skin, respiratory system; skin burns; In Animals: hematopoietic system, lung, liver, kidney damage; reproductive effects; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system, reproductive system [in animals: skin tumors]
 NOTE: Industrial hygienists have been concerned about the presence of Diglycidyl Ether during manufacture of the epoxy resin called Diglycidyl Ether of Bisphenol A. Diglycidyl Ether is not present in this process. The starting compounds are Epichlorohydrin and Bisphenol A.

Diglycidyl Ether of Bisphenol A

IMIS **D709** CAS 1675-54-3
SYN Bisphenol A diglycidyl ether; 2,2-bis(p-2,3-epoxypropoxy) phenyl)propane; 4,4'-isopropylidenediphenol diglycidyl ether; composite constituent
NIOSH RTECS TX3800000*
DESC Odorless yellowish brown liquid.
MW: 312.37 BP: decomposes MP: 46 to 54 F FP: >200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Bisphenol A diglycidyl ether (Araldite)]
SLC1 MEDIA:
MAX V: 20 Liters MAX F: 1.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 333 CLASS: Partially Validated
NOTE: Refrigerate samples until analysis.

Diglycolamine

IMIS **0934** CAS 929-06-6
SYN 2-(2-Aminoethoxy)ethanol; DGA
NIOSH RTECS KJ6125000* DOT 3055 154
DESC A colorless liquid with a faint fishlike odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

Diglyme

IMIS **D145** CAS 111-96-6
SYN Diethylene Glycol Dimethyl Ether; 2-Methoxyethyl Ether; Bis (2-Methoxy Ethyl) Ether
NIOSH RTECS KN3339000* DOT 2252 127
DESC Colorless watery liquid with a pleasant odor.
MW: 134.18 BP: 321 to 324 F MP: -90 F FP: 153 to 158 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

2,2-Dihydroxy-1,3-Indandione

IMIS **D931** CAS 485-47-2
SYN Ninhydrin
NIOSH RTECS NK5425000*
DESC White to light yellow crystals or powder.
MW: 178.15 MP: 466 to 469 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diisobutoxymethane

IMIS **D656** CAS 2568-91-4
SYN Methane, diisobutoxy-
DESC MW: 160.25

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diisononyl Phthalate

IMIS **D908** CAS 28553-12-0
SYN Di-isononyl phthalate
DESC Oily colorless liquid with a slight ester odor.
MW: 418.6 BP: 172 F FP: >200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diisopropanolamine

IMIS **D616** CAS 110-97-4
SYN DIPA
DESC Colorless liquid or white to yellow crystalline solid with an odor of dead fish or ammonia.
MW: 133.22 BP: 480.2 F MP: 107.6 F FP: 259 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diisopropylamine

IMIS **0925** CAS 108-18-9
SYN DIPA, N-(1-Methylethyl)-2-propanamine
NIOSH RTECS IM4025000 DOT 1158 132
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 20 mg/m³ (Skin)
DESC Colorless liquid with an ammonia- or fish-like odor
MW: 101.2 BP: 183 F VP: 70 mm MP: -141 F FP: 20 F
INCOM Strong oxidizers, strong acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, skin, respiratory system; nausea, vomiting; headache; visual disturbance
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: 0.1 N Sulfuric Acid
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S141 SAE: 0.12 CLASS: Fully Validated by NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 0.4 ppm at 8.5 um

Dimethoate

IMIS **D617** CAS 60-51-5
SYN Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester; Cygon; Fostion mm; Perfekthion; Rogor; Roxion; Fosfamid; O,O-dimethyl S-(N-methylcarbamoylmethyl) phosphorodithioate
NIOSH RTECS TE1750000* DOT 2783 152(solid); 3018 152(liquid)
DESC A white crystalline solid, with a camphor-like odor, white to grayish crystals for technical product.
MW: 229.28 BP: 243 F (0.1 mm) MP: 125 F VP: 8.5x10⁻⁶ FP: 124 F
INCOM Alkaline preparations and sulfur based formulations.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min

ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File)
NOTE: Obtain sampling tubes from SLTC.

CLASS: Not Validated

2,5-Dimethoxyaniline

IMIS **D909** CAS 102-56-7
NIOSH RTECS BX4375000*
DESC Brown powder.
MW: 153.18
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 17 Liters MAX F: 0.05 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

1,2-Dimethoxypropane

IMIS **D927** CAS 7778-85-0
DESC MW: 104.15
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,2-Dimethoxypropane

IMIS **D628** CAS 77-76-9
DESC Clear colorless liquid.
MW: 104.15
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dimethylacetamide

IMIS **0927** CAS 127-19-5
SYN N, N- Dimethyl acetamide; DMAC
NIOSH RTECS AB7700000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 35 mg/m3 (Skin)
DESC Colorless liquid with a weak, ammonia- or fish-like odor.
MW: 87.1 BP: 329 F VP: 2 mm MP: -4 F FP: (oc) 158 F
INCOM Carbon tetrachloride; other halogenated compounds, when in contact with iron
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [N,N-Dimethylacetamide]
SYMPT Irritation skin; jaundice, liver damage; depression, drowsiness, hallucinations, delusions
ORGAN Skin, liver, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 80 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2004 SAE: 0.11 CLASS: Fully Validated by NIOSH

Dimethyl Adipate

IMIS **D649** CAS 627-93-0
SYN Dimethyl hexanedioate; methyl adipate; hexanedioic acid, dimethyl ester
NIOSH RTECS AV1645000*
DESC Colorless liquid.
MW: 174.2 BP: 228.2 to 230 F (14 mm) MP: 46.4 F FP: 225 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (1/99) Dimethylformamide/Carbon Disulfide
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Dimethylamine (Anhydrous)

IMIS **0928** CAS 124-40-3
SYN Dimethylamine (anhydrous), N-Methylmethanamine
NIOSH RTECS IP8750000 DOT 1032 118(anhydrous); 1160 132(solution)
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 18 mg/m3
DESC Colorless gas with an ammonia- or fish-like odor. [Note: A liquid below 44°F. Shipped as a liquefied compressed gas.]
MW: 45.1 BP: 44 F VP: 1.7 atm MP: -134 F FP: NA (Gas) 20 F (Liquid)
INCOM Strong oxidizers, chlorine, mercury, acraldehyde, fluorides, maleic anhydride, aluminum, brass, copper, zinc
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation nose, throat; sneezing, cough, dyspnea (breathing difficulty); pulmonary edema; conjunctivitis; dermatitis; liquid: frostbite
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Tetrahydrofuran
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-VIS
REF: OSHA 34 SAE: 0.09 CLASS: Fully Validated by OSHA

4-Dimethylaminoazobenzene

IMIS **0929** CAS 60-11-7
SYN Butter yellow, DAB, p-Dimethylaminoazobenzene, N,N-Dimethyl-4-aminoazobenzene, Methyl yellow
NIOSH RTECS BX5020000 DOT 2811 154
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Yellow, leaf-shaped crystals
MW: 225.3 BP: Sublimes MP: 237 F VP: 0.0000003 mm
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)
NTP Suspect Human Carcinogen - [4-Dimethylaminoazobenzene]
IARC Group 2B - possibly carcinogenic to humans - [para-Dimethylaminoazobenzene]
SYMPT Enlarged liver, hepatic and renal dysfunction; contact dermatitis; coughing, wheezing, difficulty breathing, bloody sputum, bronchial secretions; frequent urination, hematuria, dysuria; (carcinogenic)
ORGAN Skin, respiratory system, liver, kidneys, bladder [in animals: liver & bladder tumors]
SLC1 MEDIA:
ANL SOLVENT: Dry Methanol or Isopropanol
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

WIPE MEDIA: Glass Fiber Filter (37 mm) SOLVENT: Dry Methanol or Isopropanol.

3-Dimethylaminophenol

IMIS **D627** CAS 99-07-0
SYN 3-dimethylaminophenol
DESC Needles (from ligroin) or a dark gray solid.
MW: 137.18 BP: 509 to 514 F MP: 180 to 183 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dimethylaminopropyl nitrile

IMIS **D619** CAS 1738-25-6
SYN 3-(Dimethylamino)propionitrile, N,N-Dimethylamino-3-propionitrile [Note: A component (95%) of NIAX® Catalyst ESN, along with bis(2-(dimethylamino)ethyl) ether (5%).]
NIOSH RTECS UG1575000
DESC Colorless liquid.
MW: 98.2 BP: 342 F MP: -48 F VP: 10 mm (135 F) FP: 147 F
INCOM Oxidizers [Note: Emits toxic oxides of nitrogen and cyanide fumes when heated to decomposition.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin; urinary disturbance; neurological disorders; pins & needles in hands & feet; muscle weak, lassitude (weakness, exhaustion), nausea, vomiting; decreased nerve conduction in lower legs
ORGAN Eyes, skin, central nervous system, urinary tract

n,n-Dimethylbenzylamine

IMIS **D635** CAS 103-83-3
SYN Benzyl dimethylamine
DOT 2619 132
DESC A colorless to light yellow liquid with an aromatic color.
MW: 135.21 BP: 357.8 F MP: -103 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,3-Dimethylbutane

IMIS **D618** CAS 79-29-8
SYN diethylmethane; diisopropyl; 2,2-dimethylbutane; 2,3-dimethylbutane; isohexane; 2-methylpentane; 3-methylpentane
DOT 2457 128
DESC Clear liquids with mild, gasoline-like odors.
MW: 86.18 BP: 136.4 F MP: -199.3 F VP: 200 mm (70 F) FP: -20 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; headache, dizziness; nausea; chemical pneumonitis (aspiration liquid); dermatitis
ORGAN Eyes, skin, respiratory system, central nervous system

Dimethyl Carbamoyl Chloride

IMIS **TBD** CAS 79-44-7
SYN Chloroformic acid dimethylamide, Dimethylcarbamic chloride, N,N-Dimethylcarbamoyl chloride, DMCC
NIOSH RTECS FD4200000 DOT 2262 156
DESC Clear, colorless liquid.
MW: 107.6 BP: 329 F MP: -27 F FP: 155 F

INCOM Acids, water [Note: Rapidly hydrolyzes in water to dimethylamine, carbon dioxide, and hydrogen chloride.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Dimethylcarbamoyl Chloride]
 IARC Group 2A - probably carcinogenic to humans - [Dimethylcarbamoyl chloride]
 SYMPT Irritation eyes, skin, nose, throat, respiratory system; eye, skin burns; cough, wheezing, laryngitis, dyspnea (breathing difficulty); headache, nausea, vomiting; liver injury; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, liver. [in animals: nasal cancer]

trans-1,4-Dimethylcyclohexane

IMIS **D735** CAS 2207-04-7
 SYN 1,4-Dimethylcyclohexane
 NIOSH RTECS GV0200000* DOT 2263 128
 DESC Clear colorless liquid with an odor like petroleum.
 MW: 112.21
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL 1: Gas Chromatography; GC-FID
 REF: (WOHL) CLASS: Not Validated

n,n-Dimethylcyclohexylamine

IMIS **0937** CAS 98-94-2
 SYN Dimethylcyclohexylamine
 DOT 2264 132
 DESC Colorless liquid with a musky ammonia odor.
 MW: 127.23 BP: 323.6 FP: 108 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dimethyl Disulfide

IMIS **D651** CAS 624-92-0
 SYN Dimethyldisulfide; methyl disulfide
 NIOSH RTECS JO1927500* DOT 2381 131
 DESC A colorless oily liquid with a disagreeable odor.
 MW: 94.2 BP: 229.5 F MP: -120.5 F VP: 28.6 mm FP: 76 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Generally Low Risk Health Effects---Odor. (HE20)
 SLC1 MEDIA:
 ANL SOLVENT: Methylene Chloride
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House Files) CLASS: Partially Validated

Dimethylethylamine

IMIS **0915** CAS 598-56-1
 SYN N, N-Dimethylethylamine
 NIOSH RTECS EO3330000* DOT 2735 153
 DESC A clear colorless liquid with a strong odor that can vary from ammonia-like to fishlike.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Deionized Water (pH 7)
 MAX V: 4 Liters MAX F: 0.1 L/min

ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Partially Validated
SAM2 DET. TUBE: Draeger, 67 18401, 5-60 ppm

Dimethylformamide

IMIS **0930** CAS 68-12-2
SYN Dimethyl formamide, N,N-Dimethylformamide, DMF
NIOSH RTECS LQ2100000 DOT 2265 129
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 30 mg/m3 (Skin)
DESC Colorless to pale-yellow liquid with a faint, amine-like odor.
MW: 73.1 BP: 307 F VP: 3 mm MP: -78 F
INCOM Carbon tetrachloride; other halogenated compounds when in contact with iron;
strong oxidizers; alkyl aluminums; inorganic nitrates
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
IARC Group 2A - probably carcinogenic to humans - [N,N-Dimethylformamide]
SYMPT Irritation eyes, skin, respiratory system; nausea, vomiting, colic; liver damage,
enlarged liver; high blood pressure; face flush; dermatitis; In Animals: kidney, heart
damage
ORGAN Eyes, skin, respiratory system, liver, kidneys, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 80 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2004 SAE: 0.09 CLASS: Fully Validated by
NIOSH

Dimethyl Glutarate

IMIS **D636** CAS 1119-40-0
SYN dimethyl pentanedioate; glutaric acid dimethyl ester; pentanedioic acid, dimethyl
ester; glutaric acid
DESC Colorless liquid
MW: 160.17 BP: 199.4 to 203 F FP: 218 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (1/99) Dimethylformamide/Carbon Disulfide
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Samples should be refrigerated and analyzed within two weeks

Dimethylhexane

IMIS **D625** CAS 28777-67-5
SYN 2-methylheptane
DESC Colorless liquid.
MW: 114.23
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,1-Dimethylhydrazine

IMIS	0940	CAS	57-14-7
SYN	Dimazine, DMH, UDMH, Unsymmetrical dimethylhydrazine		
NIOSH	RTECS MV2450000	DOT	1163 131
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.5 ppm, 1 mg/m ³ (Skin)
DESC	Colorless liquid with an ammonia- or fish-like odor. MW: 60.1 BP: 147 F VP: 103 mm MP: -72 F FP: 5 F		
INCOM	Oxidizers, halogens, metallic mercury, fuming nitric acid, hydrogen peroxide [Note: May ignite SPONTANEOUSLY in contact with oxidizers.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2) Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18) Hematologic (Blood) Disturbances---Anemias. (HE12)		
NTP	Suspect Human Carcinogen - [1,1-Dimethylhydrazine]		
IARC	Group 2B - possibly carcinogenic to humans - [1,1-Dimethylhydrazine]		
SYMPT	Irritation eyes, skin; choking, chest pain, dyspnea (breathing difficulty); drowsiness; nausea; anoxia; convulsions; liver injury; [potential occupational carcinogen]		
ORGAN	Central nervous system, liver, gastrointestinal tract, blood, respiratory system, eyes, skin. [in animals: tumors of the lungs, liver, blood vessels & intestines]		
SLC1	MEDIA: ANL SOLVENT: Phosphomolybdic Acid MAX V: 100 Liters MAX F: 1.0 L/min ANL 1: Colorimetric REF: NIOSH 3515 CLASS: Partially Validated by NIOSH NOTE: Remove bubbler stem and rinse with 0.1 M HCl; seal bubbles with non-reactive stopper.		
SAM2	DET. TUBE: MSA, 460425, 0.5-50 ppm MIRAN IA & IB: MIN. Det. Con. 0.3 ppm at 11.2 um		

1,2-Dimethylnaphthalene

IMIS	D645	CAS	573-98-8
DESC	A dark brown liquid. MW: 156.22		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

1,3-Dimethylnaphthalene

IMIS	D345	CAS	575-41-7
DESC	A dark brown liquid. MW: 156.22		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

1,4-Dimethylnaphthalene

IMIS	D665	CAS	571-58-4
DESC	A dark brown liquid. MW: 156.22		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

1,6-Dimethylnaphthalene

IMIS **D637** CAS 575-43-9
DESC A dark brown liquid.
MW: 156.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n,n-Dimethyl-1,3-Propanediamine

IMIS **0955** CAS 109-55-7
SYN Dimethylaminopropylamine
DOT 2734 132
DESC Colorless liquid.
MW: 102.21 BP: 253 F MP: -94 F FP: 60 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,6-Dimethylpyridine

IMIS **L155** CAS 108-48-5
SYN 2,6-Lutidine; Lutidine
DOT 2734 132
DESC A colorless liquid with a peppermint odor.
MW: 107.15
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dimethyl Succinate

IMIS **D917** CAS 106-65-0
SYN Butanedioic acid, dimethyl Ester; dimethyl butanedioate; methyl succinate; succinic acid, dimethyl ester
NIOSH RTECS WM7675000 DOT 1993 128
DESC Colorless liquid.
MW: 146.14 BP: 385.5 F MP: 67.1 F VP: 0.3 mm (68 F) FP: 185 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (1/99) Dimethylformamide/Carbon Disulfide
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Samples should be refrigerated after sampling and shipped overnight to the laboratory.

Dimethyl Sulfate

IMIS **0960** CAS 77-78-1
SYN Dimethyl ester of sulfuric acid, Dimethylsulfate, Methyl sulfate
NIOSH RTECS WS8225000 DOT 1595 156
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.5 mg/m3 (Skin)
DESC Colorless, oily liquid with a faint, onion-like odor.
MW: 126.1 BP: 370 F (Decomposes) VP: 0.1 mm MP: -25 F FP: 182 F
INCOM Strong oxidizers, ammonia solutions [Note: Decomposes in water to sulfuric acid; corrosive to metals.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
Acute Toxicity---Short-term high risk effects. (HE4)
NTP Suspect Human Carcinogen - [Dimethyl Sulfate]

IARC Group 2A - probably carcinogenic to humans - [Dimethyl sulfate]
 SYMPT Irritation eyes, nose; headache; dizziness; conjunctivitis; photophobia (abnormal visual intolerance to light); periorbital (situated around the eye) edema; dysphonia, aponia, dysphagia, productive cough; chest pain; dyspnea (breathing difficulty), cyanosis; vomiting, diarrhea; dysuria; analgesia; fever; proteinuria, hematuria (blood in the urine); eye, skin burns; delirium; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, liver, kidneys, central nervous system. [in animals: nasal & lung cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA Modified In-House File) CLASS: Partially Validated
 SAM2 DET. TUBE: Draeger, 6718701, 0.005-0.5 ppm
 MSA, 95300, 1-50 ppm
 MIRAN 1A & 1B: MIN. Det. Con. 0.03 ppm at 9.9 um
 MIRAN 103: Range 0-20 ppm at 9.9 um

Dimethyl Sulfide

IMIS **D650** CAS 75-18-3
 SYN Methyl sulfide; thiobismethane; DMS; methylthiomethane; 2-thiopropane; 2-thiopropene
 NIOSH RTECS PV5075000* DOT 1164 130
 DESC A clear colorless to straw colored liquid with a disagreeable odor.
 MW: 62.1 BP: 99 F MP: -144 F FP: -36 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SLC1 MEDIA:
 ANL SOLVENT: Methylene Chloride
 MAX V: 5 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 SAM2 DET. TUBE: Draeger, 67 28451, 1-15 ppm

Dimethyl Sulfoxide

IMIS **D139** CAS 67-68-5
 SYN DMSO; Deltan; Methylsulfoxide; Demeso; Demasorb; DMS-90; DMS-70
 NIOSH RTECS PV6210000* DOT 2811 154
 DESC A clear liquid, essentially odorless.
 MW: 78.13 BP: 372 F MP: 65.3 F FP: 203 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated
 SAM2 DET. TUBE: MSA, 95739, 10-250 ppm, Pyrolyzer required
 MIRAN IA & IB: Min. Det. Con. 0.3 ppm at 9 um

Dimethyl 2,3,5,6-Tetrachloroterephthalate

IMIS **D930** CAS 1861-32-1
 SYN Dacthal; DCPA; Chlorthal-Dimethyl; Chlorthal-Methyl; DAC 893; Dacthalor; Dimethyl

Ester Tetrachloro-terephthalic Acid
NIOSH RTECS WZ1500000*
DESC A colorless solid.
MW: 332.0
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n,n-Dimethyl-p-Toluidine

IMIS **D127** CAS 99-97-8
SYN N,N-4-Trimethylaniline
NIOSH RTECS XU5803000 DOT 2810 153
DESC A clear colorless liquid with an aromatic odor.
MW: 135.21 BP: 211 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [N,N-Dimethyl-p-toluidine]
SLC1 MEDIA:
ANL SOLVENT: 95% Ethanol
REC V: 100 Liters REC F: 0.02 to 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2002 CLASS: Fully Validated by
NIOSH

n,n'-Di-beta-Naphthyl-p-Phenylenediamine

IMIS **N108** CAS 93-46-9
DESC Gray powder.
MW: 360.48 BP: Decomposes MP: 437 to 444 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
BULK Limit the amount of bulk submitted to one gram or one mL.

Dinitolmide

IMIS **0985** CAS 148-01-6
SYN 3,5-Dinitro-o-toluamide, 2-Methyl-3,5-dinitrobenzamide, Zoalene
NIOSH RTECS XS4200000
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC Yellowish, crystalline solid
MW: 225.2 MP: 351 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Contact eczema; In Animals: methemoglobinemia, liver changes
ORGAN Skin, liver, blood
SLC1 MEDIA:
ANL SOLVENT: (85/15) Acetonitrile/Water
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Dinitrobenzene, All Isomers

IMIS **0970** CAS 25154-54-5
SYN Dinitrobenzene (25154-54-5); 1,2-Dinitrobenzene (528-29-0); o-Dinitrobenzene (528-29-0); 1,3-Dinitrobenzene (99-65-0); m-Dinitrobenzene (99-65-0); 1,4-Dinitrobenzene (100-25-4); p-Dinitrobenzene (100-25-4)
NIOSH RTECS CZ7450000 (ortho); CZ7350000 (meta); CZ75250000 (para)
DOT 1597 152

MIOSHA FINAL RULE (Table G-1-A):

TWA 1 mg/m³ (Skin)

DESC Pale-white or yellow solid.
MW: 168.1 BP: 606 F, 572 F, 570 F MP: 244 F, 192 F, 343 F

INCOM Strong oxidizers, caustics, metals such as tin & zinc [Note: Prolonged exposure to fire and heat may result in an explosion due to SPONTANEOUS decomposition.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Anemias. (HE12)
Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

SYMPT Anoxia, cyanosis; visual disturbance, central scotomas; bad taste, burning mouth, dry throat, thirst; yellowing hair, eyes, skin; anemia; liver damage

ORGAN Eyes, skin, blood, liver, cardiovascular system, central nervous system

SLC1 MEDIA:
ANL SOLVENT: Ethyl Acetate
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

SLC2 MEDIA:
ANL SOLVENT: Ethylene Glycol/Methanol
REC V: 90 Liters REC F: 1.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH S214 SAE: 0.15 CLASS: Fully Validated by NIOSH

NOTE: After sampling, add filter to bubbler solution.

SAM2 MIRAN 1A: Min. Det. Con. 2.1 ppm at 4.7 um

2,4-Dinitro-6-Bromoaniline

IMIS **0972** CAS 1817-73-8

SYN 2-Bromo-4,6-Dinitroaniline

DESC Bright yellow powder.
MW: 262.03 BP: Sublimes MP: 307 to 309 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

4,6-Dinitro-o-sec-Butyl Phenol

IMIS **D118** CAS 88-85-7

SYN 2,4-Dinitro-6-sec-butylphenol; Dinoseb; DNBP; 4,6-Dinitro-2-sec-butylphenol

NIOSH RTECS SJ9800000* DOT 2779 153

DESC Orange-brown viscous liquid or orange-brown solid. Orange crystals when pure. Has a pungent odor.
MW: 240.2 MP: 100 to 108 F FP: 60.1 to 84.9 F (for 3 commercial products EPA, 1998)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 24 Liters MAX F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

2,4-Dinitrochlorobenzene

IMIS **D344** CAS 97-00-7

SYN 1-Chloro-2, 4-Dinitrobenzene; Dinitrochlorobenzol; DNCB; 1,3-Dinitro-4-

chlorobenzene; Dinitrochlorobenzene
NIOSH RTECS CZ0525000* DOT 1577 153
DESC Pale yellow needles, almond odor.
MW: 202.56 BP: 382 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dinitro-o-Cresol

IMIS **0975** CAS 534-52-1
SYN 4,6-Dinitro-2-methylphenol; 4,6-Dinitro-o-cresol; DNC, DNOC
NIOSH RTECS GO9625000 DOT 1598 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3 (Skin)
DESC Yellow, odorless solid. [insecticide]
MW: 198.1 BP: 594 F VP: 0.00005 mm MP: 190 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Sense of well being; headache, fever, lassitude (weakness, exhaustion), profuse sweating, excess thirst, tachycardia, hyperpnea, cough, short breath, coma
ORGAN Cardiovascular system, endocrine system
SLC1 MEDIA:
ANL SOLVENT: Ethylene Glycol/2-Propanol
REC V: 180 Liters REC F: 1.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH S166 SAE: 0.12 CLASS: Fully Validated by NIOSH
NOTE: Immediately after sampling, remove filter from cassette and add to Ethylene Glycol sample.

Dinitrophenol

IMIS **D657** CAS 25550-58-7
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-(2,4-Dinitrophenoxy)Ethanol

IMIS **N808** CAS 2831-60-9
SYN beta-Hydroxyethyl 2,4-dinitrophenyl ether; DNPE; Ethanol, 2-(2,3-dinitrophenoxy)-; 2,4-Dinitrophenoxyethanol; 1-(2-Hydroxyethoxy)-2,4-dinitrobenzene
DESC Orangish powder
MW: 228.17
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

2,4-Dinitrophenyl Hydrazine

IMIS **D169** CAS 119-26-6
NIOSH RTECS MV3325000*
DESC Blue-red fluorescent crystals.
MW: 198.14
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dinitrotoluene

IMIS	0990	CAS	25321-14-6
		CAS	121-14-2; 618-85-9; 606-20-2
SYN	Dinitrotoluol, DNT, Methylidinitrobenzene [Note: Various isomers of DNT exist.]		
NIOSH	RTECS XT1300000	DOT	1600 152(molten); 2038 152(solid)
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	1.5 mg/m ³ (Skin)
DESC	Orange-yellow crystalline solid with a characteristic odor. [Note: Often shipped molten.]		
	MW: 182.2	BP: 572 F	VP: 1 mm MP: 158 F FP: 404 F
INCOM	Strong oxidizers, caustics, metals such as tin & zinc [Note: Commercial grades will decompose at 482°F, with self-sustaining decomposition at 536°F.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SYMPT	Anoxia, cyanosis; anemia, jaundice; reproductive effects; [potential occupational carcinogen]		
ORGAN	Blood, liver, cardiovascular system, reproductive system [in animals: liver, skin & kidney tumors]		
SLC1	MEDIA:		
	ANL SOLVENT: Acetone		
	MAX V: 60 Liters	MAX F: 1.0 L/min	
	ANL 1: Gas Chromatography; GC-TEA-EAP		
	REF: OSHA 44	SAE: 0.13	CLASS: Fully Validated by OSHA
	NOTE: Lab modification of sample tube consists of an 8mm Glass fiber filter disc placed inside tube ahead of first resin bed. Obtain the sampling tube from SLTC. The air sampling pump must be certified by NIOSH and MSHA as safe for use in coal mines.		
BULK	Limit the amount of bulk submitted to one gram or one mL.		

Diethyl Sebacate

IMIS	D168	CAS	122-62-3
SYN	Bis (2-Ethylhexyl) Sebacate; DOS; Di (2-Ethylhexyl) Sebacate; Bis (2-Ethylhexyl) Ester Sebacic Acid; Bis (2-Ethylhexyl) Ester Decanedionic Acid; Octyl Sebacate		
NIOSH	RTECS VS1000000		
DESC	Liquid		
	MW: 426.66		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Dioxathion

IMIS	2740	CAS	78-34-2
SYN	Delnav®, p-Dioxane-2,3-diyl ethyl phosphorodithioate, Dioxane phosphate, 2,3-p-Dioxanethiol-S,S-bis(O,O-diethyl phosphoro-dithioate), Navadel®		
NIOSH	RTECS TE3350000	DOT	3018 152
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.2 mg/m ³ (Skin)
DESC	Viscous, brown, tan, or dark-amber liquid. [insecticide] [Note: Technical product is a mixture of cis- & trans-isomers.]		
	MW: 456.6	MP: -4 F	
INCOM	Alkalis, iron or tin surfaces, heat		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
	Nervous System Disturbances---Cholinesterase inhibition. (HE6)		
SYMPT	Irritation eyes, skin; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; miosis; nausea, vomiting, abdominal cramps, diarrhea, salivation; muscle fasciculation; confusion,		

drowsiness
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood
cholinesterase
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

1,3-Dioxolane

IMIS **D655** CAS 646-06-0
SYN 1,3-dioxacyclopentane; dihydro-1,3-dioxole; ethylene glycol formal; formal glycol
DOT 1166 127
DESC Colorless liquid.
MW: 74.09
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diphacinone

IMIS **D726** CAS 82-66-6
SYN Diphancinone; 2-Diphenylacetyl-1, 3-indandione
DOT 2811 154
DESC Odorless pale yellow crystals.
MW: 340.38 MP: 295 to 297 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 500 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Diphenylamine

IMIS **0926** CAS 122-39-4
SYN Anilinobenzene, DPA, Phenylaniline, N-Phenylaniline, N-Phenylbenzenamine [Note:
The carcinogen 4-Aminodiphenyl may be present as an impurity in the commercial
product.]
NIOSH RTECS JJ7800000 DOT 2811 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3
DESC Colorless, tan, amber, or brown crystalline solid with a pleasant, floral odor.
[fungicide]
MW: 169.2 BP: 576 F MP: 127 F VP: 1 mm (227 F) FP: 307 F
INCOM Oxidizers, hexachloromelamine, trichloromelamine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Diphenylamine]
SYMPT Irritation eyes, skin, mucous membrane; eczema; tachycardia, hypertension; cough,
sneezing; methemoglobinemia; increased blood pressure, heart rate; proteinuria,
hematuria (blood in the urine), bladder injury; In Animals: teratogenic effects
ORGAN Eyes, skin, respiratory system, cardiovascular system, blood, bladder, reproductive
system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV

NOTE: Samples are collected closed-face.

9,10-Diphenylanthracene

IMIS **D646** CAS 1499-10-1
 DESC Yellow of tan powder.
 MW: 330.4
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diphenyl (Biphenyl)

IMIS **1011** CAS 92-52-4
 SYN Biphenyl, Phenyl benzene
 NIOSH RTECS DU8050000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 ppm, 1 mg/m3
 DESC Colorless to pale-yellow solid with a pleasant, characteristic odor. [fungicide]
 MW: 154.2 BP: 489 F VP: 0.005 mm MP: 156 F FP: 235 F
 INCOM Oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation eyes, throat; headache, nausea, lassitude (weakness, exhaustion), numb
 limbs; liver damage
 ORGAN Eyes, respiratory system, liver, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Tetrachloride
 MAX V: 30 Liters MAX F: 0.5 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2530 SAE: 0.11 CLASS: Fully Validated by
 NIOSH

5,5-Diphenylhydantoin

IMIS **D905** CAS 57-41-0
 SYN Phenytoin; Difhydan; Dihycon; Di-Hydan; Di-Lan; Dilabid; Dilantin; Ekko; Hydantol;
 5,5-Diphenyl-2, 4-Imidazolidinedione; Zentropil
 NIOSH RTECS MU1050000* DOT 2811 154
 DESC Fine white or almost white crystalline powder.
 MW: 252.27 MP: 563 to 568 F
 NTP Suspect Human Carcinogen - [Phenytoin (see Phenytoin and Phenytoin Sodium)]
 IARC Group 2B - possibly carcinogenic to humans - [Phenytoin]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

Dipropylamine

IMIS **D647** CAS 142-84-7
 DOT 2383 132
 DESC A clear colorless liquid with an ammonia-like odor.

MW: 101.19 BP: 228.9 F MP: -39.3 F FP: 45 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dipropyl Disulfide

IMIS **D626** CAS 629-19-6
SYN Di-n-propyl disulfide; propyl disulfide; propyl disuphide
DESC Colorless to pale yellow odorous liquid
MW: 150.3 BP: 383 F MP: -122.1 F FP: 151 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SLC1 MEDIA:
ANL SOLVENT: Trichloroethylene
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

Dipropyl Ketone

IMIS **D178** CAS 123-19-3
SYN Butyrone, DPK, Heptan-4-one, 4-Heptanone, Propyl ketone
NIOSH RTECS MJ5600000 DOT 2710 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 50 ppm, 235 mg/m³
DESC Colorless liquid with a pleasant odor.
MW: 114.2 BP: 291 F MP: -27 F VP: 5 mm FP: 120 F
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Narcosis. (HE8)
SYMPT Irritation eyes, skin; central nervous system depression, dizziness, drowsiness,
decreased breath; In Animals: liver injury; narcosis
ORGAN Eyes, skin, central nervous system, liver
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liter MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Dipropylthiocarbamic Acid s-Ethyl Ester

IMIS **D346** CAS 759-94-4
SYN Eptam; Ethyl N, N-Di-n-Propylthiolcarbamate
NIOSH RTECS FA4550000* DOT 2902 151
DESC Clear yellow or light yellow liquid.
MW: 189.35 BP: 261 F (20 mm)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Diquat

IMIS **2681** CAS 85-00-7; 2764-72-9
SYN Diquat dibromide, 1,1'-Ethylene-2,2'-bipyridylium dibromide [Note: Diquat is a cation
(C₁₂H₁₂N₂⁺⁺; 1,1'-Ethylene-2,2'-bipyridylium ion). Various diquat salts are
commercially available.]
NIOSH RTECS JM5690000 DOT 2781 151(solid); 2782 131(liquid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m³

DESC Dibromide salt: Yellow crystals. [herbicide] [Note: Commercial product may be found in a liquid concentrate or a solution.]
 MW: 344.1 BP: Decomposes MP: 635 F VP: <0.00001 mm

INCOM Alkalis, UV light, basic solutions [Note: Concentrated diquat solutions corrode aluminum.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)

SYMPT Irritation eyes, skin, mucous membrane, respiratory system; rhinorrhea (discharge of thin nasal mucus), epistaxis (nosebleed); skin burns; nausea, vomiting, diarrhea, malaise (vague feeling of discomfort); kidney, liver injury; cough, chest pain, dyspnea (breathing difficulty), pulmonary edema; tremor, convulsions; delayed healing of wounds

ORGAN Eyes, skin, respiratory system, kidneys, liver, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: 0.1 N HCl
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

BULK Limit the amount of bulk submitted to one gram or one mL.

Direct Black 38

IMIS **1012** CAS 1937-37-7

NIOSH RTECS QJ6160000*

DESC Gray-black microcrystals or black powder.
 MW: 781.78 BP: Decomposes MP: Decomposes

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Human Carcinogen - [C.I. Direct Black 38 (see Benzidine and Dyes Metabolized to Benzidine)]

IARC Group 1 - carcinogenic to humans - [CI Direct Black 38 (see Benzidine, dyes metabolized to)]

SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Ship with dry ice. Protect samples from light and heat.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Direct Blue 1

IMIS **D185** CAS 3841-14-3; 2610-05-1

NIOSH RTECS QJ6430000*

DESC Bright greenish-blue solid or dark blue powder.
 MW: 904.9

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Skin sensitization, headache, dizziness, low blood pressure, lethargy, painful urination, anemia, jaundice, convulsions, coma and possible death

SLC1 MEDIA:

ANL SOLVENT: Tetrabutylammonium phosphate buffer solution
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
REF: (OSHA In-House File) CLASS: Partially Validated

Direct Blue 2

IMIS **0373** CAS 2429-73-4
NIOSH RTECS QJ6158000*
DESC Dark blue-black powder.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
 ANL SOLVENT: Methanol/Water (55/45) and PIC-A
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Direct Blue 6

IMIS **D136** CAS 2602-46-2
NIOSH RTECS QJ6400000*
DESC Dark blue microcrystals or black powder.
 MW: 932.78 BP: Decomposes MP: Decomposes
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [C.I. Direct Blue 6 (see Benzidine and Dyes Metabolized to Benzidine)]
IARC Group 1 - carcinogenic to humans - [CI Direct Blue 6 (see Benzidine, dyes metabolized to)]
SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye. Protect samples from light and heat.

Direct Blue 98

IMIS **D147** CAS 6656-03-7
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
 MAX V: 180 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Direct Brown 31

IMIS **D146** CAS 2429-81-4

NIOSH RTECS DG6241000*
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Direct Brown 95

IMIS **D137** CAS 16071-86-6
 NIOSH RTECS GL7375000*
 DESC Dark brown microcrystals or charcoal black powder.
 MW: 760.1 BP: Decomposes MP: Decomposes
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Human Carcinogen - [C.I. Direct Brown 95 (see Benzidine and Dyes Metabolized to Benzidine)]
 IARC Group 1 - carcinogenic to humans - [CI Direct Brown 95 (see Benzidine, dyes metabolized to)]
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye. Protect samples from light and heat.

Direct Red 2

IMIS **D186** CAS 992-59-6
 NIOSH RTECS QK1765000*
 DESC Brown to dark red powder.
 MW: 724.74 MP: 554 F (Decomposes)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: (65/35) Methano/:0.005 M Tetrabutylammonium Phosphate
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated

Direct Red 81

IMIS **D738** CAS 2610-11-9
 SYN C.I. 28160
 DESC Diazo Dye
 MW: 675.6
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

Disodium Acid Methane Arsenate

IMIS **D677** CAS 144-21-8
SYN DSMA
DESC Colorless hygroscopic solid.
MW: 183.93
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [Arsenic (see Arsenic and Inorganic Arsenic Compounds)]
IARC Group 1 - carcinogenic to humans - [Arsenic and inorganic arsenic compounds]

Disperse Blue 7

IMIS **D929** CAS 3179-90-6
DESC Fine black powder.
MW: 358.38 MP: >572 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Disperse Yellow 3

IMIS **C722** CAS 2832-40-8
SYN C.I. Solvent Yellow 3; Acetoquinone Light Yellow; C.I. 11855; Disperse Yellow G; N-(4-((2-Hydroxy-5-Methylphenyl) Azo) Phenyl) Acetamide; Disperse Yellow Z; Fast Yellow GD; NCI-C53781; Yellow Z
NIOSH RTECS AC3662000*
DESC Brownish-yellow powder.
MW: 269.31 MP: 514 to 518 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Disperse Yellow 3]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.

Disulfiram

IMIS **2682** CAS 97-77-8
SYN Antabuse®, bis(Diethylthiocarbamoyl) disulfide, Ro-Sulfiram®, TETD, Tetraethylthiuram disulfide
NIOSH RTECS JO1225000
MIOSHA FINAL RULE (Table G-1-A): TWA 2 mg/m3
DESC White, yellowish, or light-gray powder with a slight odor. [fungicide]
MW: 296.6 MP: 158 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Disulfiram]
SYMPT Irritation eyes, skin, respiratory system; sensitization dermatitis; lassitude (weakness, exhaustion), tremor, restlessness, headache, dizziness; metallic taste; peripheral neuropathy; liver damage
ORGAN Eyes, skin, respiratory system, central nervous system, peripheral nervous system,

liver
 SLC1 MEDIA:
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Sample must be analyzed as soon as possible after sampling.
 BULK Limit the amount of bulk submitted to one gram or one mL.

Disulfoton

IMIS **2680** CAS 298-04-4
 SYN O,O-Diethyl S-2-(ethylthio)-ethyl phosphorodithioate, Di-Syston®, Thiodemeton
 NIOSH RTECS TD9275000 DOT 2783 152
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3 (Skin)
 DESC Oily, colorless to yellow liquid with a characteristic, sulfur odor. [insecticide] [Note:
 Technical product is a brown liquid.]
 MW: 274.4 MP: >-13 F FP: >180 F
 INCOM Alkalis
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 SYMPT Irritation eyes, skin; nausea, vomiting, abdominal cramps, diarrhea, salivation;
 headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin
 nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle
 fasciculation; dyspnea (breathing difficulty); eye, skin burns
 ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood
 cholinesterase
 SLC1 MEDIA:
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

2,6-Di-tert-Butyl-p-Cresol

IMIS **2683** CAS 128-37-0
 SYN BHT, Butylated hydroxytoluene, Dibutylated hydroxytoluene, 4-Methyl-2,6-di-tert-
 butyl phenol
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 mg/m3
 NIOSH RTECS GO7875000
 DESC White to pale-yellow, crystalline solid with a slight, phenolic odor. [food preservative]
 MW: 220.4 BP: 509 F MP: 158 F FP: 261 F
 INCOM Oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good
 Housekeeping Practices are Followed). (HE18)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Butylated
 hydroxytoluene (BHT)]
 SYMPT Irritation eyes, skin; In Animals: decreased growth rate, increased liver weight
 ORGAN Eyes, skin
 SLC1 MEDIA:
 ANL SOLVENT: Methanol

INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; skin burns; In Animals: central nervous system depression
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 12 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA 89 CLASS: Fully Validated by OSHA

Divinyl Sulfide

IMIS **D918** CAS 627-51-0
DESC Liquid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 2.5 Liters MAX F: 0.02 L/min
ANL 1: Gas Chromatography; GC
REF: (WOHL) CLASS: Not Validated

Dodecane

IMIS **D819** CAS 112-40-3
DOT 1993 128
DESC Clear colorless liquid.
MW: 170.34 BP: 421.3 MP: 14.7 F FP: 165 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dodecenylsuccinic Anhydride

IMIS **D708** CAS 25377-73-5
SYN Succinic Anhydride, Dodencyl-
DESC MW: 266.38
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dodecyl Alcohol

IMIS **D728** CAS 112-53-8
SYN n-Dodecanol; Duodecyl Alcohol; Lauric Alcohol ; Dodecanol
NIOSH RTECS JR5775000* DOT 3077 171(international)
DESC Colorless thick liquid with a sweet odor.
MW: 186.33 BP: 498 F MP: 75 F FP: 260 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Dodecyl Benzene

IMIS **D705** CAS 123-01-3
SYN Phenylododecan; 1-Phenylododecane; Detergent Alkylate
NIOSH RTECS CZ9540000*
DESC Colorless liquid with a weak oily odor.
MW: 246.48 BP: 627.8 F MP: 19.4 F FP: 275 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dodecyl Benzenesulfonic Acid

IMIS **D175** CAS 27176-87-0
SYN Dobanic Acid 83; Elfan Wa Sulphonic Acid; NA 2584; Laurylbenzenesulfonic Acid
NIOSH RTECS DB6600000* DOT 2584 153
DESC A colorless liquid.
MW: 326.54 FP: 300 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Dodecylmercaptan

IMIS **TBD** CAS 112-55-0
SYN 1-Dodecyl mercaptan, Dodecyl mercaptan, n-Dodecyl mercaptan, Lauryl mercaptan, n-Lauryl mercaptan, 1-Mercaptododecane
NIOSH RTECS JR3155000 DOT 1228 131
DESC Colorless, water-white, or pale-yellow, oily liquid with a mild, skunk-like odor. [Note: A solid below 15°F.]
MW: 202.4 BP: 441 to 478 F MP: 15 F VP: 3 mm (77 F) FP: (oc) 190 F
INCOM Strong oxidizers & acids, strong bases, reducing agents, alkali metals, water, steam
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; cough; dizziness, dyspnea (breathing difficulty), lassitude (weakness, exhaustion), confusion, cyanosis; abdominal pain, nausea; skin sensitization
ORGAN Eyes, skin, respiratory system, central nervous system, blood

Dodine

IMIS **D706** CAS 2439-10-3
SYN Dodecylguanidine acetate; AC5223; Carpeno; Cyprex; Melprex; Curitan; Dodin; Syllit; Doguadine; Milprex; Tsitrex; Venturol; Vondodine
NIOSH RTECS MF1750000* DOT 3082 171
DESC White crystalline solid. [Used as a fungicide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Endosulfan

IMIS **2425** CAS 115-29-7
SYN Benzoepin, Endosulphan, 6,7,8,9,10-Hexachloro-1,5,5a,6,9,9a-hexachloro-6,9-methano-2,4,3-benzo-dioxathiepin-3-oxide, Thiodan®
NIOSH RTECS RB9275000 DOT 2761 151
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3 (Skin)
DESC Brown crystals with a slight, sulfur dioxide odor. [insecticide] [Note: Technical product is a tan, waxy, isomer mixture.]
MW: 406.9 BP: Decomposes MP: 223 F
INCOM Alkalis, acids, water [Note: Corrosive to iron. Hydrolyzes slowly on contact with water or decomposes in presence of alkalis and acids to form sulfur dioxide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,

respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation skin; nausea, confusion, agitation, flushing, dry mouth, tremor, convulsions, headache; In Animals: kidney, liver injury; decreased testis weight
 ORGAN Skin, central nervous system, liver, kidneys, reproductive system
 SLC1 MEDIA:
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated

Endrin

IMIS **1017** CAS 72-20-8
 SYN 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-1,4-endo,endo-5,8-dimethanonaphthalene, Hexadrin®
 NIOSH RTECS IO1575000 DOT 2761 151
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3 (Skin)
 DESC Colorless to tan, crystalline solid with a mild, chemical odor. [insecticide]
 MW: 380.9 BP: Decomposes MP: 392 F (Decomposes)
 INCOM Strong oxidizers, strong acids, parathion [Note: May emit hydrogen chloride & phosgene when heated or burned.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Endrin]
 SYMPT Epileptiform convulsions; stupor, headache, dizziness; abdominal discomfort, nausea, vomiting; insomnia; aggressiveness, confusion; drowsiness, lassitude (weakness, exhaustion); anorexia; In Animals: liver damage
 ORGAN Central nervous system, liver
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 400 Liters MIN V: 12 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: NIOSH 5513 CLASS: Fully Validated by NIOSH

Enflurane

IMIS **1038** CAS 13838-16-9
 SYN 2-Chloro-1-(difluoromethoxy)-1,1,2-trifluoroethane, 2-Chloro-1,1,2-trifluoroethyl difluoromethyl ether, Ethrane®
 NIOSH RTECS KN6800000
 DESC Clear, colorless liquid with a mild, sweet odor. [inhalation anesthetic]
 MW: 184.5 BP: 134 F VP: 175 mm
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes; central nervous system depression, analgesia, anesthesia, convulsions, resp depression
 ORGAN Eyes, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 12 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 103 SAE: 0.14 CLASS: Fully Validated by OSHA
 SLC2 MEDIA:

ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA 29

CLASS: Fully Validated by OSHA

EPN

IMIS **1019** CAS 2104-64-5
SYN Ethyl p-nitrophenyl benzenethionophosphonate, O-Ethyl O-(4-nitrophenyl)
phenylphosphonothioate
NIOSH RTECS TB1925000 DOT 3018 152
MIOSHA FINAL RULE (Table G-1-A): TWA 0.5 mg/m3 (Skin)
DESC Yellow solid with an aromatic odor. [pesticide] [Note: A brown liquid above 97°F.]
MW: 323.3 MP: 97 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Irritation eyes, skin; miosis, lacrimation (discharge of tears); rhinorrhea (discharge of
thin nasal mucus); headache; chest tightness, wheezing, laryngeal spasm;
salivation; cyanosis; anorexia, nausea, abdominal cramps, diarrhea; paralysis,
convulsions; low blood pressure, cardiac irreg
ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, blood
cholinesterase
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

1,2-Epoxybutane

IMIS **E225** CAS 106-88-7
SYN 1,2-Butylene Oxide DOT 3022 127
DESC A clear colorless volatile liquid with an ethereal odor.
MW: 72.11 BP: 145 F MP: -76 F FP: 10 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [1,2-Epoxybutane]
LESS1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
REC V: 24 Liters REC F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OHL2002S001 CLASS: Validated In-House

1,2-Epoxyethylbenzene

IMIS **E230** CAS 96-09-3
SYN Styrene-7,8-oxide;styrene oxide; phenethylene oxide; styrene epoxide
DESC Clear colorless straw-colored liquid with a sweet pleasant odor.
NIOSH RTECS CZ9625000* DOT 2810 153
DESC Clear colorless straw-colored liquid with a sweet pleasant odor.
MW: 120.15 BP: 381 F MP: -35 F VP: 0.3 mm FP: 175 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Styrene-7,8-oxide]
 IARC Group 2A - probably carcinogenic to humans - [Styrene-7,8-oxide]
 SLC1 MEDIA:
 ANL SOLVENT: Ethyl acetate
 MAX V: 13 Liters FLOW:0.01 to 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: P&CAM 303 CLASS: Partially Validated by
 P&CAM

1,3-Epoxypropane

IMIS **E216** CAS 503-30-0
 SYN 1,3-Propylene Oxide DOT 1280 127
 DESC Clear, colorless liquid with an agreeable aromatic odor.
 MW: 58.08 BP: 122 F FP: -19 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethane

IMIS **1025** CAS 74-84-0
 SYN Bimethyl; Dimethyl; ethyl hydride, methylmethane
 NIOSH RTECS KH3800000 DOT 1035 115
 DESC Odorless, colorless gas.
 MW: 30.1 BP: -127.5 F (760 mm) MP: -279.9 F FP: -211 F
 INCOM Chlorine dioxide, strong oxidizing agents
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Headache, nausea, vomiting, dizziness, lightheadedness, suffocation from lack of oxygen, frostbite
 ORGAN Skin and eye on contact with liquid – frostbite

Ethion

IMIS **2750** CAS 563-12-2
 SYN O,O,O',O'-Tetraethyl S,S'-methylene di(phosphorodithioate)
 NIOSH RTECS TE4550000 DOT 2783 152(solid); 3018 152(liquid)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.4 mg/m³ (Skin)
 DESC Colorless to amber-colored, odorless liquid. [insecticide] [Note: A solid below 10°F. The technical product has a very disagreeable odor.]
 MW: 384.5 BP: >302 F (Decomposes) MP: 10 F FP: 349 F
 INCOM Acids, alkalis
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 SYMPT Irritation eyes, skin; nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea (breathing difficulty)
 ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated

NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Ethyl-4, 4'-Dichlorobenzilate

IMIS **1113** CAS 510-15-6
SYN Chlorobenzilate; Chlorbenzilate
NIOSH RTECS DD2275000*
DESC Viscous yellow liquid or pale yellow crystals. Light brown crystalline solid.
MW: 325.2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Chloroethane]

Ethylamine

IMIS **1070** CAS 75-04-7
SYN Aminoethane, Ethylamine (anhydrous), Monoethylamine
NIOSH RTECS KH2100000 DOT 1036 118
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 18 mg/m³
DESC Colorless gas or water-white liquid (below 62°F) with an ammonia-like odor. [Note: Shipped as a liquefied compressed gas.]
MW: 45.1 BP: 62 F MP: -114 F VP: 874 mm FP: 1 F
INCOM Strong acids; strong oxidizers; copper, tin & zinc in presence of moisture; cellulose nitrate; chlorine; hypochlorites
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin, respiratory system; skin burns, dermatitis
ORGAN Respiratory system, eyes, skin
SLC1 MEDIA:
ANL SOLVENT: Tetrahydrofuran
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-VIS
REF: OSHA 36 SAE: 0.13 CLASS: Fully Validated by OSHA
SAM2 MIRAN 1A: MIN. Det. Con. 1.4 ppm at 3.4 um

Ethyl Amyl Ketone (5-Methyl-3-Heptanone)

IMIS **1075** CAS 541-85-5
SYN Amyl ethyl ketone, Ethyl amyl ketone, 3-Methyl-5-heptanone
NIOSH RTECS MJ7350000 DOT 2271 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 25 ppm, 130 mg/m³
DESC Colorless liquid with a pungent odor.
MW: 128.2 BP: 315 F VP: 2 mm MP: -70 F FP: 138 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, skin, mucous membrane; headache; narcosis, coma; dermatitis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
ALT SOLVENT: (99/1) Carbon Disulfide/Methanol

MAX V: 25 Liters	MIN V: 1 Liter	MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID		
REF: NIOSH 1301	SAE: 0.17	CLASS: Partially Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 1.0 ppm at 9.0 μm

Ethyl Bromide

IMIS	1090	CAS	74-96-4
SYN	Bromoethane, Monobromoethane		
NIOSH	RTECS KH6475000	DOT	1891 131
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	200 ppm, 890 mg/m3
		STEL	250 ppm, 1110 mg/m3
DESC	Colorless to yellow liquid with an ether-like odor. [Note: A gas above 101°F.] MW: 109.0 BP: 101 F VP: 375 mm MP: -182 F FP: <4 F		
INCOM	Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc & magnesium		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3) Nervous System Disturbances---Narcosis. (HE8) Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)		
IARC	Group 3 - not classifiable as to its carcinogenicity to humans - [Bromoethane]		
SYMPT	Irritation eyes, skin, respiratory system; central nervous system depression; pulmonary edema; liver, kidney disease; cardiac arrhythmias, cardiac arrest		
ORGAN	Eyes, skin, respiratory system, liver, kidneys, cardiovascular system, central nervous system		
SLC1	MEDIA: ANL SOLVENT: Isopropanol ALT SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide MAX V: 4 Liters MAX F: 0.2 L/min (TWA) MAX V: 3 Liters MAX F: 0.2 L/min (STEL) ANL 1: Gas Chromatography; GC-FID REF: NIOSH 1011 SAE: 0.09 CLASS: Partially Validated by NIOSH NOTE: Submit as a separate sample.		

SAM2 MIRAN 1A: MIN. Det. Con. 0.8 ppm at 8.0 μm

Ethyl Butyl Ketone (3-Heptanone)

IMIS	1100	CAS	106-35-4
SYN	Butyl ethyl ketone; 3-Heptanone		
NIOSH	RTECS MJ5250000	DOT	1224 127
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	50 ppm, 230 mg/m3
DESC	Colorless liquid with a powerful, fruity odor. MW: 114.2 BP: 298 F VP: 4 mm MP: -38 F FP: (oc) 115 F		
INCOM	Oxidizers, acetaldehyde, perchloric acid		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Nervous System Disturbances---Narcosis. (HE8) Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)		
SYMPT	Irritation eyes, skin, mucous membrane; headache, narcosis, coma; dermatitis		
ORGAN	Eyes, skin, respiratory system, central nervous system		
SLC1	MEDIA:		

MW: 28.05 BP: -154.7 F MP: -272.4 F FP: -213 F (approx.)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Ethylene]
 SAM2 DET. TUBE: Sensidyne, 172L, 0.2-50 ppm
 Sensidyne, 172, 50-800 ppm
 Draeger, 67 28481, 0.5-10 ppm
 Draeger, 67 28051, 50-2,500 ppm
 MSA, 82802, 0.5-100 ppm
 Kitagawa, 108B, 0.1-100 ppm
 MIRAN SAPPHIRE: Det. Limit: 0.4ppm, long pathlength
 MIRAN 103: Range 0-25 ppm at 10.6 um
 PID Photoionization Detector

Ethylene Chlorohydrin (2-Chloroethanol)

IMIS **1120** CAS 107-07-3
 SYN 2-Chloroethanol, 2-Chloroethyl alcohol, Ethylene chlorhydrin
 NIOSH RTECS KK0875000 DOT 1135 131
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 1 ppm, 3 mg/m3 (Skin)
 DESC Colorless liquid with a faint, ether-like odor.
 MW: 80.5 BP: 262 F VP: 5 mm MP: -90 F FP: 140 F
 INCOM Strong oxidizers, strong caustics, water or steam
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation mucous membrane; nausea, vomiting; dizziness, incoordination; numb; visual disturbance; headache; thirst; delirium; low blood pressure; collapse, shock, coma; liver, kidney damage
 ORGAN Respiratory system, liver, kidneys, central nervous system, cardiovascular system, eyes
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
 MIN V: 3 Liters MIN T: 15 Minutes MAX F: 0.2 L/min (CEIL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2513 SAE: 0.12 CLASS: Fully Validated by NIOSH
 NOTE: Submit as a separate sample.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.3 µm

Ethylenediamine (1,2-Diaminoethane)

IMIS **1130** CAS 107-15-3
 SYN 1,2-Diaminoethane, 1,2-Ethanediamine, Ethylenediamine (anhydrous)
 NIOSH RTECS KH8575000 DOT 1604 132
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 ppm, 25 mg/m3
 DESC Colorless, viscous liquid with an ammonia-like odor. [fungicide] [Note: A solid below 47°F.]
 MW: 60.1 BP: 241 F VP: 11 mm MP: 47 F FP: 93 F
 INCOM Strong acids & oxidizers, carbon tetrachloride & other chlorinated organic

compounds, carbon disulfide [Note: Corrosive to metals.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or
 other). (HE9)
 SYMPT Irritation nose, respiratory system; sensitization dermatitis; asthma; liver, kidney
 damage
 ORGAN Skin, respiratory system, liver, kidneys
 SLC1 MEDIA:
 ANL SOLVENT: Dimethylformamide
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 60 SAE: 0.09 CLASS: Fully Validated by OSHA
 SAM2 MIRAN 1A: MIN. Det. Con. 1.2 ppm at 13.0 um

Ethylene Dibromide (1,2-Dibromoethane)

IMIS **1140** CAS 106-93-4
 SYN 1,2-Dibromoethane, Ethylene bromide, Glycol dibromide
 NIOSH RTECS KH9275000 DOT 1605 154
 MIOSHA FINAL RULE (Table G-2):
 TWA 20 ppm
 CEIL 30 ppm
 PEAK 50 ppm (max 5 min)
 DESC Colorless liquid or solid (below 50°F) with a sweet odor. [fumigant]
 MW: 187.9 BP: 268 F VP: 11 mm (77 F) MP: 50 F
 INCOM Chemically-active metals such as sodium, potassium, calcium, hot aluminum &
 magnesium; liquid ammonia; strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
 mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [1,2-Dibromoethane]
 IARC Group 2A - probably carcinogenic to humans - [Ethylene dibromide]
 SYMPT Irritation eyes, skin, respiratory system; dermatitis with vesiculation; liver, heart,
 spleen, kidney damage; reproductive effects; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, liver, kidneys, reproductive system [in animals: skin &
 lung tumors]
 SLC1 MEDIA:
 ANL SOLVENT: Xylene
 MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
 MIN T: 5 Minutes MAX F: 0.2 L/min (CEIL)
 MIN T: 5 Minutes MAX F: 0.2 L/min (Peak)
 ANL 1: Gas Chromatography; GC-ECD
 REF: Supplemented OSHA 2 SAE: 0.15 CLASS: Fully
 Validated by OSHA
 NOTE: Sample must be refrigerated and analyzed as soon as possible.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.6 ppm at 8.6 um

Ethylene Dimethacrylate

IMIS **E118** CAS 97-90-5

SYN Ethylene Ester Methacrylic Acid; Diglycol Dimethacrylate; Glycol Dimethacrylate; Ethylene Glycol Dimethacrylate; Ethylene Methacrylate
NIOSH RTECS OZ2440000*
DESC Colorless liquid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethylene Glycol Diethyl Ether

IMIS **1157** CAS 629-14-1
DOT 1153 127
DESC A clear colorless liquid with a faint ether-like odor.
MW: 118.2 BP: 250.5 F MP: -101 F FP: 95 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethylene Glycol Dinitrate

IMIS **1910** CAS 628-96-6
SYN EGDN, 1,2-Ethanediol dinitrate, Ethylene dinitrate, Ethylene nitrate, Glycol dinitrate, Nitroglycol
NIOSH RTECS KW5600000
MIOSHA FINAL RULE (Table G-1-A):
STEL 0.1 mg/m3 (Skin)
DESC Colorless to yellow, oily, odorless liquid. [Note: An explosive ingredient (60-80%) in dynamite along with nitroglycerine (40-20%).]
MW: 152.1 BP: 387 F VP: 0.05 mm MP: -8 F FP: 419 F
INCOM Acids, alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Throbbing head; dizziness; nausea, vomiting, abdominal pain; hypotension; flush; palpitations; methemoglobinemia; delirium, depression CNS; angina; skin irritation; In animals: anemia; mild liver, kidney damage
ORGAN Skin, cardiovascular system, blood, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
MIN T: 15 Minutes MAX F: 1.0 L/min (CEIL)
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 43 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: The sampling pump must be approved by NIOSH and/or MSHA as intrinsically safe for use in coal mines.

Ethylene Glycol Monoethyl Ether

IMIS **1158** CAS 112-25-4
SYN n-Hexyl Cellosolve
NIOSH RTECS KL2450000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Ethyleneimine

IMIS **1175** CAS 151-56-4
SYN Aminoethylene, Azirane, Aziridine, Dimethyleneimine, Dimethylenimine, Ethylenimine, Ethylimine
NIOSH RTECS KX5075000 DOT 1185 131(inhibited)
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Colorless volatile liquid with intense odor of ammonia. Poisonous.
MW: 43.1 BP: 133 F MP: -97 F VP: 160 mm FP: 12 F
INCOM Polymerizes explosively in presence of acids [Note: Explosive silver derivatives may be formed with silver alloys (e.g., silver solder).]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)
IARC Group 2B - possibly carcinogenic to humans - [Aziridine]
SYMPT Irritation eyes, skin, nose, throat; nausea, vomiting; headache, dizziness; pulmonary edema; liver, kidney damage; eye burns; skin sensitization; [potential occupational carcinogen]
ORGAN Eyes, skin, respiratory system, liver, kidneys [in animals: lung & liver tumors]
SLC1 MEDIA:
ANL SOLVENT: Chloroform
MAX V: 48 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 3514 SAE: 0.155 CLASS: Fully Validated by NIOSH
NOTE: Folin's reagent should be obtained from SLC. Store reagent in a refrigerator and discard after 5 days. While sampling, wrap impingers and vials with aluminum foil to protect from light. After sampling, keep samples cool. Ship samples to SLC by overnight carrier packaged in a container with cold packs to keep samples cool.

Ethylene Thiourea

IMIS **1159** CAS 96-45-7
SYN 1,3-Ethylene-2-thiourea, N,N-Ethylenethiourea, ETU, 2-Imidazolidine-2-thione
NIOSH RTECS NI9625000 DOT 2811 154
DESC White to pale-green, crystalline solid with a faint, amine odor. [Note: Used as an accelerator in the curing of polychloroprene & other elastomers.]
MW: 102.2 BP: 446 to 595 F MP: 392 F VP: 16 mm FP: 486 F
INCOM Acrolein
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
NTP Suspect Human Carcinogen - [Ethylene Thiourea]
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Ethylenethiourea]
SYMPT Irritation eyes; In Animals: thickening of the skin; goiter; teratogenic effects; [potential occupational carcinogen]
ORGAN Eyes, skin, thyroid, reproductive system [in animals: liver, thyroid & lymphatic sys tumors]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 95 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Samples are collected open-face.
BULK Limit the amount of bulk submitted to one gram or one mL.

Ethyl-3-Ethoxypropionate

IMIS **E105** CAS 763-69-9
SYN EEP
NIOSH RTECS UF3325000* DOT 1993 128
DESC Water-white liquid with an ester-like odor.
MW: 146.21 BP: 338 F MP: -148 F FP: 138 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Ethyl Formate

IMIS **1155** CAS 109-94-4
SYN Ethyl ester of formic acid, Ethyl methanoate

NIOSH RTECS LQ8400000 DOT 1190 129
MIOSHA FINAL RULE (Table G-1-A):
TWA 100 ppm, 300 mg/m3
DESC Colorless liquid with a fruity odor.
MW: 74.1 BP: 130 F VP: 200 mm MP: -113 F FP: -4 F
INCOM Nitrates; strong oxidizers, alkalis & acids [Note: Decomposes slowly in water to form ethyl alcohol and formic acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Narcosis. (HE8)
Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
SYMPT Irritation eyes, upper respiratory system; In Animals: narcosis
ORGAN Eyes, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1452 SAE: 0.13 CLASS: Partially Validated by NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 0.08 ppm at 8.5 µm

2-Ethyl-1,3-Hexanediol

IMIS **E226** CAS 94-96-2
SYN Ethohexadiol; Ethyl Hexanediol
DESC Liquid.
MW: 146.23
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Ethyl Hexanol

IMIS **E106** CAS 104-76-7
SYN 2-ethylhexanol; 2-ethylhexan-1-ol; isooctyl alcohol
NIOSH RTECS MP0350000* DOT 1986 131
DESC A dark brown liquid with an aromatic odor.
MW: 130.23 BP: 252 to 365 F MP: -105 F VP: 0.05 mm FP: 178 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 60 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Ethyl Hexyl Acetate

IMIS **E119** CAS 103-09-3
SYN Octyl Acetate; 2-Ethylhexyl Ethanoate; Caprylyl Acetate
DOT 1993 128
DESC A water-white liquid.
MW: 172.27 BP: 378 F FP: 160 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

2-Ethylhexyl Acrylate

IMIS **1055** CAS 103-11-7
SYN 2-propenoic acid, 2-ethylhexyl ester; 1-hexanol, 2-ethylacrylate; 2-ethylhexylpropenoate; acrylic acid, 2-ethylhexyl ester; octyl acrylate
NIOSH RTECS AT0855000*
DESC Clear liquid with a pleasant odor.
MW: 184.3 BP: 417 to 424 F MP: -130 F VP: 0.01 mm FP: 180 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [2-Ethylhexyl acrylate]
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 12 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

2-Ethylhexylamine

IMIS **E107** CAS 104-75-6
DOT 2276 132
DESC A water-white liquid with a fishlike odor.
MW: 129.28 BP: 336.6 F MP: <-94 F FP: 140 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethyl alpha-Hydroxy Isobutyrate

IMIS **E317** CAS 80-55-7
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethylidene Norbornene

IMIS **1161** CAS 16219-75-3
SYN ENB, 5-Ethylidenebicyclo(2.2.1)hept-2-ene, 5-Ethylidene-2-norbornene [Note: Due to its reactivity, ENB may be stabilized with tert-butyl catechol.]
NIOSH RTECS RB9450000 1993 128
MIOSHA FINAL RULE (Table G-1-A):
CEIL 5 ppm, 25 mg/m3
Stayed, FR 54:2922 1/19/89

DESC Colorless to white liquid with a turpentine-like odor.
 MW: 120.2 BP: 298 F MP: -112 F VP: 4 mm FP: (oc) 101 F

INCOM Oxygen [Note: ENB should be stored in a nitrogen atmosphere since it reacts with oxygen.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)

SYMPT Irritation eyes, skin, nose, throat; headache; cough, dyspnea (breathing difficulty); nausea, vomiting; olfactory, taste changes; chemical pneumonitis (aspiration liquid);
 In Animals: liver, kidney, urogenital injury; bone marrow effects

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys, urogenital system, bone marrow

SLC1 Standard has been stayed until an analytical method can be developed.

Ethyl Isobutyl Ketone

IMIS **E229** CAS 623-56-3

SYN 5-Methylhexan-3-one

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethyl Lactate

IMIS **E227** CAS 97-64-3

SYN Actylol; ethyl α -hydroxypropionate; ethyl-2-hydroxypropionate

NIOSH RTECS OD5075000* DOT 1192 129

DESC A clear colorless liquid with a mild odor.
 MW: 118.1 BP: 309 F FP: 115 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
 ANL SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

Ethyl Mercaptan (Ethanethiol)

IMIS **1220** CAS 75-08-1

SYN Ethanethiol, Ethyl sulfhydrate, Mercaptoethane

NIOSH RTECS KI9625000 DOT 2363 129

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 1 mg/m³

DESC Colorless liquid with a strong, skunk-like odor. [Note: A gas above 95°F.]
 MW: 62.1 BP: 95 F MP: -228 F VP: 442 mm FP: -55 F

INCOM Strong oxidizers [Note: Reacts violently with calcium hypochlorite.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Generally Low Risk Health Effects---Odor. (HE20)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)

SYMPT Irritation mucous membrane; headache, nausea; In Animals: incoordination, lassitude (weakness, exhaustion); liver, kidney damage; cyanosis; narcosis

ORGAN Eyes, respiratory system, liver, kidneys, blood

SLC1 MEDIA:
 ANL SOLVENT: (20/5) 25% Aqueous HCl/Methylene Chloride
 MAX V: 150 Liters MAX F: 0.2 L/min (TWA or CEIL)
 ANL 1: Gas Chromatography; GC-FPD

REF: NIOSH 2542 SAE: 0.16 CLASS: Partially Validated by
NIOSH

SAM2 NOTE: Protect samples from light at all times.
DET. TUBE: Sensidyne, 72, 1-120 ppm
MSA, 454206, 0.5-100 ppm
Kitagawa, 165A, 1-160 ppm
MIRAN 1A & 1B: MIN. Det. Con. 0.8 ppm at 3.3 um
Century Organic Vapor Analyzer

Ethyl Methacrylate

IMIS **E115** CAS 97-63-2
SYN Methacrylic acid, Ethyl ester; Ethyl 2-methylacrylate; Ethyl 2-methyl-2-propenoate;
Rhoplex AC-33; 2-propenoic acid, 2-methyl-ethyl ester
NIOSH RTECS OZ4550000 DOT 2277 130
DESC A colorless moderately toxic liquid with an acrid odor.
MW: 114.15 BP: 243 F MP: -103 F VP: 14 mm (36 F) FP: 60 F

INCOM Strong acids, amines, oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, skin, and respiratory system, cough, sore throat, vomiting
ORGAN Eyes, respiratory system
LESS1 MEDIA (11): Charcoal Tube (100/50 mg sections, 20/40 mesh)
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
REC V: 10 Liters REC F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHAPV2100 CLASS: Partially Validated by
OSHA

Ethyl Methyl Ether

IMIS **E609** CAS 540-67-0
SYN Methyl Ethyl Ether

DOT 1039 115
DESC A clear colorless gas with a medicine-like odor.
MW: 60.1 FP: -35 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Ethylmorpholine

IMIS **1225** CAS 100-74-3
SYN 4-Ethylmorpholine
NIOSH RTECS QE4025000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 23 mg/m³ (Skin)
DESC Colorless liquid with an ammonia-like odor.
MW: 115.2 BP: 281 F VP: 6 mm MP: -81 F FP: (oc) 90 F
INCOM Strong acids, strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, nose, throat; visual disturbance: corneal edema, blue-gray vision,
colored haloes
ORGAN Eyes, respiratory system
SLC1 MEDIA:
ANL SOLVENT: 0.1 N Sulfuric Acid
REC V: 10 Liters MAX F: 0.2 L/min

1-Ethynaphthalene

IMIS **E217** CAS 1127-76-0
NIOSH RTECS QJ6950000*
DESC MW: 156.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Ethynaphthalene

IMIS **E218** CAS 939-27-5
NIOSH RTECS QJ6960000*
DESC Colorless liquid.
MW: 156.24 BP: 496 F MP: 18.7 F FP: 220 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethyl Propionate

IMIS **E236** CAS 105-37-3
SYN Propionic Acid Ethyl Ester; Propionic Ether
NIOSH RTECS UF3675000* DOT 1195 129
DESC A clear colorless liquid with a pineapple-like odor.
MW: 102.13 BP: 210 F MP: -99 F FP: 54 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC
REF: (WOHL) CLASS: Not Validated

Ethyl Silicate

IMIS **1230** CAS 78-10-4
SYN Ethyl orthosilicate, Ethyl silicate (condensed), Tetraethoxysilane, Tetraethyl orthosilicate, Tetraethyl silicate
NIOSH RTECS VV9450000 DOT 1292 129
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 85 mg/m3
DESC Colorless liquid with a sharp, alcohol-like odor.
MW: 208.3 BP: 336 F VP: 1 mm MP: -117 F FP: 99 F
INCOM Strong oxidizers, water [Note: Reacts with water to form a silicone adhesive (a milky-white mass).]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
SYMPT Irritation eyes, nose; In Animals: lacrimation (discharge of tears); dyspnea (breathing difficulty), pulmonary edema; tremor, narcosis; liver, kidney damage; anemia
ORGAN Eyes, respiratory system, liver, kidneys, blood, skin
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
REC V: 9 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S264 SAE: 0.09 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 0.04 ppm at 9.1 um

Ethyl Toluene (All Isomers)

IMIS **E109** CAS 611-14-3; 620-14-4; 622-96-8
SYN o-Ethyl Toluene (611-14-3); m-Ethyl Toluene (620-14-4); p-Ethyl Toluene (622-96-8)
DOT 3295 128
DESC A colorless liquid with an aromatic hydrocarbon odor.
MW: 120.19 BP: 329.4 F MP: -113.4 F FP: 103 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ethyl Vinyl Benzene

IMIS **E228** CAS 28106-30-1
SYN Ethenylethylbenzene; EVB
NIOSH RTECS WL4725000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 12 Liters MAX F: 0.05 L/min
MIN V: 0.75 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA 89 SAE: 0.08 CLASS: Fully Validated by OSHA

Explosibility

IMIS **E100**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Explosion Severity

IMIS **E101**
DESC Relative to dusts and powders.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Fenamiphos

IMIS **F126** CAS 22224-92-6
SYN Ethyl 3-methyl-4-(methylthio)phenyl-(1-methylethyl)phosphoramidate, Nemacur®, Phenamiphos
NIOSH RTECS TB3675000 DOT 3018 152(liquid); 2783 152(solid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3 (Skin)
DESC Off-white to tan, waxy solid. [insecticide] [Note: Found commercially as a granular ingredient (5-15%) or in an emulsifiable concentrate (400 g/l).]
MW: 303.4 MP: 121 F
INCOM None Reported [Note: May hydrolyze under alkaline conditions.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea (breathing difficulty)
ORGAN Respiratory system, central nervous system, cardiovascular system, blood cholinesterase

SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

Fenarimol

IMIS **F125** CAS 60168-88-9
SYN alpha- (2-Chlorophenyl)-alpha- (4-Chlorophenyl)-5-Pyrimidinemethanol; Rubigan; Bloc; EL 222
NIOSH RTECS UV9279400* DOT 3017 131
DESC Pure white crystalline solid
MW: 331.21
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 30 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Fensulfothion

IMIS **1251** CAS 115-90-2
SYN Dasanit®, O,O-Diethyl O-(p-methylsulfinyl)phenyl)phosphorothioate, Terracur P®
NIOSH RTECS TF3850000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3
DESC Brown liquid or yellow oil. [pesticide]
MW: 308.4
INCOM Alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Irritation skin; nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea (breathing difficulty)
ORGAN Skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Fenthion

IMIS **F105** CAS 55-38-9
SYN Baytex, O,O-Dimethyl O-3-methyl-4-methylthiophenyl phosphorothioate, Entex
NIOSH RTECS TF9625000 DOT 3017 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3 (Skin)
DESC Colorless to brown liquid with a slight, garlic-like odor. [insecticide]
MW: 278.3 MP: 43 F

INCOM Oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irregularities; muscle fasciculation; dyspnea (breathing difficulty)
 ORGAN Respiratory system, central nervous system, cardiovascular system, plasma cholinesterase
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Ferbam (Total Dust)

IMIS **1263** CAS 14484-64-1
 SYN tris(Dimethyldithiocarbamato)iron, Ferric dimethyl dithiocarbamate
 NIOSH RTECS NO8750000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 mg/m3
 DESC Dark brown to black, odorless solid. [fungicide]
 MW: 416.5 BP: Decomposes MP: >356 F (Decomposes) VP: 0 mm (approx.)
 INCOM Strong oxidizers, moisture
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Ferbam]
 SYMPT Irritation eyes, resp tract; dermatitis; gastrointestinal disturbance
 ORGAN Eyes, skin, respiratory system, gastrointestinal tract
 SLC1 MEDIA:
 MAX V: 480 Liters MIN V: 240 Liters MAX F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 NOTE: Sample analyzed chromatographically only if the gross weight of the sample yields an air concentration greater than the PEL. If the net weight corresponds to an amount greater than the PEL value after considering the associated SAE, the sample may be analyzed for the applicable component and appropriate results will be reported.
 ANL 2: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Flame Point

IMIS **F117**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA: Bulk
 NOTE: Ship a minimum of 250 mL of material to SLTC for analysis. Ship according to current DOT Regulations.

Flash Point

IMIS **F006**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Ship a minimum of 250 mL of material to SLTC for analysis. Ship according to current DOT Regulations.

Flax Dust

IMIS **F121**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
NOTE: See Particulates not otherwise regulated (Total Dust) OR Particulates not otherwise regulated (Respirable Fraction)

Fluoboric Acid

IMIS **1275** CAS 16872-11-0
SYN Fluoroboric Acid; Hydrogen tetrafluoroborate
DOT 1775 154
DESC A colorless odorless poisonous liquid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: Ion Specific Electrode; ISE
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as separate sample. Samples must be stored and shipped in plastic bottles. An analysis is performed for Fluoroborate (BF₄⁻) and reported as the compound.

Fluoranthene

IMIS **F115** CAS 206-44-0
NIOSH RTECS LL4025000* DOT 1325 133
DESC Light yellow fine crystals.
MW: 202.26 BP: 482 F (60 mm) MP: 230 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Fluoranthene]
SLC1 MEDIA:
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Fluorene

IMIS **F106** CAS 86-73-7
NIOSH RTECS LL5670000*
DESC White leaflets.
MW: 166.21 BP: 563 F MP: 241 to 243 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Fluorene]
SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: (OSHA In-House File) CLASS: Not Validated

NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight.

BULK Limit the amount of bulk submitted to one gram or one mL.

9-Fluorenone

IMIS **F109** CAS 486-25-9
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Fluorine

IMIS **1270** CAS 7782-41-4
SYN Fluorine-19
NIOSH RTECS LM6475000 DOT 9192 167(cryogenic liquid); 1045 124
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.2 mg/m³
DESC Pale-yellow to greenish gas with a pungent, irritating odor.
MW: 38.0 BP: -307 F VP: >1 atm MP: -363 F
INCOM Water, nitric acid, oxidizers, organic compounds [Note: Reacts violently with all combustible materials, except the metal containers in which it is shipped. Reacts with H₂O to form hydrofluoric acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, nose, respiratory system; laryngeal spasm, wheezing; pulmonary edema; eye, skin burns; In Animals: liver, kidney damage
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Ion Specific Electrode; ISE
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as separate sample. Sample analyzed for total fluoride reported as fluorine using OSHA Method ID-110.

Fluorotrichloromethane (Trichlorofluoromethane)

IMIS **1285** CAS 75-69-4
SYN Freon® 11, Monofluorotrichloromethane, Refrigerant 11, Trichlorofluoromethane, Trichloromonofluoromethane
NIOSH RTECS PB6125000 DOT 1956 126
MIOSHA FINAL RULE (Table G-1-A):
CEIL 1000 ppm, 5600 mg/m³
DESC Colorless liquid or gas with a chlorinated solvent odor which is detectable at >20% by volume.
MW: 137.4 BP: 75 F VP: 690 mm MP: -168 F
INCOM Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc, magnesium & lithium shavings; granular barium
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT In coordination; tremors; dermatitis; frostbite; cardiac arrhythmias, cardiac arrest
ORGAN Skin, respiratory system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide

MAX V: 7 Liters MIN V: 0.3 Liters MAX F: 0.05 L/min (CEIL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1006 SAE: 0.161 CLASS: Fully Validated by
NIOSH
NOTE: Ship refrigerated
SAM2 MIRAN 1A: MIN. Det. Con. 1.4 ppm at 11.0 µm

5-Fluorouracil

IMIS **F127** CAS 51-21-8
SYN Adrucil; Efudex; Fluoroplex; 5-Fluoropyrimidine-2, 4-dione; Fluorouracil; FU; 5-FU
NIOSH RTECS YR0350000*
DESC White to nearly white crystalline powder; practically odorless.
MW: 130.08
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [5-Fluorouracil]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Fonofos

IMIS **2685** CAS 944-22-9
SYN Dyfonate®, Dyphonate, O-Ethyl-S-phenyl ethylphosphorothioate, Fonophos
NIOSH RTECS TA5950000 DOT 3018 152
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3 (Skin)
DESC Light-yellow liquid with an aromatic odor. [insecticide]
MW: 246.3
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness,
lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest
tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea
(breathing difficulty)
ORGAN Respiratory system, central nervous system, cardiovascular system, blood
cholinesterase
SLC1 MEDIA:
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Formamide

IMIS **1292** CAS 75-12-7
SYN Carbamaldehyde, Methanamide
NIOSH RTECS LQ0525000
MIOSHA FINAL RULE (Table G-1-A): TWA 20 ppm, 30 mg/m3
STEL 30 ppm, 45 mg/m3
DESC Colorless, oily liquid. [Note: A solid below 37°F.]

MW: 45.1 BP: 411 F (Decomposes) MP: 37 F FP: (oc) 310 F
 INCOM Oxidizers, iodine, pyridine, sulfur trioxide, copper, brass, lead [Note: Hygroscopic (i.e., absorbs moisture from the air).]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SYMPT Irritation eyes, skin, mucous membrane; drowsiness, lassitude (weakness, exhaustion); nausea; acidosis; skin eruptions; In Animals: reproductive effects
 ORGAN Eyes, skin, respiratory system, central nervous system, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 10 Liters MAX F: 0.1 L/min (TWA)
 MAX V: 1.5 Liters MAX F: 0.1 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

Fumarin

IMIS **F116** CAS 117-52-2
 SYN 3-(alpha-Acetyl-furfuryl)-4-Hydroxycoumarin; Furmarin; Coumafuryl; Foumarin
 NIOSH RTECS GN4850000*
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 200 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Gentian Violet

IMIS **G107** CAS 548-62-9
 SYN Hexamethyl-p-Rosaniline Chloride; Crystal Violet; Aniline Violet; Brilliant Violet 5B; Methylrosaniline Chloride; Basic Violet 3; C.I. 42555; Methyl Violet 10BNS; Vianin; Viocid; Badil; Andergon; Axuris; Gentiaverm; Meroxylan; Meroxyl; Pyoktanin
 NIOSH RTECS BO9000000*
 DESC Dark green powder or greenish, glistening pieces with metallic luster. Soluble in water, chloroform; practically insoluble in ether.
 MW: 407.99
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Gentian violet (see also Leucogentian violet)]
 SLC1 MEDIA:
 MAX V: 180 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain coated filters from SLTC.

Germanium Oxide

IMIS **G300** CAS 20619-16-3
 SYN Germanium Dioxide (as GeO2)
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min

ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL.
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Validated In-House

Germanium Tetrahydride

IMIS 1360 CAS 7782-65-2
SYN Germane, Germanium hydride, Germanomethane, Monogermane [Note: Used chiefly for the production of high purity germanium for use in semiconductors.]
NIOSH RTECS LY4900000 DOT 2192 119
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 ppm, 0.6 mg/m³
DESC Colorless gas with a pungent odor. [Note: Shipped as a compressed gas.]
MW: 76.6 BP: -127 F MP: -267 F
INCOM Bromine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Malaise (vague feeling of discomfort), headache, dizziness, fainting; dyspnea (breathing difficulty); nausea, vomiting; kidney injury; hemolytic effects
ORGAN Central nervous system, kidneys, blood
SLC1 MEDIA:
MAX V: 48 Liters MIN V: 24 Liters MAX F: 0.2 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL.
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Validated In-House

Glycidol (2,3-Epoxy-1-Propanol)

IMIS 1365 CAS 556-52-5
SYN 2,3-Epoxy-1-propanol, Epoxypropyl alcohol, Glycide, Hydroxymethyl ethylene oxide, 2-Hydroxymethyl oxiran, 3-Hydroxypropylene oxide
NIOSH RTECS UB4375000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 25 ppm, 75 mg/m³
DESC Colorless liquid.
MW: 74.1 BP: 320 F (Decomposes) VP: 0.9 mm (77 F) MP: -49 F
FP: 162 F
INCOM Strong oxidizers, nitrates
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [Glycidol]
IARC Group 2A - probably carcinogenic to humans - [Glycidol]
SYMPT Irritation eyes, skin, nose, throat; narcosis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:

MAX V: 960 Liters	MIN V: 480 Liters	MAX F: 2.0 L/min
ANL 1: Gravimetric		
REF: OHL2004S015	SAE: 0.050	CLASS: Validated In-House

NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL.

ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS		
REF: OHL2018S001		CLASS: Validated In-House

Gravimetric Determination

IMIS **G301**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA: Bulk
 NOTE: Call SLTC for instructions.

Hafnium and Compounds

IMIS	1368	CAS	7440-58-6
SYN	Celtium, Elemental hafnium, Hafnium metal		
NIOSH	RTECS MG4600000	DOT	1326 170(powder wet); 2545 135(powder dry)
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.5 mg/m3
DESC	Highly lustrous, ductile, grayish solid. MW: 178.5 BP: 8316 F MP: 4041 F		
INCOM	Strong oxidizers, chlorine		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3) Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)		
SYMPT	In Animals: irritation eyes, skin, mucous membrane; liver damage		
ORGAN	Eyes, skin, mucous membrane, liver		
SLC1	MEDIA: MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min ANL 1: Gravimetric REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL. ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS REF: OHL2018S001 CLASS: Validated In-House NOTE: Refer to [OSHA ID-121; AP 6]		

Halothane

IMIS	0395	CAS	151-67-7
SYN	1-Bromo-1-chloro-2,2,2-trifluoroethane, 2-Bromo-2-chloro-1,1,1-trifluoroethane, 1,1,1-Trifluoro-2-bromo-2-chloroethane, 2,2,2-Trifluoro-1-bromo-1-chloroethane		
NIOSH	RTECS KH6550000	DOT	3082 171
DESC	Clear, colorless liquid with a sweetish, pleasant odor. [inhalation anesthetic] MW: 197.4 BP: 122 F MP: -180 F		
INCOM	May attack rubber & some plastics; sensitive to light. [Note: Light causes decomposition. May be stabilized with 0.01% thymol.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,		

respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Narcosis. (HE8)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Anaesthetics, volatile]
 SYMPT Irritation eyes, skin, respiratory system; confusion, drowsiness, dizziness, nausea, analgesia, anesthesia; cardiac arrhythmias; liver, kidney damage; decreased audio-visual performance; In Animals: reproductive effects
 ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, liver, kidneys, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 12 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 103 SAE: 0.14 CLASS: Fully Validated by OSHA

Haloxon

IMIS **1370** CAS 321-55-1
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 WIPE MEDIA: Whatman 41 Filter Paper

Heptachlor

IMIS **1369** CAS 76-44-8
 SYN 1,4,5,6,7,8,8-Heptachloro-3a,4,7,7a-tetrahydro-4,7-methanoindene
 NIOSH RTECS PC0700000 DOT 2761 151(organochlorine pesticide, solid)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 mg/m3 (Skin)
 DESC White to light-tan crystals with a camphor-like odor. [insecticide]
 MW: 373.4 BP: 293 F (Decomposes) VP: 0.0003 mm (77 F) MP: 203 F
 INCOM Iron, rust
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 IARC Group 2B - possibly carcinogenic to humans - [Heptachlor]
 SYMPT In Animals: tremor, convulsions; liver damage; [potential occupational carcinogen]
 ORGAN Central nervous system, liver [in animals: liver cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) SAE: 0.11 CLASS: Partially Validated
 BULK Limit the amount of bulk submitted to one gram or one mL.

Heptachlorodibenzodioxins (All Isomers)

IMIS **H325**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Heptachlorodibenzofurans (All Isomers)

IMIS **H327**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Heptene

IMIS **H136** CAS 592-76-7
SYN alpha-Heptylene
NIOSH RTECS MJ8815000* DOT 2278 128
DESC A colorless liquid.
MW: 98.18 BP: 200.5 F MP: -182 F FP: 25 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

n-Heptylamine

IMIS **H138** CAS 111-68-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Heroin

IMIS **H137** CAS 561-27-3
SYN Morphinan-3, 6-alpha-Diol, 7,8-DIDEHYDRO-4, 5-alpha-Epoxy-17-Methyl-, Diacetate (ester); Diacetylmorphine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexachlorobenzene

IMIS **1376** CAS 118-74-1
SYN HCB; perchlorobenzene; pentachlorophenylchloride; phenyl perchloryl
NIOSH RTECS DA2975000* DOT 2729 152
DESC A white crystalline substance.
MW: 284.78 BP: 612 F MP: 441 to 444 F VP: 1 mm (237.9 F) FP: 468 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
NTP Suspect Human Carcinogen - [Hexachlorobenzene]
IARC Group 2B - possibly carcinogenic to humans - [Hexachlorobenzene]
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Not Validated

Hexachlorobutadiene

IMIS **H109** CAS 87-68-3
SYN HCBBD, Hexachloro-1,3-butadiene, 1,3-Hexachlorobutadiene, Perchlorobutadiene
NIOSH RTECS EJ0700000 DOT 2279 151
MIOSHA FINAL RULE (Table G-1-A): TWA 0.02 ppm, 0.24 mg/m3 (Skin)
DESC Clear, colorless liquid with a mild, turpentine-like odor.
MW: 260.7 BP: 419 F MP: -6 F VP: 0.2 mm
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Hexachlorobutadiene]
SYMPT In Animals: irritation eyes, skin, respiratory system; kidney damage; [potential

occupational carcinogen]
ORGAN Eyes, skin, respiratory system, kidneys [in animals: kidney tumors]
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 100 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 2543 SAE: 0.15 CLASS: Fully Validated by
NIOSH

Hexachlorocyclopentadiene

IMIS **1374** CAS 77-47-4
SYN HCCPD, Hexachloro-1,3-cyclopentadiene, 1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene, Perchlorocyclopentadiene
NIOSH RTECS GY1225000 DOT 2646 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.01 ppm, 0.1 mg/m3
DESC Pale-yellow to amber-colored liquid with a pungent, unpleasant odor. [Note: A solid below 16°F.]
MW: 272.8 BP: 462 F MP: 16 F VP: 0.08 mm (77 F)
INCOM Water, light [Note: Reacts slowly with water to form hydrochloric acid; will corrode iron & most metals in presence of moisture. Explosive hydrogen gas may collect in enclosed spaces in the presence of moisture.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; lacrimation (discharge of tears); sneezing, cough, dyspnea (breathing difficulty), salivation, pulmonary edema; nausea, vomiting, diarrhea; In Animals: liver, kidney injury
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 90 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 2518 SAE: 0.164 CLASS: Fully Validated by
NIOSH
NOTE: Separate tubes, seal, ship at 25 C; store at 0 C in the dark.

Hexachlorodibenzodioxins (All Isomers)

IMIS **H305**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexachlorodibenzofurans (All Isomers)

IMIS **H307**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexachloronaphthalene

IMIS **1373** CAS 1335-87-1
SYN Halowax 1014
NIOSH RTECS QJ7350000*
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3 (Skin)

DESC White solid with an aromatic odor.
 MW: 334.9 BP: 649 to 729 F VP: <1 mm MP: 279 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Acneform dermatitis; nausea; confusion; jaundice; coma
 ORGAN Liver, skin
 SLC1 MEDIA:
 ANL SOLVENT: Hexane
 REC V: 30 Liters REC F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: NIOSH S100 SAE: 0.10 CLASS: Fully Validated by
 NIOSH
 NOTE: Submit as a separate sample.

Hexadeutorobenzene

IMIS **D676** CAS 1076-43-3
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexafluoroacetone

IMIS **1375** CAS 684-16-2
 SYN Hexafluoro-2-propanone, 1,1,1,3,3,3-Hexafluoro-2-propanone, HFA,
 Perfluoroacetone
 NIOSH RTECS UC2450000 DOT 2420 125
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 0.7 mg/m3 (Skin)
 Stayed, FR 54:2922 1/19/89
 DESC Colorless gas with a musty odor. [Note: Shipped as a liquefied compressed gas.]
 MW: 166.0 BP: -18 F MP: -188 F VP: 5.8 atm
 INCOM Water, acids [Note: Hygroscopic (i.e., absorbs moisture from the air); reacts with
 moisture to form a highly acidic sesquihydrate.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 SYMPT Irritation eyes, skin, mucous membrane, respiratory system; pulmonary edema;
 liquid: frostbite; In Animals: teratogenic, reproductive effects; kidney injury
 ORGAN Eyes, skin, respiratory system, kidneys, reproductive system
 SLC1 Standard has been stayed until an analytical method can be developed.

Hexahydrophthalic Anhydride, All Isomers

IMIS **H106** CAS 85-42-7
 SYN Cyclohexanedicarboxylic anhydride
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexamethylcyclotrisiloxane

IMIS **M205** CAS 541-05-9
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexamethyldisilazane

IMIS **H118** CAS 999-97-3
 SYN Hexamethyl disilazane
 DOT 2924 132
 DESC A liquid.

MW: 161.395
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexamethylene Diisocyanate Biuret

IMIS **D668** CAS 4035-89-6
SYN HDIB; 1,6-hexamethylene diisocyanate biuret; HDI biuret; biuret of hexamethylenediisocyanate; Desmodur N, tris(6=isocyanatohexyl) biuret
DESC Thick liquid
MW: 478.6 MP: -2.2 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (90/10) Acetonitrile/Dimethylsulfoxide
MAX V: 15 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Results may not reflect accurate exposures to the polymeric forms of isocyanates. Keep filters refrigerated until use.

Hexamethylenetetramine

IMIS **1378** CAS 100-97-0
SYN HMTA
NIOSH RTECS MN4725000* DOT 1328 133
DESC Odorless white crystalline powder or colorless lustrous crystals.
MW: 14019 BP: Sublimes MP: 536 F (Sublimes) FP: 482 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 15 Liters MAX F: 1.5 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA Modified NIOSH 263) CLASS: Partially Validated
NOTE: After sampling transfer the filter and contents of the midget impinger to the same small glass bottle.

Hexamethyl Phosphoramidate

IMIS **H129** CAS 680-31-9
SYN HMPA; Hexamethylphoric acid triamide; HEMPA; HMPT; Hexamethylphosphoramidate
NIOSH RTECS TD0875000 DOT 2810 153
DESC Clear, colorless liquid with an aromatic or mild, amine-like odor. [Note: A solid below 43°F.]
MW: 179.2 BP: 451 F MP: 43 F VP: 0.03 mm FP: 220 F
INCOM Oxidizers, strong acids, chemically-active metals (e.g., potassium, sodium, magnesium, zinc)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Hexamethylphosphoramidate]
IARC Group 2B - possibly carcinogenic to humans - [Hexamethylphosphoramidate]
SYMPT Irritation eyes, skin, respiratory system; dyspnea (breathing difficulty); abdominal pain [potential occupational carcinogen]
ORGAN Eyes, skin, respiratory system, central nervous system, gastrointestinal tract. [in animals: cancer of the nasal cavity]

1,6-Hexanediamine

IMIS **H115** CAS 124-09-4
DOT 2280 153(solid)

DESC A colorless crystalline solid.
MW: 116.24 BP: 401 F MP: 108 F FP: 178 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,6-Hexanediol Diacrylate

IMIS **H128** CAS 13048-33-4
SYN acrylic acid, hexamethylene ester; hexaneglycol diacrylate; Kayard HDDA; Photomer 4017; propenoic acid, 1,6-hexanediol ester; 2-propenoic acid, 1,6-hexanediyl ester; Setalux UV 2243; Viscoat 230
DOT 3082 171
DESC Clear yellow liquid with a mild ester-like odor.
MW: 226.28 BP: 224.6 F MP: 41 F FP: >200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Hexazinone

IMIS **H145** CAS 51235-04-2
SYN 3-Cyclohexyl-6- (Dimethylamino)-1-Methyl-s-Triazine-2,4(1H,3H) -dione; DPX 3674; Velpar
NIOSH RTECS XY7850000*
DESC White crystalline solid.
MW: 252.36
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Hexene

IMIS **H105** CAS 592-41-6
SYN α -hexene; Dialene 6; hexene; hexylene; 1-n-hexene
DOT 2370 128
DESC Colorless liquid with a petroleum-like odor.
MW: 94.16 BP: 146.3 F MP: -219.6 F FP: -15 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Hexyl Acetate

IMIS **H158** CAS 142-92-7
SYN 1-Hexyl Acetate; Hexyl Alcohol, Acetate; Hexyl Ethanoate; Acetic Acid, Hexyl Ester
NIOSH RTECS AI0875000* DOT 1993 128
DESC Colorless liquid with a mild sweet odor.
MW: 144.2 BP: 334 to 338 F MP: -112 F VP: 1.32 mm FP: 99 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Headache, dizziness, nausea, irritation to respiratory passages, eye irritation
LESS1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OHL2002S001 SAE: 0.080 CLASS: Validated In-House

sec-Hexyl Acetate

IMIS **1387** CAS 108-84-9
SYN 1,3-Dimethylbutyl acetate, Methylisoamyl acetate

NIOSH RTECS SA7525000 DOT 1233 130
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 50 ppm, 300 mg/m³
 DESC Colorless liquid with a mild, pleasant fruity odor.
 MW: 144.2 BP: 297 F VP: 3 mm MP: -83 F FP: 113 F
 INCOM Nitrates, strong oxidizers, alkalis, and acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SYMPT Irritation eyes, skin, nose, throat; headache; In Animals: narcosis
 ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1450 SAE: 0.10 CLASS: Fully Validated by
 NIOSH
 NOTE: Ship refrigerated
 SAM2 MIRAN 1A: MIN. Det. Con. 0.3 ppm at 9.6 μm

Hexyl Alcohol

IMIS **H117** CAS 111-27-3
 SYN n-Hexanol; Amylcarbinol; Caproyl alcohol; Pentylcarbinol
 NIOSH RTECS MQ4025000* DOT 2282 129
 DESC A clear colorless liquid.
 MW: 102.18 BP: 314.8 F MP: -48.3 F FP: 145 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol.
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Hexylamine

IMIS **H127** CAS 111-26-2
 DOT 2734 132
 DESC A water-white liquid with an amine-like odor.
 MW: 101.192 FP: 85 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Hexylene Glycol

IMIS **1389** CAS 107-41-5
 SYN 2,4-Dihydroxy-2-methylpentane, 2-Methyl-2,4-pentanediol, 4-Methyl-2,4-pentanediol,
 2-Methylpentane-2,4-diol
 NIOSH RTECS SA0810000
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 25 ppm, 125 mg/m³
 DESC Colorless liquid with a mild, sweetish odor
 MW: 118.2 BP: 388 F NP: -58 F (sets to glass) VP: 0.05 mm FP: 209 F
 INCOM Strong oxidizers, strong acids [Note: Hygroscopic (i.e., absorbs moisture from the
 air).]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SYMPT Irritation eyes, skin, respiratory system; headache, dizziness, nausea, incoordination,
 central nervous system depression; dermatitis, skin sensitization

ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MIN T: 5 Minutes MAX F: 0.2 L/min (CEIL)
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

HMX (Octogen)

IMIS **H147** CAS 2691-41-0
SYN Cyclotetramethylenetetranitramine; Octahydro-1, 3,5,7-Tetranitro-1, 3,5,7-Tetrazocine; Octogen; Tetramethylenetetranitramine; HW4; LX 14-0; HW4; LX14-0
NIOSH RTECS XF7450000* DOT 0226 112
DESC White crystalline solid
MW: 296.16 BP: 536 F MP: 537.8 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 500 liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Hydramethylnon

IMIS **H155** CAS 67485-29-4
SYN AMDRO, Fire Ant Insecticide
NIOSH RTECS UW7583000* DOT 3077 171
DESC Yellow crystalline solid. Slightly soluble in alcohols, soluble in acetone, chlorobenzene, hot ethyl acetate & methylene chloride.
MW: 494.53
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: 0.2% Triethylamine in Isopropanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Hydrazine

IMIS **1390** CAS 302-01-2
SYN diamine; hydrazine (anhydrous); hydrazine base
NIOSH RTECS MU7175000 DOT 2029 132(anhydrous)
3293 152(\leq 37% solution)
2030 153(37-64% solution)
2029 132(>64% solution)
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 ppm, 0.1 mg/m³ (Skin)
DESC Colorless, fuming, oily liquid with an ammonia-like odor. [Note: A solid below 36°F.]
MW: 32.1 BP: 236 F VP: 10 mm MP: 36 F FP: 99 F
INCOM Oxidizers, hydrogen peroxide, nitric acid, metallic oxides, acids [Note: Can ignite SPONTANEOUSLY on contact with oxidizers or porous materials such as earth, wood & cloth.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,

mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [Hydrazine (see Hydrazine and Hydrazine Sulfate)]
 IARC Group 2A - probably carcinogenic to humans - [Hydrazine]
 SYMPT Irritation eyes, skin, nose, throat; temporary blindness; dizziness, nausea; dermatitis; eye, skin burns; In Animals: bronchitis, pulmonary edema; liver, kidney damage; convulsions; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys [in animals: tumors of the lungs, liver, blood vessels & intestine]
 SLC1 MEDIA:
 ANL SOLVENT: Buffered EDTA Disodium Solution
 MAX V: 240 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 108 SAE: 0.08 CLASS: Fully Validated by OSHA
 NOTE: The 2 filters are separated by the ring section of the 3-piece cassette to provide a backup portion to the sampling train.
 COND Column: LiChrosphere rp-8 (12.5 x 4 mm). Mobile Phase: 67/33 ACN/Water. Detector Wavelength: UV at 300 nm. Detection Limit: 10.6 pg.
 SLC2 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Spectrophotometry; VA
 REF: NIOSH 3503 SAE: 0.171 CLASS: Fully Validated by NIOSH
 SAM2 MIRAN 1A &1B: Det. Limit 0.6 ppm, long pathlength

Hydrogenated Terphenyls

IMIS **1415** CAS 61788-32-7
 SYN Hydrogenated diphenylbenzenes, Hydrogenated phenylbiphenyls, Hydrogenated triphenyls [Note: Complex mixture of terphenyl isomers that are partially hydrogenated.]
 NIOSH RTECS WZ6535000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 5 mg/m3
 DESC Clear, oily, pale-yellow liquids with a faint odor. [plasticizer/heat-transfer media] MW: 298 (40% hydrogenated)
 INCOM None Reported [Note: When heated, irritating vapors will be released.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
 SYMPT Irritation eyes, skin, respiratory system; liver, kidney, hematopoietic damage
 ORGAN Eyes, skin, respiratory system, liver, kidneys, hematopoietic system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX F: 30 Liters MAX F: 3.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Immediately after sampling, transfer filter and backup pad to a small glass screw cap bottle. A bulk of the material must be submitted for analysis.

Hydrogen Cyanide

IMIS **1440** CAS 74-90-8
 SYN Hydrocyanic acid; prussic acid; formonitrile
 NIOSH RTECS MW6825000 DOT 1613 154(≤ 20% solution);

1051 117(> 20% solution; anhydrous)

MIOSHA FINAL RULE (Table G-1-A):
STEL 4.7 ppm, 5 mg/m³ (Skin)
DESC Colorless or pale blue liquid or gas (above 78 F) with a bitter, almond-like odor.
MW: 27.0 BP: 78 F MP: 7 F VP: 630 mm FP: 0 F
INCOM Amines, oxidizers, acids, sodium hydroxide, calcium hydroxide, sodium carbonate, caustics, ammonia [Note: Can polymerize at 122 to 140 F.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Asphyxia; lassitude (weakness, exhaustion), headache, confusion; nausea, vomiting; increased rate and depth of respiration or respiration slow and gasping; thyroid, blood changes
ORGAN Central nervous system, cardiovascular system, thyroid, blood
LESS1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 90 liters MIN V: 2 Liters MAX F: 0.2 L/min
ANL 1: Spectrophotometry; VA
REF: NIOSH 6010 CLASS: Fully Validated by NIOSH
SAM2 DET. TUBE: Draeger, 810-12D, 1-200 ppm
MSA, 93262, 0-80 ppm

Hydrogen Peroxide (90%)

IMIS **1470** CAS 7722-84-1
SYN High-strength hydrogen peroxide, Hydrogen dioxide, Hydrogen peroxide (aqueous), Hydroperoxide, Peroxide
NIOSH RTECS MX0900000 DOT 2015 143
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 1.4 mg/m³
DESC Colorless liquid with a slightly sharp odor. [Note: The pure compound is a crystalline solid below 12°F. Often used in an aqueous solution.]
MW: 34.0 BP: 286 F VP: 5 mm (86 F) MP: 12 F
INCOM Oxidizable materials, iron, copper, brass, bronze, chromium, zinc, lead, silver, manganese. [Note: Contact with combustible material may result in SPONTANEOUS combustion.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Hydrogen peroxide]
SYMPT Irritation eyes, nose, throat; corneal ulcer; erythema (skin redness), vesiculation skin; bleaching hair
ORGAN Eyes, skin, respiratory system
LESS1 MEDIA: Contact LESS [SKC 225-9030]
ANL SOLVENT: 1 M H₂SO₄
MAX V: 240 Liters FLOW: 1.0 L/min
MAX V: 240 Liters MIN V: 30 Liters FLOW: 2.0 L/min
REF: OSHA 1019 CLASS: Fully Validated by OSHA
NOTE: Peracetic Acid (IMIS **P230**) and hydrogen peroxide (IMIS **1470**) are sampled simultaneously. SKC 225-9030 (filter) is in the front and acts as a pre-filter for collecting hydrogen peroxide. This is attached to sorbent tube SKC 226-199UC (in the back) for collection of peracetic acid. Samples should be protected from light during shipping and storage.
SAM2 MIRAN 1A: MIN. Det. Con. 1.3 ppm at 7.8 μm

Hydrogen Selenide (as Se)

IMIS	1475	CAS	7783-07-5
SYN	Selenium dihydride, Selenium hydride		
NIOSH	RTECS MX1050000	DOT	2202 117(anhydrous)
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.05 ppm, 0.2 mg/m ³
DESC	Colorless gas with an odor resembling decayed horseradish. [Note: Shipped as a liquefied compressed gas.]		
	MW: 81.0	BP: -42 F	VP: 9.5 atm (70 F) MP: -87 F
INCOM	Strong oxidizers, acids, water, halogenated hydrocarbons		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SYMPT	Irritation eyes, nose, throat; nausea, vomiting, diarrhea; metallic taste, garlic breath; dizziness, lassitude (weakness, exhaustion); liquid: frostbite; In Animals: pneumonitis; liver damage		
ORGAN	Eyes, respiratory system, liver		
SLC1	MEDIA:		
	MAX V: 480 Liters	MIN V: 240 Liters	MAX F: 2.0 L/min
	ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS		
	ANL SOLVENT: Nitric Acid/Hydrochloric Acid		
	REF: OHL2018S001	CLASS: Not Validated	
	NOTE: Analysis is performed for total Selenium. Proposed sampling and analytical method follows [OSHA ID-121; AP 1].		
SAM2	DET. TUBE: Kitagawa, 167S, 1-600 ppm		

m-Hydroxyacetophenone

IMIS	H125	CAS	121-71-1
SYN	3-Hydroxyacetophenone; Diesel Exhaust Component; 3-Acetylphenol		
DESC	MW: 136.15	BP: 296 C	MP: 96 C
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
NTP	Suspect Human Carcinogen - [Diesel Exhaust Particulates]		
IARC	Group 1 - carcinogenic to humans - [Engine exhaust, diesel]		
SLC1	MEDIA:		
	ANL SOLVENT: (90/10) Methylene Chloride/Methanol		
	MAX V: 10 Liters	MAX F: 0.2 L/min	
	ANL 1: High Performance Liquid Chromatography; HPLC-UV		
	REF: (OSHA In-House File)	CLASS: Partially Validated	

m-Hydroxybenzoic Acid

IMIS	H119	CAS	99-06-9
SYN	3-Hydroxybenzoic Acid; m-Salicylic Acid; 3-Carboxyphenol		
NIOSH	RTECS DH1924980*		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SLC1	MEDIA:		
	ANL SOLVENT: Methanol/Deionized Water (10/90)		
	MAX V: 200 Liters	MAX F: 1.0 L/min	
	ANL 1: High Performance Liquid Chromatography; HPLC-UV		
	REF: (OSHA In-House File)	CLASS: Not Validated	

2-Hydroxycyclohexanone

IMIS	H120	CAS	533-60-8
SYN	Hydroxycyclohexanone		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Hydroxyethyl Acrylate

IMIS **H157** CAS 818-61-1
SYN Acrylic Acid, 2-Hydroxyethyl Ester; 2-(Acryloyloxy) ethanol; Ethylene Glycol, Acrylate; 2-Hydroxyethyl Acrylate; 2-Propenoic Acid, 2-Hydroxyethyl Ester (9CI)
NIOSH RTECS AT1750000* DOT 2927 154
DESC A clear colorless liquid.
MW: 116.1 BP: >346 F MP: -76 F FP: 214 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetone
MAX V: 30 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

n-Hydroxyethylethylenediaminetriacetate Trisodium salt

IMIS **H126** CAS 139-89-9
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Hydroxyethyl Methacrylate

IMIS **H148** CAS 868-77-9
SYN Ethylene Glycol Methacrylate; Ethylene Glycol Monomethacrylate; Monomer; Glycol Methacrylate; beta-Hydroxyethyl Methacrylate; Methacrylic Acid, 2-Hydroxy Ethyl Ester
NIOSH RTECS OZ4725000*
DESC Colorless liquid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Refrigerate samples until analysis.

n-(2-Hydroxyethyl) Morpholine

IMIS **H139** CAS 622-40-2
SYN 4-Morpholine ethanol; Morpholine ethanol; N-beta-Hydroxyethylmorpholine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Hydroxy-4-Methoxyacetophenone

IMIS **H135** CAS 552-41-0
SYN Diesel Exhaust Component; Peonol
DESC MW: 166.18 MP: 52 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
SLC1 MEDIA:
ANL SOLVENT: (90/10) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

3-Hydroxy-2-Naphthoic Acid

IMIS **H108** CAS 92-70-6

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Hydroxypropyl Acrylate

IMIS **H156** CAS 999-61-1
SYN HPA, β -Hydroxypropyl acrylate, Propylene glycol monoacrylate
NIOSH RTECS AT1925000 DOT 1760 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 ppm, 3 mg/m³ (Skin)
DESC Clear to light-yellow liquid with a sweetish, solvent odor.
MW: 130.2 BP: 376 F FP: 149 F
INCOM Water [Note: Can become unstable at high temperatures & pressures or may react with water with some release of energy, but not violently.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; cough, dyspnea (breathing difficulty)
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.10 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Ignition Residue

IMIS **I100**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ignition Sensitivity

IMIS **S102**
DESC Relative to dusts and powders.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Indene

IMIS **1500** CAS 95-13-6
SYN Indonaphthene
NIOSH RTECS NK8225000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 45 mg/m³
DESC Colorless liquid. [Note: A solid below 29°F.]
MW: 116.2 BP: 359 F MP: 29 F FP: 173 F
INCOM None Reported [Note: Polymerizes & oxidizes on standing. It has exploded during nitration with (H₂SO₄ + HNO₃).]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT In Animals: irritation eyes, skin, mucous membrane; dermatitis, skin sensitization; chemical pneumonitis (aspiration liquid); liver, kidney, spleen injury
ORGAN Eyes, skin, respiratory system, liver, kidneys, spleen
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min

Indium Compounds (as In)

IMIS **1510** CAS 7440-74-6
SYN Indium metal
NIOSH RTECS NL1050000 DOT 3089 170121-75-5(powder)
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3
DESC Ductile, shiny, silver-white metal that is softer than lead.
MW: 114.8 BP: 3767 F MP: 314 F
INCOM (Dinitrogen tetroxide + acetonitrile), mercury(II) bromide (at 662°F), sulfur (mixtures ignite when heated) [Note: oxidizes readily at higher temperatures.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin, respiratory system; possible liver, kidney, heart, blood effects; pulmonary edema
ORGAN Eyes, skin, respiratory system, liver, kidneys, heart, blood
SLC1 MEDIA:
ANL SOLVENT: Nitric Acid
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Refer to [OSHA ID-121]

Iodine

IMIS **1515** CAS 7553-56-2
SYN Iodine crystals, Molecular iodine
NIOSH RTECS NN1575000 DOT 3495 154
MIOSHA FINAL RULE (Table G-1-A): CEIL 0.1 ppm, 1 mg/m3
DESC Violet solid with a sharp, characteristic odor.
MW: 253.8 BP: 365 F MP: 236 F VP: 0.3 mm (77 F)
INCOM Ammonia, acetylene, acetaldehyde, powdered aluminum, active metals, liquid chlorine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT Irritation eyes, skin, nose; lacrimation (discharge of tears); headache; chest tightness; skin burns, rash; cutaneous hypersensitivity
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: 1.5 mM Sodium Carbonate/1.5 mM Sodium Bicarbonate
MAX V: 7.5 Liters MAX F: 0.5 L/min (CEIL)
ANL 1: Ion Chromatography-Pulsed Electrochemical Detector; IC-PED
REF: OSHA ID-212 SAE: 0.074 CLASS: Fully Validated by OSHA
NOTE: Humidity at the sampling site needs to be assessed prior to the actual sampling. If it is anticipated to be greater than 50%, please contact SLC for further instructions. Submit as a separate sample. When the analysis of this compound is requested, analysis for Iodide is performed and reported as Iodine.

Iodoform

IMIS **1517** CAS 75-47-8
 SYN Triiodomethane
 NIOSH RTECS PB7000000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.6 ppm, 10 mg/m3

DESC Yellow to greenish-yellow powder or crystalline solid with a pungent, disagreeable odor. [antiseptic for external use]
 MW: 393.72 BP: 410 F (Decomposes) MP: 246 F

INCOM Strong oxidizers, lithium, metallic salts (e.g., mercuric oxide, silver nitrate), strong bases, calomel, tannin

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Acute Toxicity---Short-term high risk effects. (HE4)

SYMPT Irritation eyes, skin; lassitude (weakness, exhaustion), dizziness, nausea, incoordination, central nervous system depression; dyspnea (breathing difficulty); liver, kidney, heart damage; visual disturbance

ORGAN Eyes, skin, respiratory system, liver, kidneys, heart

SLC1 MEDIA:
 ANL SOLVENT: (50/50) Carbon Disulfide/Benzene
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated

Iodopropanyl Butyl Carbamate

IMIS **D729** CAS 55406-53-6
 DOT 3077 171

DESC Off-white solid.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Iron Pentacarbonyl (as Fe)

IMIS **1521** CAS 13463-40-6

SYN Iron carbonyl, Pentacarbonyl iron

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 0.8 mg/m3
 STEL 0.2 ppm, 1.6 mg/m3

DESC Colorless to yellow to dark-red, oily liquid.
 MW: 195.9 BP: 217 F (749 mm) MP: -6 F VP: 40 mm (87 F) FP: 5 F

INCOM Oxidizers, nitrogen oxide, (zinc + cobalt halides) [Note: Pyrophoric (i.e., ignites spontaneously in air). Decomposed by light or air, releasing carbon monoxide.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, mucous membrane, respiratory system; headache, dizziness, nausea, vomiting; fever, cyanosis, cough, dyspnea (breathing difficulty); liver, kidney, lung injury; degenerative changes in central nervous system

ORGAN Eyes, respiratory system, central nervous system, liver, kidneys

SLC1 MEDIA:
 MAX V: 480 Liters MIN V: 240 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Colorimetric
 REF: (OSHA In-House File) CLASS: Not Validated
 REF: Brief, R.S., Ajemian, R.S., and Confer, R.G.: Iron Pentacarbonyl: Its Toxicity, Detection, and Potential for Formation. AMER. IND. HYG. ASSN. J., Vol. 28, pp. 21-30, (1967).

Isoamyl Acetate (Isopentyl Acetate)

IMIS **1530** CAS 123-92-2
SYN Banana oil, Isopentyl acetate, 3-Methyl-1-butanol acetate, 3-Methylbutyl ester of acetic acid, 3-Methylbutyl ethanoate
NIOSH RTECS NS9800000 DOT 1104-129
MIOSHA FINAL RULE (Table G-1-A):
TWA 100 ppm, 525 mg/m3
DESC Clear, colorless liquid with a banana-like odor.
MW: 130.2 BP: 288 F VP: 4 mm MP: -109 F FP: 77 F
INCOM Nitrates; strong oxidizers, alkalis, and acids
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin, nose, throat; dermatitis; In Animals: narcosis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1450 SAE: 0.09 CLASS: Fully Validated by NIOSH
NOTE: Ship and store refrigerated
SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 9.4 µm

Isoamyl Alcohol

IMIS **1532** CAS 123-51-3
SYN Fermentation amyl alcohol, Fusel oil, Isobutyl carbinol, Isopentyl alcohol, 3-Methyl-1-butanol, Primary isoamyl alcohol
NIOSH RTECS EL5425000 DOT 1105 129
MIOSHA FINAL RULE (Table G-1-A):
TWA 100 ppm, 360 mg/m3
STEL 125 ppm, 450 mg/m3
DESC Colorless liquid with a disagreeable odor.
MW: 88.2 BP: 270 F VP: 2 mm (57 F) MP: -179 F FP: 109 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Narcosis. (HE8)
SYMPT Irritation eyes, skin, nose, throat; headache, dizziness; cough, dyspnea (breathing difficulty), nausea, vomiting, diarrhea; skin cracking; In Animals: narcosis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
MAX V: 10 Liters MAX F: 0.2 L/min (TWA)
MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1402 SAE: 0.13 CLASS: Partially Validated by NIOSH
NOTE: Ship and store refrigerated.
SAM2 DET. TUBE: MSA, 95097, 50-1000 ppm
MIRAN 1A: MIN. Det. Con. 0.3 ppm at 9.4 µm

Isoamyl Nitrite

IMIS **K109** CAS 110-46-3
SYN Isopentyl Nitrite; 3-Methylbutanol Nitrite; 3-Methylbutyl Nitrite
NIOSH RTECS NT0187500* DOT 1993 128
DESC Clear yellow liquid.
MW: 117.15 BP: 205 to 210 F FP: <69 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 8.5 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Protect sample from light and heat.

Isobutane

IMIS **K105** CAS 75-28-5
SYN 2-Methylpropane [Note: Also see specific listing for n-Butane.]
NIOSH RTECS TZ4300000 DOT 1075 115; 1969 115
DESC Colorless gas with a gasoline-like or natural gas odor. [Note: Shipped as a liquefied compressed gas. A liquid below 11°F.]
MW: 58.1 BP: 11 F MP: -255 F VP: 3.1 atm (70 F)
INCOM Strong oxidizers (e.g., nitrates & perchlorates), chlorine, fluorine, (nickel carbonyl + oxygen)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Asphyxiants, Anoxiants. (HE17)
Nervous System Disturbances---Narcosis. (HE8)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Drowsiness, narcosis, asphyxia; liquid: frostbite
ORGAN Central nervous system
SAM2 DET. TUBE: Kitagawa, 170S, 50-1200 ppm

Isobutyl Acrylate

IMIS **K108** CAS 106-63-8
NIOSH RTECS AT2100000* DOT 2527 129P
DESC A clear colorless liquid with an acrid odor.
MW: 128.17 BP: 270 F MP: -78 F FP: 86 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Isobutylamine

IMIS **M319** CAS 78-81-9
DOT 1214 132
DESC A clear colorless liquid with a fishlike odor.
MW: 73.16 BP: 154 to 156 F MP: -121 F FP: 15 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Isobutyl Isobutyrate

IMIS **1537** CAS 97-85-8
SYN 2-Methylpropyl Isobutyrate; 2-Methylpropyl 2-Methylpropanoate; 2-Methylpropyl 2-Methylpropionate; Isobutyric Acid, Isobutyl Ester

NIOSH RTECS NQ5250000 DOT 2528 130
DESC A colorless liquid with a pleasant fruity odor.
MW: 144.24 BP: 299.7 F MP: -113.3 F FP: 99 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Narcosis. (HE8)
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Isobutyl Methacrylate

IMIS I116 CAS 97-86-9
DOT 2283 130P
DESC Colorless liquid.
MW: 142.2 BP: 311 F FP: 120 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Isobutyl Nitrite

IMIS K207 CAS 542-56-3
SYN nitrous acid isobutyl ester; nitrous acid, 2-methylpropyl ester; Blackjack
NIOSH RTECS RA0805000* DOT 1992 131
DESC Clear colorless to pale yellow liquid.
MW: 103.12 BP: 154.4 F VP: 10 mm FP: -10 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Isobutyl nitrite]
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 8.5 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Protect sample from light and heat.

Isobutyronitrile

IMIS K206 CAS 78-82-0
SYN Isopropyl cyanide, 2-Methylpropanenitrile, 2-Methylpropionitrile
NIOSH RTECS TZ4900000 DOT 2284 131
DESC Colorless liquid with an almond-like odor. [Note: Forms cyanide in the body.]
MW: 69.1 BP: 219 F MP: -97 F VP: 100 mm (130 F) FP: 47 F
INCOM Oxidizers, reducing agents, strong acids & bases
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, throat; headache, dizziness, lassitude (weakness, exhaustion), confusion, convulsions; dyspnea (breathing difficulty); abdominal pain, nausea, vomiting
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Isodecane

IMIS **M325** CAS 34464-38-5
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Isofenphos

IMIS **S237** CAS 25311-71-1
 SYN 1-Methylethyl 2-((Ethoxy ((1-methylethyl)-amino) phosphinothioyl) oxy) benzoate;
 Amaze; Oftanol
 NIOSH RTECS DH2255000* DOT 3018 152
 DESC Insecticide; Yellow brown liquid; soluble in acetone, kerosene, alcohol, ether,
 benzene, xylene.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC
 REF: (OSHA In-House File) CLASS: Partially Validated

Isoflurane

IMIS **F118** CAS 26675-46-7
 SYN 1-chloro-2,2,2-trifluoroethyl difluoromethyl ether; 2-chloro-2-(difluoromethoxy)-1,1,1-
 trifluoro ethane; forane
 NIOSH RTECS KN6799000*
 DESC Colorless liquid
 MW: 184.5 BP: 119.3 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Narcosis. (HE8)
 Asphyxiants, Anoxiants. (HE17)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Anaesthetics, volatile]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 12 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 103 SAE: 0.08 CLASS: Fully Validated by OSHA
 SAM2 MIRAN 103: Range 0-10 ppm at 8.7 um

Isooctane

IMIS **I128** CAS 26635-64-3
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SAM2 DET. TUBE: Sensidyne, 101, 0.015-1.2%

Isooctyl Alcohol

IMIS **A635** CAS 26952-21-6
 SYN Isooctanol, Oxooctyl alcohol [Note: A mixture of closely related isomeric, primary
 alcohols with branched chains such as 2-Ethylhexanol,
 CH₃(CH₂)₃CH(CH₂CH₃)CH₂OH.]
 NIOSH RTECS NS7700000 DOT 1993 128
 MIOSHA FINAL RULE (Table G-1-A): TWA 50 ppm, 270 mg/m³ (Skin)
 DESC Clear, colorless liquid.
 MW: 130.3 BP: 367 F MP: <-212 F VP: 0.4 mm FP: (oc) 180 F
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin, nose, throat; eye, skin burns
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

Isophorone

IMIS **1538** CAS 78-59-1
 SYN Isoacetophorone, 3,5,5-Trimethyl-2-cyclohexenone, 3,5,5-Trimethyl-2-cyclo-hexen-1-one
 NIOSH RTECS GW7700000 DOT 1993 128
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 4 ppm, 23 mg/m3
 DESC Colorless to white liquid with a peppermint-like odor.
 MW: 138.2 BP: 419 F MP: 17 F VP: 0.3 mm FP: 184 F
 INCOM Oxidizers, strong alkalis, amines
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Acute Toxicity---Short-term high risk effects. (HE4)
 IARC Group 2B - possibly carcinogenic to humans - [Isophorone]
 SYMPT Irritation eyes, nose, throat; headache, nausea, dizziness, lassitude (weakness, exhaustion), malaise (vague feeling of discomfort), narcosis; dermatitis; In Animals: kidney, liver damage
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys
 LESS1 MEDIA: Contact LESS [SKC 226-81A]
 ANL SOLVENT: Carbon Disulfide
 MAX V: 25 Liters MIN V: 2 Liters REC F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2508 SAE: 0.100 CLASS: Not Validated

Isophorone Diamine

IMIS **I117** CAS 2855-13-2
 DOT 2289 153
 DESC A clear to light-yellow liquid.
 MW: 170.3 BP: 477 F MP: 50 F FP: 230 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Isophthalic Acid

IMIS **1550** CAS 121-91-5
 SYN IPA
 DESC White solid with a slight unpleasant odor.
 MW: 166 MP: 653 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 BULK ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Isopropylamine

IMIS **1562** CAS 75-31-0
 SYN 2-Aminopropane, Monoisopropylamine, 2-Propylamine, sec-Propylamine
 NIOSH RTECS NT8400000 DOT 1221 132
 MIOSHA FINAL RULE (Table G-1-A):

TWA 5 ppm, 12 mg/m³
STEL 10 ppm, 24 mg/m³

DESC Colorless liquid with an ammonia-like odor. [Note: A gas above 91°F.]
MW: 59.1 BP: 91 F MP: -150 F VP: 460 mm FP: (oc) -35 F

INCOM Strong acids, strong oxidizers, aldehydes, ketones, epoxides

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)

SYMPT Irritation eyes, skin, nose, throat; pulmonary edema; visual disturbance; eye, skin
burns; dermatitis

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
ANL SOLVENT: 4 M Sodium Hydroxide Final pH >10
REC V: 100 Liters REC F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S147 SAE: 0.11 CLASS: Fully Validated by
NIOSH
NOTE: The sample in each bubbler is analyzed separately.

SAM2 MIRAN 1A: MIN. Det. Con. 0.9 pm at 9.0 um

n-Isopropylaniline

IMIS **A636** CAS 768-52-5

SYN N-IPA, Isopropylaniline, N-(1-Methylethyl)-benzenamine, N-Phenylisopropylamine

NIOSH RTECS BY4200000 DOT 2810 153

MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 10 mg/m³ (Skin)

DESC Clear, yellowish liquid with a sweet, aromatic odor.
MW: 135.2 BP: 397 F MP: -58 F VP: 0.03 mm (77 F) FP: (oc) 190 F

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin; headache, lassitude (weakness, exhaustion), dizziness;
cyanosis; ataxia; dyspnea (breathing difficulty) on effort; tachycardia;
methemoglobinemia

ORGAN Eyes, skin, respiratory system, blood, cardiovascular system, liver, kidneys

SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 78 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Samples are collected closed-face.

Isopropyl Cellosolve

IMIS **I118** CAS 109-59-1

SYN 2-Isopropoxyethanol; Ethylene glycol isopropyl ether, β-Hydroxyethyl isopropyl ether,
Isopropyl Cellosolve®, Isopropyl glycol

NIOSH RTECS KL5075000 DOT 2929 131

MIOSHA FINAL RULE (Table G-1-A):
TWA 25 ppm, 105 mg/m³

DESC Colorless liquid with a mild, ethereal odor.
MW: 104.2 BP: 283 F VP: 3 mm FP: (oc) 92 F

INCOM Oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT In Animals: irritation eyes, skin; hematuria (blood in the urine), anemia, pulmonary

edema
ORGAN Eyes, skin, respiratory system, blood
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Isopropyl m-Chlorocarbaniate

IMIS **C617** CAS 101-21-3
SYN Chlorpropham; (3-Chlorophenyl) carbamic acid; 1-Methylethyl ester; Furloe; Chloro-IPC; Isopropyl N-(3-chlorophenyl) carbamate; Spud-Nic; Taterpex; CIPC; Isopropyl 3-chlorocarbaniate; m-Chlorocarbaniic Acid, Isopropyl Ester; Beet-Keen; Sprout Nip
NIOSH RTECS FD8050000* DOT 3077 171
DESC Brown chunky solid.
MW: 213.5 BP: 477 F MP: 106.5 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Chloropropham]
SLC1 MEDIA:
MAX V: 35 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Isopropyl Ether

IMIS **1565** CAS 108-20-3
SYN Diisopropyl ether, Diisopropyl oxide, 2-Isopropoxy propane
NIOSH RTECS TZ5425000 DOT 1159 127
MIOSHA FINAL RULE (Table G-1-A):
TWA 500 ppm, 2100 mg/m3
DESC Colorless liquid with a sharp, sweet, ether-like odor.
MW: 102.2 BP: 154 F VP: 119 mm MP: -76 F FP: -18 F
INCOM Strong oxidizers, acids [Note: Unstable peroxides may form on long contact with air.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, skin, nose; resp discomfort; dermatitis; In Animals: drowsiness, dizziness, unconsciousness, narcosis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 3 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1618 SAE: 0.12 CLASS: Fully Validated by NIOSH

Isopropyl Glycidyl Ether (IGE)

IMIS **1567** CAS 4016-14-2
SYN 1,2-Epoxy-3-isopropoxypropane, IGE, Isopropoxymethyl oxirane
NIOSH RTECS TZ3500000 DOT 3271 127
MIOSHA FINAL RULE (Table G-1-A):
TWA 50 ppm, 240 mg/m3
STEL 75 ppm, 360 mg/m3
DESC Colorless liquid
MW: 116.2 BP: 279 F VP: 9 mm (77 F) FP: 92 F

INCOM Strong oxidizers, strong caustics [Note: May form explosive peroxides upon exposure to air or light.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation eyes, skin, upper respiratory system; skin sensitization; possible hematopoietic, reproductive effects
 ORGAN Eyes, skin, respiratory system, blood, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 30 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas chromatography; GC-FID
 REF: NIOSH 1620 SAE: 0.146 CLASS: Partially Validated by NIOSH
 NOTE: Lab refrigerate upon receipt.

Isopropyl Mercaptan

IMIS **S248** CAS 75-33-2
 SYN Isopropanethiol; 2-Propanethiol; 2-Mercaptopropane
 NIOSH RTECS TZ7302000* DOT 2402 130
 DESC MW: 76.2 BP: 126.6 F MP: -202.8 F FP: -30 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Isosorbide Dinitrate

IMIS **I127** CAS 87-33-2
 DOT 2907 133
 DESC A crystalline solid.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 50 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Jet Fuel (JP4)

IMIS **J105** CAS 50815-00-4
 NIOSH RTECS NY9340000* DOT 1863 128
 DESC A mixture of aliphatic and aromatic hydrocarbon compounds of which meet the requirement of military specifications MIL-J-5624E (AMRL** TR-74-78, 74) [Aerosp Med Res Lab]
 BP: 349 to 549 F MP: <-54 F FP: -10 to 30 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Jet fuel]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 ALT SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 MAX V: 3 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Kepone

IMIS **K216** CAS 143-50-0
SYN Chlordecone, Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta(cd)-pentalen-2-one, Decachlorooctahydro-kepone-2-one, Decachlorotetrahydro-4,7-methanoindeneone

NIOSH RTECS PC8575000 DOT 2761 151
DESC Tan to white, crystalline, odorless solid. [insecticide]
MW: 490.6 BP: Sublimes VP: 3x10⁻⁷ (77 F) MP: 662 F (Sublimes)

INCOM Acids, acid fumes
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Kepone]
IARC Group 2B - possibly carcinogenic to humans - [Chlordecone (Kepone)]
SYMPT Headache, anxiety, tremor; liver, kidney damage; visual disturbance; ataxia, chest pain, skin erythema (skin redness); testicular atrophy, low sperm count; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys, reproductive system [in animal: liver cancer]

SLC1 MEDIA:
ANL SOLVENT: (99/1) Benzene/Methanol
MAX V: 600 Liters MIN V: 50 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 5508 CLASS: Partially Validated by NIOSH

Kerb

IMIS **K208** CAS 23950-58-5
SYN 3,5-Dichloro-n-(1,1-dimethyl-2-propynyl)benzamide; Propyzamide
DESC White solid. [Note: Used as a selective herbicide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Ketene

IMIS **1574** CAS 463-51-4
SYN Carbomethene, Ethenone, Keto-ethylene
NIOSH RTECS OA7700000 DOT 2521 131p(diketene)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 ppm, 0.9 mg/m³
STEL 1.5 ppm, 3 mg/m³

DESC Colorless gas with a penetrating odor.
MW: 42.0 BP: -69 F VP: >1 atm

INCOM Water, alcohols, ammonia [Note: Readily polymerizes. Reacts with water to form acetic acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, throat, respiratory system; pulmonary edema
ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
MAX V: 50 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Colorimetric
REF: NIOSH S92 SAE: 0.11 CLASS: Fully Validated by NIOSH
NOTE: Absorbing solution: Equal volumes of 10% (w/v) hydroxyl ammonium chloride in water and 2.5 M sodium hydroxide are mixed. This mixture is stable for only 2 hours and should be prepared fresh just prior to use.

Lake Red C

IMIS **L295** CAS 5160-02-1
SYN Red Lake C Toner 20-5650; Red Lake C Toner RA-5190; Red Lake C; Red Lake C Toner; 5-Chloro-2 ((2-Hydroxy-1-Naphthalenyl) Azo)-4-Methylbenzenesulfonic Acid, Barium Salt; D & C Red No. 9
NIOSH RTECS DB5500000*
DESC Odorless yellowish-red or reddish-orange powder
MW: 888.99
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [D & C Red No. 9]
SLC1 MEDIA:
ANL SOLVENT: (58/42) Acetonitrile/0.05 M Tetrabutylammonium Phosphate
MAX V: 300 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
REF: (OSHA In-House File) CLASS: Partially Validated

Landrin

IMIS **1577** CAS 12407-86-2
SYN 3,4,5 Trimethylphenylmethylcarbamate and 2,3,5 Trimethylphenylmethylcarbamate (4:1 mixture)
NIOSH RTECS FC8410000*
DESC Soil Insecticide.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

Lead, Blood

IMIS **L294**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Lead Compounds (see Lead and Lead Compounds)]

Limonene

IMIS **L129** CAS 138-86-3
SYN 1-methyl-4-(1-methylethenyl)cyclohexene, (R); l-limonene; d-limonene; dl-limonene; dipentene; Acintene DP; Cinene; Dipanol; Unitene; 1-methyl-4-isopropentyl-1-cyclohexene
NIOSH RTECS OS8100000* DOT 2052 128
DESC A colorless liquid with an odor of lemon.
MW: 136.26
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Lindane

IMIS **1595** CAS 58-89-9
SYN BHC, HCH, α -Hexachlorocyclohexane, gamma isomer of 1,2,3,4,5,6-Hexachlorocyclohexane
NIOSH RTECS GV4900000 DOT 2761 151
MIOSHA FINAL RULE (Table G-1-A): TWA 0.5 mg/m³ (Skin)
DESC White to yellow, crystalline powder with a slight, musty odor. [pesticide]
MW: 290.8 BP: 614 F VP: 0.00001 mm MP: 235 F
INCOM Corrosive to metals
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [Lindane (see Lindane, Hexachlorocyclohexane [Technical Grade], and Other Hexachlorocyclohexane Isomers)]
IARC Group 1 - carcinogenic to humans - [Lindane (see also Hexachlorocyclohexanes)]
SYMPT Irritation eyes, skin, nose, throat; headache; nausea; clonic convulsions; resp difficulty; cyanosis; aplastic anemia; muscle spasm; In Animals: liver, kidney damage
ORGAN Eyes, skin, respiratory system, central nervous system, blood, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Isooctane
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA Modified NIOSH 5502 SAE: 0.14 CLASS: Fully Validated by NIOSH
NOTE: Use filter and no backup pad.

Linuron

IMIS **L128** CAS 330-55-2
SYN N'-(3,4-Dichlorophenyl)-N-methoxy-N-methyl urea; Afalon; Linurex; Lorox
NIOSH RTECS YS9100000* DOT 3077 171
DESC Colorless crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Lithium

IMIS **L134** CAS 7439-93-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. Metal analysis will be performed only if the gross weight of the sample yields an air concentration greater than the PEL.

Lithium Hydride

IMIS **1503** CAS 7580-67-8
SYN Lithium monohydride
NIOSH RTECS OJ6300000 DOT 1414 138; 2805 138(fused, solid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.025 mg/m3
DESC Odorless, off-white to gray, translucent, crystalline mass or white powder.
MW: 7.95 BP: Decomposes VP: 0 mm MP: 1256 F
INCOM Strong oxidizers, halogenated hydrocarbons, acids, water [Note: May ignite SPONTANEOUSLY in air and may reignite after fire is extinguished. Reacts with water to form hydrogen & lithium hydroxide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin; eye, skin burns; mouth, esophagus burns (if ingested); nausea; muscle twitches; mental confusion; blurred vision
ORGAN Eyes, skin, respiratory system, central nervous system
LESS1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. When analysis of a compound is requested, an elemental analysis is performed and reported as the compound. Refer to [OSHA ID-121; AP 7]

Lithium Hydroxide

IMIS **L150** CAS 1310-66-3
SYN Lithium hydroxide monohydrate; Lithium hydroxide hydrate
DOT 2680 154
DESC Small colorless crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. When analysis of a compound is requested, an elemental analysis is performed and reported as the compound.

Machette

IMIS **M175** CAS 23184-66-9
SYN N-(Butoxymethyl)-2-chloro-N-(2,6-diethylphenyl) acetamide; Butachlor; Machete
NIOSH RTECS AE1200000*
DESC Amber-colored liquid; used in pre-emergence weed control of rice fields. Not marketed in U.S. since 1977.
Solubility in water: 24 ppm

MP: -5 C BP: 156 C (0.5 mm) VP: 0 mm (approx.)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Malathion (Total Dust)

IMIS **1616** CAS 121-75-5
SYN Diethyl (dimethoxyphosphinothiylthio) succinate, S-[1,2-bis(ethoxycarbonyl)ethyl]O,O-dimethyl-phosphorodithioate
NIOSH RTECS WM8400000 DOT 2783 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3 (Skin)
DESC Deep-brown to yellow liquid with a garlic-like odor.
MW: 330.4 BP: 140 F (Decomposes) VP: 0.00004 mm MP: 37 F
FP: (oc) >325 F
INCOM Strong oxidizers, magnesium, alkaline pesticides [Note: Corrosive to metals.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
IARC Group 2A - probably carcinogenic to humans - [Malathion]
SYMPT Irritation eyes, skin; miosis, aching eyes, blurred vision, lacrimation (discharge of tears); salivation; anorexia, nausea, vomiting, abdominal cramps, diarrhea, dizziness, confusion, ataxia; rhinorrhea (discharge of thin nasal mucus), headache; chest tightness, wheezing, laryngeal spasm
ORGAN Eyes, skin, respiratory system, liver, blood cholinesterase, central nervous system, cardiovascular system, gastrointestinal tract
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 60 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Gas Chromatography; GC-FPD
REF: OSHA 62 SAE: 0.09 CLASS: Fully Validated by OSHA
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Maleic Anhydride

IMIS **1618** CAS 108-31-6
SYN cis-Butenedioic anhydride, 2,5-Furanedione, Maleic acid anhydride, Toxic anhydride
NIOSH RTECS ON3675000 DOT 2215 156
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.25 ppm, 1 mg/m3
DESC Colorless needles, white lumps, or pellets with an irritating, choking odor
MW: 98.1 BP: 396 F VP: 0.2 mm MP: 127 F FP: 218 F
INCOM Strong oxidizers, water, alkalis, metals, caustics & amines above 150°F [Note: Reacts slowly with water (hydrolyzes) to form maleic acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,

mutagen (except Code HE1 chemicals). (HE2)
 SYMPT Irritation nose, upper respiratory system; conjunctivitis; photophobia (abnormal visual intolerance to light), double vision; bronchial asthma; dermatitis
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: (90/10) Acetonitrile/Dimethylsulfoxide
 MAX V: 60 Liters MAX F: 0.5 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 86 SAE: 0.15 CLASS: Fully Validated by OSHA
 NOTE: Store samples at reduced temperature until shipment.

Maneb

IMIS **M177** CAS 12427-38-2
 SYN [ethylene bis(dithiocarbamate)]manganese; manzate
 DESC Yellow powder or crystalline solid.
 MW: 264.88 MP: 392 F VP: 7.5x10⁻⁸
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Maneb]
 SLC1 MEDIA:
 ANL SOLVENT: 5% Cysteine and 5% EDTA in water
 MAX V: 500 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 107 SAE: 0.17 CLASS: Fully Validated by OSHA

Manganese Cyclopentadienyl Tricarbonyl (as Mn)

IMIS **1622** CAS 12079-65-1
 SYN Cyclopentadienylmanganese tricarbonyl, Cyclopentadienyl tricarbonyl manganese, MCT
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m³ (Skin)
 DESC Yellow, crystalline solid with a characteristic odor. [Note: An antiknock additive for gasoline. May be found in an oil & gaseous solution.]
 MW: 204.1 BP: Sublimes MP: 167 F (Sublimes)
 INCOM Oxygen
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT In Animals: irritation skin; pulmonary edema; convulsions; central nervous system, respiratory system, kidney changes; decreased resistance to infection
 ORGAN Skin, respiratory system, central nervous system, kidneys
 SLC1 MEDIA:
 MAX V: 48 Liters MIN V: 24 Liters MAX F: 1.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: When an analysis of a compound is requested, an elemental analysis is performed and reported as Manganese.

Mavrik

IMIS **M347** CAS 69409-94-5
 SYN Fluvalinate
 DOT 2902 151

DESC A viscous heavy oil (technical)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Maximum Normalized Dp/Dt (Explosibility) (Kst)

IMIS **M102**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
REF: OSHA ID-201SG CLASS: Partially Validated by OSHA
NOTE: Call SLTC for instructions. Please provide SDS if available.

MCPA

IMIS **M178** CAS 94-74-6
SYN 2-Methyl-4-chlorophenoxyacetic acid; MCP; Methoxone
NIOSH RTECS AG1575000* DOT 3077 171(international)
DESC Colorless plates.
MW: 200.54
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Chlorophenoxy herbicides]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 250 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

MCPP

IMIS **M126** CAS 93-65-2
SYN 2-((4-Chloro-o-tolyl) oxy) propionic acid; 2-(2-Methyl-4-chlorophenoxy) propanoic acid; Mecoprop; CMPP
NIOSH RTECS UE9750000* DOT 2811 154
DESC Colorless crystals.
MW: 215
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Chlorophenoxy herbicides]
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Melamine

IMIS **M166** CAS 108-78-1
SYN Cyanuramide; Cyanurotriamide; 2,4,6-Triamino-s-triazine; Cymel
NIOSH RTECS OS0700000*
DESC Colorless to white monoclinic crystals or prisms or white powder.
MW: 126.2 BP: Sublimes MP: 653 F (Decomposes)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Melamine]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 40 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC

Melengestrol Acetate

IMIS **M338** CAS 2919-66-6
 SYN 17-alpha-Acetoxy-6-methyl-16-methylene-4, 6-pregnadiene-3, 20-dione; MGA; MGA 100
 NIOSH RTECS TU4141000*
 DESC MW: 396.57
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Menadione

IMIS **M158** CAS 58-27-5
 SYN Diesel Exhaust Component; 2-Methyl-1, 4-Naphthalenedione; Kativ-G; Menaphthone; 2-Methyl-1, 4-Naphthoquinone; Panosine
 NIOSH RTECS QL9100000*
 DESC MW: 172.18
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
 IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
 SLC1 MEDIA:
 ANL SOLVENT: (90/10) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

Mercaptoethanol

IMIS **M176** CAS 60-24-2
 SYN 2-Mercaptoethanol
 NIOSH RTECS KL5600000* DOT 2966 153
 DESC A water-white liquid.
 MW: 78.13
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated

Mercury (Aryl & Inorganic Compounds) (as Hg)

IMIS **M111** CAS 7439-97-6
 SYN Colloidal mercury, Mercury metal, Metallic mercury, Quicksilver
 NIOSH RTECS OV4550000 DOT 2809 172(metal)
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.1 mg/m³ (Skin)
 DESC Metal: Silver-white, heavy, odorless liquid. [Note: "Other" Hg compounds include all inorganic & aryl Hg compounds except (organo) alkyls.]
 MW: 200.6 BP: 674 F MP: -38 F
 INCOM Acetylene, ammonia, chlorine dioxide, azides, calcium (amalgam formation), sodium

carbide, lithium, rubidium, copper
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Mercury and inorganic mercury compounds]
 SYMPT Irritation eyes, skin; cough, chest pain, dyspnea (breathing difficulty), bronchitis, pneumonitis; tremor, insomnia, irritability, indecision, headache, lassitude (weakness, exhaustion); stomatitis, salivation; gastrointestinal disturbance, anorexia, weight loss; proteinuria
 ORGAN Eyes, skin, respiratory system, central nervous system, kidneys
 SLC1 MEDIA:
 MAX V: 10 Liters MAX F: 2.0 L/min
 MAX V: 30 Liters MIN T: 15 Minutes MAX F: 2.0 L/min (CEIL)
 ANL 1: Cold Vapor-Atomic Absorption Spectrophotometer; CVAA
 REF: OSHA ID-145 SAE: 0.19 CLASS: Fully Validated by OSHA

Mercury (Organo) Alkyl Compounds (as Hg)

IMIS **1630** CAS 7439-97-6
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.01 mg/m3 (Skin)
 STEL 0.03 mg/m3 (Skin)
 Stayed, FR 54:2922, 1/19/89
 DESC Appearance and odor vary depending upon the specific (organo) alkyl mercury compound.
 MW: 98.2
 Properties vary depending upon the specific (organo) alkyl mercury compound.
 INCOM Strong oxidizers, such as chlorine
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Mercury and inorganic mercury compounds]
 SYMPT Paresthesia; ataxia, dysarthria; vision, hearing disturbance; spasticity, jerking limbs; dizziness; salivation; lacrimation (discharge of tears); nausea, vomiting, diarrhea, constipation; skin burns; emotional disturbance; kidney injury; possible teratogenic effects
 ORGAN Eyes, skin, central nervous system, peripheral nervous system, kidneys
 SLC1 Standard has been stayed until an analytical method can be developed.

Mestranol

IMIS **M305** CAS 72-33-3
 SYN 3-methoxy-17- α -19-norpregna-1,3,5(10)-trien-20-yn-17-ol; Compound 33355; δ -MVE
 NIOSH RTECS RC8960000*
 DESC Solid.
 MW: 310.44 MP: 150 to 151 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Human Carcinogen - [Mestranol (see Estrogens, Steroidal)]
 IARC Group 1 - carcinogenic to humans - [Estrogen-progestogen oral contraceptives (combined)]
 SLC1 MEDIA:
 ANL SOLVENT: Isopropanol
 MAX V: 500 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-FLU
 REF: (OSHA In-House File) CLASS: Partially Validated

Methamidophos

IMIS **M308** CAS 10265-92-6
SYN Monitor; MTD; Acephate-met; Bayer 71628; ENT 27396; Filitox; Metamidofos
Estrella; Ortho 9006; SRA 5172; Tahmabon; Tamanox; Tamaron
NIOSH RTECS TB4970000* DOT 3018 152
DESC Crystalline solid, technical product is off-white with a pungent odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL SOLVENT: Acetonitrile
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

Methamphetamine

IMIS **M315** CAS 7632-10-2
SYN N, alpha-Dimethyl-phenethylamine
NIOSH RTECS SH4900000*
DESC MW: 49.26
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methidathion

IMIS **M105** CAS 950-37-8
SYN Ultracide (TM); Supracide (TM); somonil; Fisons NC 2964; DMTP; ENT 27193
DOT 2811 154
DESC Colorless crystals.
MW: 302.34 MP: 102 to 104 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated

Methomyl

IMIS **1644** CAS 16752-77-5
SYN Lannate®, Methyl N-((methylamino)carbonyloxy)ethanimidothioate, S-Methyl-N-
(methylcarbamoxyloxy)thioacetimidate
NIOSH RTECS AK2975000 DOT 2757 151(carbamate pesticide, solid,
toxic)
MIOSHA FINAL RULE (Table G-1-A):
TWA 2.5 mg/m3
DESC White, crystalline solid with a slight, sulfur-like odor. [insecticide]
MW: 162.2 MP: 172 F
INCOM Strong bases
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
SYMPT Irritation eyes; blurred vision, miosis; salivation; abdominal cramps, nausea,
vomiting; dyspnea (breathing difficulty); lassitude (weakness, exhaustion), muscle
twitching; liver, kidney damage
ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, liver,
kidneys, blood cholinesterase

SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Methotrexate

IMIS **M106** CAS 59-05-2
 SYN amethopterin; 4-amino-10-methylfolic acid; 1-glutamic acid, N-(4-(((2,4-diamino-6-pteridinyl)methyl)methylamino))benzoyl; glutamic acid, N-(p-(((2,4-diamino-6-pteridinyl)methyl)methylamino)benzoyl)-, L; methopterin; amethopterine; HDMTX; MTX; L-N-(p-(((2,4-diamino-6-pteridinyl)methyl)methylamino)benzoyl) glutamic acid
 NIOSH RTECS MA1225000* DOT 3249 151
 DESC Bright yellow-orange, odorless, crystalline powder.
 MW: 454.46
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Methotrexate]
 SLC1 MEDIA:
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 BULK Limit the amount of bulk submitted to one gram or one mL.

Methoxychlor (Total Dust)

IMIS **1646** CAS 72-43-5
 SYN p,p'-Dimethoxydiphenyltrichloroethane, DMDT, Methoxy-DDT, 2,2-bis(p-Methoxyphenyl)-1,1,1-trichloroethane, 1,1,1-Trichloro-2,2-bis-(p-methoxyphenyl)ethane
 NIOSH RTECS KJ3675000 DOT 2761 151(organochlorine pesticide, solid, toxic)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 mg/m3
 DESC Colorless to light-yellow crystals with a slight, fruity odor. [insecticide]
 MW: 345.7 BP: Decomposes VP: Very low MP: 171 F
 INCOM Oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Methoxychlor]
 SYMPT In Animals: fasciculation, trembling, convulsions; kidney, liver damage; [potential occupational carcinogen]
 ORGAN Central nervous system, liver, kidneys. [in animals: liver & ovarian cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated
 BULK Limit the amount of bulk submitted to one gram or one mL.

Methoxyflurane

IMIS **1647** CAS 76-38-0
SYN 2,2-Dichloro-1,1-difluoroethyl methyl ether, 2,2-Dichloro-1,1-difluoro-1-methoxyethane, Methoflurane, Methoxyfluorane, Penthrane
NIOSH RTECS KN7820000 DOT 1993 128
DESC Colorless liquid with a fruity odor. [inhalation anesthetic]
MW: 165.0 BP: 220 F MP: -31 F VP: 23 mm
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Anaesthetics, volatile]
SYMPT Irritation eyes; central nervous system depression, analgesia, anesthesia, convulsions, resp depression; liver, kidney injury; In Animals: reproductive, teratogenic effects
ORGAN Eyes, central nervous system, liver, kidneys, reproductive system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated
SAM2 MIRAN IA & IB: Min. Det. Con. 0.2 ppm at 12.0 um
MIRAN 103: Range 0-10 ppm at 12.0 um

4-Methoxy-4-Methyl-2-Pentanone

IMIS **1648** CAS 107-70-0
DOT 2293 128
DESC A clear colorless liquid.
MW: 130.21 BP: 297 to 325 F FP: 141 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

4-Methoxyphenol

IMIS **M329** CAS 150-76-5
SYN Hydroquinone monomethyl ether, p-Hydroxyanisole, Mequinol, p-Methoxyphenol, Monomethyl ether hydroquinone
NIOSH RTECS SL7700000 DOT 3335 171
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC Colorless to white, waxy solid with an odor of caramel & phenol.
MW: 124.2 BP: 469 F MP: 135 F VP: <0.01 mm FP: (oc) 270 F
INCOM Strong oxidizers, strong bases, acid chlorides, acid anhydrides
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, throat, upper respiratory system; eye, skin burns; central nervous system depression
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) SAE: 0.11 CLASS: Partially Validated

6-Methoxytetralone

IMIS **M209** CAS 1078-19-9
SYN 3,4-Dihydro-6-Methoxy-1 (2H)-Naphthalene; Diesel Exhaust Component

DESC Light yellow crystalline powder.
 MW: 176.21
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]
 IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]
 SLC1 MEDIA:
 ANL SOLVENT: (90/10) Methylene Chloride/Methanol
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

Methylacetamide

IMIS **M109** CAS 79-16-3
 SYN N-Methylacetamide
 DESC White crystalline solid.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methyl Acetylene-Propadiene Mixture (MAPP)

IMIS **1652** CAS 59355-75-8
 SYN MAPP gas, Methyl acetylene-allene mixture, Methyl acetylene-propadiene mixture (stabilized), Propadiene-methyl acetylene, Propyne-allene mixture, Propyne-propadiene mixture
 NIOSH RTECS UK4920000 DOT 1060 116P(stabilized)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 1800 mg/m3
 STEL 1250 ppm, 2250 mg/m3
 DESC Colorless gas with a strong, characteristic, foul odor. [Note: A fuel that is shipped as a liquefied compressed gas.]
 MW: 40.1 BP: -36 to -4 F MP: -213 F
 INCOM Strong oxidizers, copper alloys [Note: Forms explosive compounds at high pressure in contact with alloys containing more than 67% copper.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Narcosis. (HE8)
 SYMPT Irritation respiratory system; excitement, confusion, anesthesia; liquid: frostbite
 ORGAN Respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 2 Liters MAX F: 0.05 L/min (TWA)
 MAX V: 0.75 Liters MAX F: 0.05 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Methyl Acetylene (Propyne)

IMIS **1651** CAS 74-99-7
 SYN Allylene, Propine, Propyne, 1-Propyne
 NIOSH RTECS UK4250000 DOT 3161 115
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 1650 mg/m3
 DESC Colorless gas with a sweet odor. [Note: A fuel that is shipped as a liquefied compressed gas.]
 MW: 40.1 BP: -10 F MP: -153 F
 INCOM Strong oxidizers (such as chlorine), copper alloys [Note: Can decompose explosively at 4.5 to 5.6 atmospheres of pressure.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (H18)
 Nervous System Disturbances---Narcosis. (HE8)

SYMPT Irritation respiratory system; tremor, hyperexcitability, anesthesia; liquid: frostbite

ORGAN Respiratory system, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 2 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Methyl Acrylonitrile

IMIS **1654** CAS 126-98-7

SYN 2-Cyanopropene-1, 2-Cyano-1-propene, Isoprene cyanide, Isopropenyl nitrile, Methacrylonitrile, α -Methylacrylonitrile, 2-Methylpropenenitrile

NIOSH RTECS UD1400000 DOT 3079 131P(inhibited)

MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 3 mg/m³ (Skin)

DESC MW: 67.10 BP: 195 F MP: -32 F FP: 34 F

INCOM Strong acids, strong oxidizers, alkali, light [Note: Polymerization may occur due to elevated temperature, visible light, or contact with a concentrated alkali.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)

SYMPT Irritation eyes, skin; lacrimation (discharge of tears); In Animals: convulsions, loss of motor control in hind limbs

ORGAN Eyes, skin, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 20 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: (OSHA In-House File) CLASS: Not Validated

SAM2 DET. TUBE: Draeger, 67 30301, 1-10 ppm
 Sensidyne, 192, 0.2-32.0 ppm
 MSA, 91624, 10-80 ppm, pyrolyzer required

Methylal (Dimethoxy-Methane) (Dimethoxymethane)

IMIS **1655** CAS 109-87-5

SYN Dimethoxymethane, Formal, Formaldehyde dimethylacetal, Methoxymethyl methyl ether, Methylene dimethyl ether

NIOSH RTECS PA8750000 DOT 1234 127

MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 3100 mg/m³

DESC Colorless liquid with a chloroform-like odor.
 MW: 76.1 BP: 111 F VP: 330 mm MP: -157 F FP: (oc) -26 F

INCOM Strong oxidizers, acids

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

SYMPT Irritation eyes, skin, upper respiratory system; anesthesia

ORGAN Eyes, skin, respiratory system, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Hexane
 MAX V: 3 Liters MIN V: 1 Liter MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1611 SAE: 0.10 CLASS: Fully Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.1 ppm at 9.5 µm

Methylamine

IMIS **1665** CAS 74-89-5
 SYN Aminomethane, Methylamine (anhydrous), Methylamine (aqueous),
 Monomethylamine
 NIOSH RTECS PF6300000 DOT 1061 118(anhydrous)
 1235 132(aqueous)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 ppm, 12 mg/m3
 DESC Colorless gas with a fish- or ammonia-like odor. [Note: A liquid below 21°F. Shipped
 as a liquefied compressed gas.]
 MW: 31.1 BP: 21 F MP: -136 F FP: 14 F (liquid)
 INCOM Mercury, strong oxidizers, nitromethane [Note: Corrosive to copper & zinc alloys,
 aluminum & galvanized surfaces.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 SYMPT Irritation eyes, skin, respiratory system; cough; skin, mucous membrane burns;
 dermatitis; conjunctivitis; liquid: frostbite
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Tetrahydrofuran
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 40 SAE: 0.10 CLASS: Fully Validated by OSHA

2-Methylaminoethanol

IMIS **M115** CAS 109-83-1
 DOT 3267 153
 DESC A clear colorless liquid.
 MW: 75.11 BP: 316 F MP: 23.9 F FP: 165 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

5-Methyl-o-Anisidine

IMIS **M108** CAS 120-71-8
 SYN p-Cresidine
 NIOSH RTECS BZ6720000*
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [p-Cresidine]
 IARC Group 2B - possibly carcinogenic to humans - [para-Cresidine]
 SLC1 MEDIA:
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 WIPE MEDIA: Glass Fiber Filter (37 mm)

Methyl Benzoate

IMIS **M107** CAS 93-58-3
DESC A crystalline solid or a solid dissolved in a liquid.
MW: 136.15 BP: 388 to 390 F MP: 10 F FP: 181 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methyl Bromide

IMIS **1680** CAS 74-83-9
SYN Bromomethane, Monobromomethane
NIOSH RTECS PA4900000 DOT 1062 123
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 20 mg/m3 (Skin)
DESC Colorless gas with a chloroform-like odor at high concentrations. [Note: A liquid below 38°F. Shipped as a liquefied compressed gas.]
MW: 95.0 BP: 38 F VP: 1.9 atm MP: -137 F
INCOM Aluminum, magnesium, strong oxidizers [Note: Attacks aluminum to form aluminum trimethyl, which is SPONTANEOUSLY flammable.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Methyl bromide]
SYMPT Irritation eyes, skin, respiratory system; muscle weak, incoordination, visual disturbance, dizziness; nausea, vomiting, headache; malaise (vague feeling of discomfort); hand tremor; convulsions; dyspnea (breathing difficulty); skin vesiculation; liquid: frostbite; [potential occupational carcinogen]
ORGAN Eyes, skin, respiratory system, central nervous system [in animals: lung, kidney & forestomach tumors]
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 3 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: The tubes should be separated and capped after sampling. Tubes should be refrigerated as soon after sampling as possible and shipped cold to SLTC. NIOSH method 2520 has problems with capacity as the humidity changes.
SLC2 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 5 Liters MAX F: 0.1 L/min (TWA)
MIN T: 15 Minutes MAX F: 0.1 L/min (CEIL)
ANL 1: Gas Chromatography; GC-AED
REF: NIOSH 2520 SAE: 0.17 CLASS: Fully Validated by NIOSH
NOTE: Ship on dry ice at -10 C due to stability.
SAM2 MIRAN 1A: MIN. Det. Con. 2.3 ppm at 7.5 um

Methyl Chloride

IMIS **1710** CAS 74-87-3
SYN Chloromethane, Monochloromethane
NIOSH RTECS PA6300000 DOT 1063 115
MIOSHA FINAL RULE (Table G-1-A):
TWA 50 ppm, 105 mg/m3

STEL 100 ppm, 210 mg/m³

DESC Colorless gas with a faint, sweet odor which is not noticeable at dangerous concentrations. [Note: Shipped as a liquefied compressed gas.]
MW: 50.5 BP: -12 F VP: 5.0 atm MP: -144 F

INCOM Chemically-active metals such as potassium, powdered aluminum, zinc & magnesium; water [Note: Reacts with water (hydrolyzes) to form hydrochloric acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Methyl chloride]

SYMPT Dizziness, nausea, vomiting; visual disturbance, stagger, slurred speech, convulsions, coma; liver, kidney damage; liquid: frostbite; reproductive, teratogenic effects; [potential occupational carcinogen]

ORGAN Central nervous system, liver, kidneys, reproductive system. [in animals: lung, kidney & forestomach tumors]

SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 3 Liters MAX F: 0.1 L/min (TWA)
MAX V: 1.5 Liters MAX F: 0.1 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1001 SAE: 0.124 CLASS: Fully Validated by NIOSH
NOTE: Ship samples refrigerated

SAM2 MIRAN 1A: MIN. Det. Con. 3.0 ppm at 13.5 um

3-Methylcholanthrene

IMIS **M136** CAS 56-49-5

DESC Yellow crystals or solid.
MW: 268.36

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

BULK Limit the amount of bulk submitted to one gram or one mL.

6-Methylcoumarin

IMIS **M159** CAS 92-48-8

SYN Diesel Exhaust Component; 6-Methyl-1, 2-Benzopyrone

NIOSH RTECS GN7792000*

DESC White crystals with a flavor of vanilla.
MW: 160.17 BP: 303 C MP: 75 C

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]

IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]

SLC1 MEDIA:
ANL SOLVENT: (90/10) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Methyl 2-Cyanoacrylate

IMIS **1735** CAS 137-05-3

SYN Methyl 2-cyanoacrylate, Methyl α -cyanoacrylate, Methyl ester of 2-cyanoacrylic acid

NIOSH RTECS AS7000000 DOT 1993 128
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 ppm, 8 mg/m³
 STEL 4 ppm, 16 mg/m³
 DESC Colorless liquid with a characteristic odor.
 MW: 111.1 FP: 174 F
 INCOM Moisture [Note: Contact with moisture causes rapid polymerization.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, nose; blurred vision, lacrimation (discharge of tears); rhinitis
 ORGAN Eyes, skin, respiratory system
 LESS1 MEDIA:
 ANL SOLVENT: Acetonitrile Containing 0.2% Phosphoric Acid
 MAX V: 12 Liters MAX F: 0.1 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OHL2004S024 SAE: 0.11 CLASS: Validated In-House
 NOTE: Collected samples must be kept at reduced temperature and shipped with dry ice to LESS.

Methylcyclohexane

IMIS **1740** CAS 108-87-2
 SYN Cyclohexylmethane; Hexahydrotoluene
 NIOSH RTECS GV6125000 DOT 2296 128
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 400 ppm, 1600 mg/m³
 DESC Colorless liquid with a faint, benzene-like odor.
 MW: 98.2 BP: 214 F VP: 37 mm MP: -196 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Nervous System Disturbances---Narcosis. (HE8)
 SYMPT Irritation eyes, skin, nose, throat; dizziness, drowsiness; In Animals: narcosis
 ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 4 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1500 SAE: 0.09 CLASS: Fully Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.1 ppm at 3.4 μm

Methylcyclohexanol

IMIS **1760** CAS 25639-42-3
 SYN Hexahydroresol, Hexahydromethylphenol
 NIOSH RTECS GW0175000 DOT 2617 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 50 ppm, 235 mg/m³
 DESC Straw-colored liquid with a weak, coconut oil odor.
 MW: 114.2 BP: 311 to 356 F VP: <1 mm MP: <6 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Nervous System Disturbances---Narcosis. (HE8)

Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

SYMPT Irritation eyes, skin, upper respiratory system; headache; In Animals: narcosis; liver, kidney damage

ORGAN Eyes, skin, respiratory system, central nervous system, kidneys, liver

SLC1 MEDIA:
 ANL SOLVENT: Methylene Chloride
 MAX V: 15 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1404 SAE: 0.14 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 0.5 ppm at 9.5 µm

o-Methylcyclohexanone

IMIS **1765** CAS 583-60-8

SYN 2-Methylcyclohexanone

NIOSH RTECS GW1750000 DOT 2297 128

MIOSHA FINAL RULE (Table G-1-A):
 TWA 50 ppm, 230 mg/m3 (Skin)
 STEL 75 ppm, 345 mg/m3 (Skin)

DESC Colorless liquid with a weak, peppermint-like odor.
 MW: 112.2 BP: 325 F VP: 1 mm (approx.) MP: 7 F FP: 118 F

INCOM Strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT In Animals: irritation eyes, mucous membrane; narcosis; dermatitis

ORGAN Skin, respiratory system, liver, kidneys, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 6 Liters MAX F: 0.05 L/min (TWA)
 MAX V: 0.75 Liters MAX F: 0.1 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2521 SAE: 0.09 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 0.9 ppm at 8.9 µm

2-Methylcyclopentadienyl Manganese (as Mn)

IMIS **1767** CAS 12108-13-3

SYN CI-2, Combustion Improver-2, Manganese tricarbonylmethylcyclopentadienyl, 2-Methylcyclopentadienyl manganese tricarbonyl, MMT

NIOSH RTECS OP1450000 DOT 3281 151

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 mg/m3 (Skin)

DESC Yellow to dark-orange liquid with a faint, pleasant odor. [Note: A solid below 36°F.]
 MW: 218.1 BP: 449 F MP: 36 F FP: 230 F

INCOM Light (Decomposes)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes; dizziness, nausea, headache; In Animals: tremor, severe clonic spasms, lassitude (weakness, exhaustion), slow respiration; liver, kidney injury

ORGAN Eyes, central nervous system, liver, kidneys

SLC1 MEDIA:
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated

Methylcyclopentane

IMIS **M116** CAS 96-37-7
DOT 2298 128

DESC A colorless liquid.
MW: 84.16 BP: 161.2 F MP: -224.3 F FP: -11 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SAM2 Century Organic Vapor Analyzer

3-Methyl-2-Cyclopentene-2-ol-1-One

IMIS **M208** CAS 80-71-7

SYN Diesel Exhaust Component; 2-Hydroxy-3-Methyl-2-Cyclopent-1-one; Corylon; Corylone; Maple Lactone

NIOSH RTECS GY7298000*

DESC MW: 112.13

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

NTP Suspect Human Carcinogen - [Diesel Exhaust Particulates]

IARC Group 1 - carcinogenic to humans - [Engine exhaust, diesel]

SLC1 MEDIA:
ANL SOLVENT: (90/10) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Methyl Demeton

IMIS **1768** CAS 8022-00-2

SYN Demeton methyl, O,O-Dimethyl 2-ethylmercaptoethyl thiophosphate, Metasystox®, Methyl mercaptophos, Methyl systox®

NIOSH RTECS TG1760000 DOT 3018 152

MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m3 (Skin)

DESC Oily, colorless to pale-yellow liquid with an unpleasant odor. [insecticide] [Note: Technical grade consists of 2 isomers: thiono & thio.]
MW: 230.3 BP: Decomposes

INCOM Strong oxidizers, alkalis, water

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)

SYMPT Irritation eyes, skin; ache eyes, rhinorrhea (discharge of thin nasal mucus); nausea, headache, dizziness, vomiting

ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase

SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

Methyl Dicyclohexylamine

IMIS **1769** CAS 7560-83-0

SYN N-Methyldicyclohexylamine

NIOSH RTECS HY4190000*

DESC Clear slightly yellow liquid or white solid
MW: 195.34

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

n-Methyldiethanolamine

IMIS **M309** CAS 105-59-9
NIOSH RTECS KL7525000*
DESC Colorless liquid.
MW: 119.19 BP: 477 F MP: -6 F FP: 260 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 20 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

4,4'-Methylenebis(2-Chloroaniline)

IMIS **2650** CAS 101-14-4
SYN DACPM, 3,3'-Dichloro-4,4'-diaminodiphenylmethane, MBOCA, 4,4'-Methylenebis(o-chloro aniline), 4,4'-Methylenebis(2-chlorobenzenamine), MOCA
NIOSH RTECS CY1050000 DOT 3077 171
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.02 ppm, 0.22 mg/m3 (Skin)
DESC Tan-colored pellets or flakes with a faint, amine-like odor.
MW: 267.2 MP: 230 F
INCOM Chemically-active metals (e.g., potassium, sodium, magnesium, zinc)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [4,4'-Methylenebis(2-chloroaniline)]
IARC Group 1 - carcinogenic to humans - [4,4'-Methylenebis(2-chloroaniline) (MOCA)]
SYMPT Hematuria (blood in the urine), cyanosis, nausea, methemoglobinemia, kidney irritation; [potential occupational carcinogen]
ORGAN Liver, blood, kidneys [in animals: liver, lung & bladder tumors]
SLC1 MEDIA:
ANL SOLVENT: (2/1) Toluene/0.5 N Sodium Hydroxide
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OHL2008S005 CLASS: Validated In-House
NOTE: Within ten hours after sampling, transfer filter to glass vial containing 2 mL deionized water. Sample must be shipped and stored frozen. Analyze as soon as possible. Filters may be obtained from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)

2,2'-Methylene-bis(4-chlorophenol)

IMIS **M129** CAS 97-23-4
SYN Dichlorophene
NIOSH RTECS SM0175000*
DESC White slightly cream or light pink-colored powder.
MW: 269.13
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol

MAX V: 750 Liters MAX F: 2.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

4,4'-Methylenedianiline

IMIS	1732	CAS	101-77-9
SYN	4,4'-Diaminodiphenylmethane, para, para'-Diaminodiphenyl-methane, Dianilinomethane, 4,4'-Diphenylmethanediamine, MDA		
MIOSHA	FINAL RULE (Table G-1-A) Methylenedianiline (MDA) in General Industry (29 CFR 1910.1050):		
		TWA	10 ppb, 0.08 mg/m ³
		STEL	100 ppb, 0.8 mg/m ³
		AL	5 ppb
DESC	Pale-brown, crystalline solid with a faint, amine-like odor. MW: 198.3 BP: 748 F MP: 198 F FP: 374 F		
INCOM	Strong oxidizers		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
NTP	Suspect Human Carcinogen - [4,4'-Methylenedianiline (see 4,4'-Methylenedianiline and Its Dihydrochloride)]		
IARC	Group 2B - possibly carcinogenic to humans - [4,4'-Methylenedianiline]		
SYMPT	Irritation eyes; jaundice, hepatitis; myocardial damage; In Animals: heart, liver, spleen damage; [potential occupational carcinogen]		
ORGAN	Eyes, liver, cardiovascular system, spleen. [in animals: bladder cancer]		
SLC1	MEDIA: ANL SOLVENT: Water - extract amine salt from filter. Toluene - extract amine from water.		
	MAX V: 100 Liters	MAX F: 1.0 L/min (TWA)	
	MAX V: 15 Liters	MAX F: 1.0 L/min (STEL)	
	ANL 1: Gas Chromatography; GC-ECD		
	REF: OSHA 57	SAE: 0.16	CLASS: Fully Validated by OSHA
	NOTE: Obtain sampler from SLC. Filter must be transferred to a vial containing 2 mL deionized water within 10 hours after sample collection.		
WIPE	MEDIA: Glass Fiber Filter (37 mm) SOLVENT: 0.6 mL of a 60/40 Methanol/Deionized Water NOTE: Wipe samples are placed in a solution of 0.07 N Sulfuric Acid for shipment.		

Methyl Ether

IMIS	M157	CAS	115-10-6
SYN	Dimethyl Ether; Wood Ether; Oxybismethane		
NIOSH	RTECS PM4780000*	DOT	1033 115
DESC	Colorless gas with a faint ethereal odor. MW: 46.07 BP: -8 F MP: -217.3 F FP: 25 F		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Methylethylamine

IMIS	M188	CAS	624-78-2
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

Methyl Ethyl Ketone Peroxide

IMIS	1750	CAS	1338-23-4
SYN	2-Butanone peroxide, Ethyl methyl ketone peroxide, MEKP, MEK peroxide, Methyl ethyl ketone hydroperoxide		
NIOSH	RTECS EL9450000	DOT	3105 145

MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.7 ppm, 5 mg/m³

DESC Colorless liquid with a characteristic odor. [Note: Explosive decomposition occurs at 230°F.]
 MW: 176.2 BP: 244 F (Decomposes)

INCOM Organic materials, heat, flames, sunlight, trace contaminants [Note: A strong oxidizing agent. Pure MEKP is shock sensitive. Commercial product is diluted with 40% dimethyl phthalate, cyclohexane peroxide, or diallyl phthalate to reduce sensitivity to shock.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)

SYMPT Irritation eyes, skin, nose, throat; cough, dyspnea (breathing difficulty), pulmonary edema; blurred vision; blisters, scars skin; abdominal pain, vomiting, diarrhea; dermatitis; In Animals: liver, kidney damage

ORGAN Eyes, skin, respiratory system, liver, kidneys
 SLC1 MEDIA:
 ANL SOLVENT: Isopropanol
 MIN V: 15 Liters MAX F: 1.0 L/min (CEIL)
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 77 SAE: 0.12 CLASS: Fully Validated by OSHA
 NOTE: Samples must be frozen immediately after collection. Ship frozen and keep frozen until analysis. Analysis requires assaying (titration) the standard and post column derivatization.

Methyl Formamide

IMIS **M137** CAS 123-39-7

DESC Clear colorless liquid with a slight amine odor.
 MW: 59.07 BP: 356 to 365 F MP: -40 F FP: 208 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SAM2 MIRAN IA & IB: Min. Det. Con. 0.8 ppm at 8.4 um

Methyl Formate

IMIS **1770** CAS 107-31-3

SYN Methyl ester of formic acid, Methyl methanoate

NIOSH RTECS LQ8925000 DOT 1243 129

MIOSHA FINAL RULE (Table G-1-A):
 TWA 100 ppm, 250 mg/m³
 STEL 150 ppm, 375 mg/m³

DESC Colorless liquid with a pleasant odor. [Note: A gas above 89°F.]
 MW: 60.1 BP: 89 F VP: 476 mm MP: -148 F FP: -2 F

INCOM Strong oxidizers [Note: Reacts slowly with water to form methanol & formic acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Nervous System Disturbances---Narcosis. (HE8)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

SYMPT Irritation eyes, nose; chest tightness, dyspnea (breathing difficulty); visual disturbance; central nervous system depression; In Animals: pulmonary edema; narcosis

ORGAN Eyes, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: (90/10) Methanol/Dimethylformamide

Methyl Iodide

IMIS	1772	CAS	74-88-4
SYN	Iodomethane, Monoiodomethane		
NIOSH	RTECS PA9450000	DOT	2644 151
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	2 ppm, 10 mg/m ³ (Skin)
DESC	Colorless liquid with a pungent, ether-like odor. [Note: Turns yellow, red, or brown on exposure to light & moisture.]		
	MW: 141.9	BP: 109 F	VP: 400 mm MP: -88 F
INCOM	Strong oxidizers [Note: Decomposes at 518°F.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
	Acute Toxicity---Short-term high risk effects. (HE4)		
	Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)		
	Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)		
IARC	Group 3 - not classifiable as to its carcinogenicity to humans - [Methyl iodide]		
SYMPT	Irritation eyes, skin, respiratory system; nausea, vomiting; dizziness, ataxia; slurred speech, drowsiness; dermatitis; [potential occupational carcinogen]		
ORGAN	Eyes, skin, respiratory system, central nervous system [in animals: lung, kidney & forestomach tumors]		
SLC1	MEDIA:		
	ANL SOLVENT: Toluene		
	MAX V: 50 Liters	MAX F: 1.0 L/min	
	ANL 1: Gas Chromatography; GC-FID		
	REF: NIOSH 1014	SAE: 0.12	CLASS: Partially Validated by NIOSH
SAM2	MIRAN 1A: MIN. Det. Con. 1.8 ppm at 3.4 µm		

Methyl Isobutyl Carbinol (Methyl Amyl Alcohol)

IMIS	1670	CAS	108-11-2
SYN	Isobutylmethylcarbinol, Methyl amyl alcohol, 4-Methyl-2-pentanol, MIBC		
NIOSH	RTECS SA7350000	DOT	2053 129
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	25 ppm, 100 mg/m ³ (Skin)
		STEL	40 ppm, 165 mg/m ³ (Skin)
DESC	Colorless liquid with a mild odor.		
	MW: 102.2	BP: 271 F	VP: 3 mm MP: -130 F FP: 271 F
INCOM	Strong oxidizers		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
	Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)		
	Nervous System Disturbances---Narcosis. (HE8)		
SYMPT	Irritation eyes, skin; headache, drowsiness; dermatitis; In Animals: narcosis		
ORGAN	Eyes, skin, central nervous system		
SLC1	MEDIA:		
	ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol		
	MAX V: 10 Liters	MAX F: 0.2 L/min (TWA)	
	MAX V: 3 Liters	MAX F: 0.2 L/min (STEL)	
	ANL 1: Gas Chromatography; GC-FID		
	REF: NIOSH 1402	SAE: 0.13	CLASS: Partially Validated by NIOSH
	NOTE: Ship and store refrigerated.		
SAM2	DET. TUBE: MSA, 95097, 25-1000 ppm		

MIRAN IA: Min. Det. Con. 0.8 ppm at 8.7 µm

Methyl Isocyanate

IMIS **1773** CAS 624-83-9
SYN Methyl ester of isocyanic acid, MIC
NIOSH RTECS NQ9450000 DOT 2480 155
MIOSHA FINAL RULE (Table G-1-A): TWA 0.02 ppm, 0.05 mg/m³ (Skin)
DESC Colorless liquid with a sharp, pungent odor
MW: 57.1 BP: 102 to 104 F MP: -49 F VP: 348 mm FP: 19 F
INCOM Water, oxidizers, acids, alkalis, amines, iron, tin, copper [Note: Usually contains inhibitors to prevent polymerization.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation eyes, skin, nose, throat; resp sensitization, cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma; eye, skin damage; In Animals: pulmonary edema
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 15 Liters MAX F: 0.05 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 54 SAE: 0.13 CLASS: Fully Validated by OSHA
NOTE: Sampling tubes require special preparation, call lab. Sampling tubes should be stored under refrigeration until used.
SAM2 MIRAN 1A: MIN. Det. Con. 0.1 ppm at 4.4 µm

Methyl Isopropyl Ketone

IMIS **M165** CAS 563-80-4
SYN 2-Acetyl propane, Isopropyl methyl ketone, 3-Methyl-2-butanone, 3-Methyl butan-2-one, MIPK
NIOSH RTECS EL9100000 DOT 2397 127
MIOSHA FINAL RULE (Table G-1-A): TWA 200 ppm, 705 mg/m³
DESC Colorless liquid with an acetone-like odor.
MW: 86.2 BP: 199 F MP: -134 F VP: 42 mm
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, mucous membrane, respiratory system; cough
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liter MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Keep samples cold and ship overnight.

Methyl Isothiocyanate

IMIS **M345** CAS 556-61-6
SYN Methyl Mustard Oil; Trapexide; MIT; MITC; Isothiocyanatomethane

NIOSH RTECS PA9625000* DOT 2477 131
 DESC A colorless liquid with a sharp odor.
 MW: 73.12 BP: 246 F MP: 95 to 97 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: (95/5) Methylene Chloride/Methanol
 MAX V: 20 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Methyl Mercaptan (Methanethiol)

IMIS **1643** CAS 74-93-1
 SYN Mercaptomethane, Methanethiol, Methyl sulfhydrate
 NIOSH RTECS PB4375000 DOT 1064 117
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 1 mg/m3
 DESC Colorless gas with a disagreeable odor like garlic or rotten cabbage. [Note: A liquid below 43°F. Shipped as a liquefied compressed gas.]
 MW: 48.1 BP: 43 F MP: -186 F VP: 1.7 atm FP: (oc) 0 F (liquid)
 INCOM Strong oxidizers, bleaches, copper, aluminum, nickel-copper alloys
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Generally Low Risk Health Effects---Odor. (HE20)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT Irritation eyes, skin, respiratory system; narcosis; cyanosis; convulsions; liquid: frostbite
 ORGAN Eyes, skin, respiratory system, central nervous system, blood
 SLC1 MEDIA:
 ANL SOLVENT: Methylene Chloride
 MAX V: 20 Liters MAX F: 0.2 L/min (TWA)
 ANL 1: Gas Chromatography; GC-FPD
 REF: OSHA 26 SAE: 0.14 CLASS: Fully Validated by OSHA
 NOTE: After sampling, protect samples from light until analysis.
 SAM2 MIRAN 1A: MIN. Det. Con. 1.5 ppm at 3.4 um

Methyl Naphthalene

IMIS **1779** CAS 1321-94-4
 DOT 3082 171
 DESC Bluish-brown oil or a clear yellow liquid.
 MW: 142.2 BP: 450-590 F FP: >200 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Methylnaphthalene

IMIS **M155** CAS 90-12-0
 SYN alpha-Methylnaphthalene
 NIOSH RTECS QJ9630000*
 DESC Colorless liquid.
 MW: 142.2 BP: 464 to 469 F MP: -8 F FP: 180 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Methylnaphthalene

IMIS **M156** CAS 91-57-6

SYN beta-Methylnaphthalene
NIOSH RTECS QJ9635000* DOT 3082 171
DESC MW: 142.2 BP: 466 to 468 F MP: 94.3 F FP: 208 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methylparaben

IMIS **M336** CAS 99-76-3
SYN Methyl 4-hydroxybenzoate; Nipagin M; Tegosept M; Methyl Chemosept; Methyl Parasept
NIOSH RTECS DH2450000*
DESC White crystalline solid which is often dissolved in a liquid solvent carrier.
MW: 263.23
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (WOHL) CLASS: Not Validated

Methyl Parathion

IMIS **1775** CAS 298-00-0
SYN Azophos®, O,O-Dimethyl-O-p-nitrophenylphosphorothioate, Parathion methyl
NIOSH RTECS TG0175000 DOT 3018 152(liquid); 2783 152(solid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3 (Skin)
DESC White to tan, crystalline solid or powder with a pungent, garlic-like odor. [pesticide]
[Note: The commercial product in xylene is a tan liquid.]
MW: 263.2 BP: 289 F MP: 99 F
INCOM Strong oxidizers, water [Note: Explosive risk when heated above 122°F.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
mutagen (except Code HE1 chemicals). (HE2)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Methyl parathion]
SYMPT Irritation eyes, skin; nausea, vomiting, abdominal cramps, diarrhea, salivation;
headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin
nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle
fasciculation; dyspnea (breathing difficulty)
ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood
cholinesterase
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

3-Methylpentane

IMIS **M337** CAS 96-14-0
SYN Diethylmethylethane, Diisopropyl, 2,2-Dimethylbutane, 2,3-Dimethylbutane,
Isohexane, 2-Methylpentane, 3-Methylpentane [Note: Also see specific listing for n-
Hexane.]
NIOSH RTECS SA2995500 DOT 1208 128

DESC Clear liquids with mild, gasoline-like odors. [Note: Includes all the isomers of hexane except n-hexane.]
MW: 86.2 BP: 122 to 145 F MP: -245 to -148 F FP: -54 to 19 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; headache, dizziness; nausea; chemical pneumonitis (aspiration liquid); dermatitis
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
ANL 1: Gas Chromatography
REF: (WOHL) CLASS: Not Validated

p-Methylphenylacetylene

IMIS **M327** CAS 766-97-2
SYN 4-Methylphenylacetylene; p-Ethynyltoluene
NIOSH RTECS XT2570000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Methylpiperidine

IMIS **M148** CAS 626-67-5
SYN 1-methylpiperidine DOT 2399 132
DESC A colorless liquid with the odor of pepper.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methyl Pivaloylacetate

IMIS **M366** CAS 55107-14-7
SYN Methyl 4,4-dimethyl-3-oxopentanoate
DESC Liquid
MW: 158.19
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Methyl Silicate

IMIS **1777** CAS 681-84-5
SYN Methyl orthosilicate, Tetramethoxysilane, Tetramethyl ester of silicic acid, Tetramethyl silicate
NIOSH RTECS VV9800000 DOT 2606 155
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 6 mg/m3
CEIL 5 ppm, 30 mg/m3
DESC Clear, colorless liquid. [Note: A solid below 28°F.]
MW: 152.3 BP: 250 F MP: 28 F FP: 205 F
INCOM Oxidizers; hexafluorides of rhenium, molybdenum & tungsten
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation eyes, corneal damage (following even short-term exposure to the vapor);

ORGAN lung, kidney injury; pulmonary edema
SLC1 Eyes, respiratory system, kidneys
MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 9 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

beta-Methyl Styrene

IMIS **M199** CAS 637-50-3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methyl Thiocyanate

IMIS **M346** CAS 556-64-9
SYN Methyl Sulfocyanate; Thiocyanic Acid; Methyl Ester
NIOSH RTECS XL1575000* DOT 2929 131
DESC Colorless liquid and an odor of onions.
MW: 73.12 BP: 266 to 271 F MP: -60 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Methylthiophene

IMIS **M326** CAS 554-14-3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

3-Methylthiophene

IMIS **M335** CAS 616-44-4
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Methyl Violet

IMIS **M197** CAS 8004-87-3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Metribuzin

IMIS **A175** CAS 21087-64-9
SYN 4-Amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one
NIOSH RTECS XZ2990000 DOT 3077 171(international)
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
DESC Colorless, crystalline solid. [herbicide]
MW: 214.3 MP: 257 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: central nervous system depression; thyroid, liver enzyme changes
ORGAN Central nervous system, thyroid, liver
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated

MICP

IMIS **M340**
SYN Methyl Isocyanate Pyridyl Piperazine derivative
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
ANL 1: High Performance Liquid Chromatography HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Minimum Explosive Concentration

IMIS **M103**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Mirex

IMIS **M189** CAS 2385-85-5
SYN Hexachloropentadiene dimer; 1,1a, 2,2a, 3,3a, 4,4a, 5,5a, 5b, 6-Dodecachlorooctahydro-1, 3,4-metheno-1H-cyclobuta[c, d] pentalene; Dechlorane
DOT 2761 151
DESC Odorless white crystalline solid.
MW: 545.55
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Mirex]
IARC Group 2B - possibly carcinogenic to humans - [Mirex]
BULK Limit the amount of bulk submitted to one gram or one mL.

MOCAP

IMIS **M195** CAS 13194-48-4
SYN (o-Ethyl S,S-dipropyl) phosphorodithioate; Ethoprophos
NIOSH RTECS TE4025000* DOT 3018 152
DESC MW: 242.36 BP: 187 to 196 F (0.2 mm)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.

Moisture Content

IMIS **M104**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA: Bulk
NOTE: Call SLTC for instructions.

Monensin

IMIS **M196** CAS 17090-79-8
SYN 2-[5-Ethyltetrahydro-5-[tetrahydro-3-methyl-5-[tetrahydro-6-hydroxy-6-(hydroxymethyl)-3,5-dimethyl-2H-pyran 2-yl]-2-furyl-9-hydroxy-beta-methoxy-alpha,gamma,2,8-tetramethyl-1,6-dioxaspiro[4.5]decane-7 butyric acid; monensic acid
NIOSH RTECS JH2829500*
DESC Crystals
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: Colorimetric

BULK REF: (OSHA In-House File) CLASS: Not Validated
Limit the amount of bulk submitted to one gram or one mL.

Monochloroacetic Acid

IMIS **M145** CAS 79-11-8
SYN Chloroethanoic Acid; Chloroacetic Acid
NIOSH RTECS AF8575000* DOT 1751 153
DESC Colorless solution of the white crystalline solid.
MW: 94.5 FP: 259 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 0.2 L/min
ANL 1: Ion Chromatography; IC
REF: NIOSH 2008 CLASS: Fully Validated by
NIOSH

Monocrotophos

IMIS **2690** CAS 6923-22-4
SYN Azodrin®, 3-Hydroxy-N-methylcrotonamide dimethylphosphate, Monocron
NIOSH RTECS TC4375000 DOT 2783 152(organophosphorus pesticide)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.25 mg/m3
DESC Colorless to reddish-brown solid with a mild, ester odor. [insecticide]
MW: 223.2 BP: 257 F MP: 129 F FP: >200 F
INCOM Metals, low molecular weight alcohols & glycols [Note: Corrosive to black iron, drum steel, stainless steel 304 & brass. Should be stored at 70-80°F.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Irritation eyes, miosis, blurred vision; dizziness, convulsions; dyspnea (breathing difficulty); salivation, abdominal cramps, nausea, diarrhea, vomiting; In Animals: possible teratogenic effects
ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, blood cholinesterase, reproductive system
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated

Monomethyl Aniline (n-Methylaniline)

IMIS **1972** CAS 100-61-8
SYN MA, (Methylamino)benzene, N-Methyl aniline, Methylphenylamine, N-Phenylmethylamine
NIOSH RTECS BY4550000 DOT 2294 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 ppm, 2 mg/m3 (Skin)
DESC Yellow to light-brown liquid with a weak, ammonia-like odor.
MW: 107.2 BP: 384 F VP: 0.3 mm MP: -71 F FP: 175 F
INCOM Strong acids, strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Anemias. (HE12)
Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
SYMPT Lassitude (weakness, exhaustion), dizziness, headache; dyspnea (breathing

difficulty), cyanosis; methemoglobinemia; pulmonary edema; liver, kidney damage
 ORGAN Respiratory system, liver, kidneys, blood, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: 4 M Sodium Hydroxide
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 3511 SAE: 0.264 CLASS: Partially Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 1.9 ppm at 9.4 um

Monosodium Acid Methanearsonate

IMIS **M318** CAS 2163-80-6
 SYN MSMA DOT 2994 151
 DESC Odorless colorless solid.
 MW: 161.96 BP: Decomposes MP: 235 to 241 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Mucochloric Acid

IMIS **M146** CAS 87-56-9
 DESC MW: 168.96
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Naphtha (Coal Tar)

IMIS **0710** CAS 8030-30-6
 SYN Crude solvent coal tar naphtha, High solvent naphtha, Naphtha
 NIOSH RTECS GF8635000 DOT 1136 128
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 100 ppm, 400 mg/m3
 DESC Reddish-brown, mobile liquid with an aromatic odor.
 MW: approx. 110 BP: 320 to 428 F VP: <5 mm FP: 100 to 109 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Nervous System Disturbances---Narcosis. (HE8)
 NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]
 IARC Group 1 - carcinogenic to humans - [Coal-tar pitch]
 SYMPT Irritation eyes, skin, nose; dizziness, drowsiness; dermatitis; In Animals: liver, kidney damage
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys
 LESS1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 REC V: 3 Liters REC F: 0.2 L/min REC T: 15 minutes
 ANL 1: Gas Chromatography; GC-FID
 REF: OHL2004S014 SAE: 0.15 CLASS: Validated In-House
 NOTE: Separately submit 1 mL of bulk sample to use as a standard. Recommend refrigerated storage.

1,5-Naphthene Diisocyanate

IMIS **N119** CAS 3173-72-6
 SYN 1,5-Diisocyanatonaphthalene, 1,5-Naphthalene diisocyanate, 1,5-Naphthalene ester of isocyanic acid, NDI
 NIOSH RTECS NQ9850000 DOT 2206 156

DESC White to light-yellow, crystalline flakes.
MW: 210.20 BP: 505 F MP: 261 F FP: (oc) 311 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [1,5-Naphthalene diisocyanate]
SYMPT Irritation eyes, nose, throat; resp sensitization, cough, pulmonary secretions, chest pain, dyspnea (breathing difficulty); asthma
ORGAN Eyes, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (90/10) Acetonitrile/Dimethylsulfoxide
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: (OSHA In-House File) CLASS: Partially Validated
COND Column: Spherisorb (hexyl) Mobile Phase: 58/42 H2O/Acetonitrile 0.05 M
Ammonium Acetate adjusted to pH 5.9 w/ H3PO4; Detector Fluorescence Ex-240nm
Em-370nm; UV-254nm

beta-Naphthol

IMIS **N605** CAS 135-19-3
SYN 2-Naphthol; 2-Hydroxynaphthalene; Isonaphthol
NIOSH RTECS QL2975000*
DESC White powder.
MW: 144.17
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

alpha-Naphthylamine

IMIS **1815** CAS 134-32-7
SYN 1-Aminonaphthalene, 1-Naphthylamine
NIOSH RTECS QM1400000 DOT 2077 153
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Colorless crystals with an ammonia-like odor. [Note: Darkens in air to a reddish-purple color.]
MW: 143.2 BP: 573 F VP: 1 mm (220 F) MP: 122 F FP: 315 F
INCOM Oxidizes in air
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [1-Naphthylamine]
SYMPT Dermatitis; hemorrhagic cystitis; dyspnea (breathing difficulty), ataxia, methemoglobinemia; hematuria (blood in the urine); dysuria; [potential occupational carcinogen]
ORGAN Bladder, skin [bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 93 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: The sample filters are transferred to separate glass vials containing 2 mL of deionized water within 10 hours of sampling.

WIPE MEDIA: Whatman 41 Filter Paper

beta-Naphthylamine

IMIS **1820** CAS 91-59-8
SYN 2-Aminonaphthalene, 2-Naphthylamine
NIOSH RTECS QM2100000 DOT 1650 153
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Odorless, white to red crystals with a faint, aromatic odor. [Note: Darkens in air to a reddish-purple color.]
MW: 143.2 BP: 583 F VP: 1 mm (226 F) MP: 232 F FP: 315 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [2-Naphthylamine]
IARC Group 1 - carcinogenic to humans - [2-Naphthylamine]
SYMPT Dermatitis; hemorrhagic cystitis; dyspnea (breathing difficulty); ataxia; methemoglobinemia, hematuria (blood in the urine); dysuria; [potential occupational carcinogen]
ORGAN Bladder, skin [bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 93 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: The sample filters are transferred to separate glass vials containing 2 mL of deionized water within 10 hours of sampling.
WIPE MEDIA: Whatman 41 Filter Paper

Nickel Carbonyl

IMIS **1841** CAS 13463-39-3
SYN Nickel tetracarbonyl, Tetracarbonyl nickel
NIOSH RTECS QR6300000 DOT 1259 131
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.001 ppm, 0.007 mg/m3
DESC Colorless to yellow liquid with a musty odor. [Note: A gas above 110°F.]
MW: 170.7 BP: 110 F VP: 315 mm MP: -13 F FP: <-4 F
INCOM Nitric acid, bromine, chlorine & other oxidizers; flammable materials
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Acute Toxicity---Short-term high risk effects. (HE4)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
NTP Human Carcinogen - [Nickel Compounds (see Nickel Compounds and Metallic Nickel)]
IARC Group 1 - carcinogenic to humans - [Nickel compounds]
SYMPT Headache, dizziness; nausea, vomiting, epigastric pain; substernal pain; cough, hyperpnea; cyanosis; lassitude (weakness, exhaustion); leukocytosis (increased blood leukocytes), pneumonitis; delirium, convulsions; ; In Animals: reproductive, teratogenic effects [potential occupational carcinogen]
ORGAN Lungs, paranasal sinus, central nervous system, reproductive system [lung & nasal cancer]
SLC1 MEDIA:
ANL SOLVENT: 3% Nitric Acid

	MAX V: 480 Liters	MIN V: 240 Liters	MAX F: 1.0 L/min
	ANL 1: Atomic Absorption Spectroscopy; AAS-GF		
	REF: NIOSH 6007	CLASS: Partially Validated by NIOSH	
	NOTE: Submit as a separate sample. When analysis of a compound is requested, an elemental analysis is performed and reported as the compound.		
SAM2	DET. TUBE: Draeger, CH 19501, 0.1-1 ppm		
	MIRAN 1A & 1B: MIN. Det. Con. 0.2 ppm at 4.9 um		

Nicotine

IMIS	1855	CAS	54-11-5
SYN	3-(1-Methyl-2-pyrrolidyl)pyridine		
NIOSH	RTECS QS5250000	DOT	1654 151
MIOSHA	FINAL RULE (Table G-1-A):		
	TWA 0.5 mg/m3 (Skin)		
DESC	Pale-yellow to dark-brown liquid with a fish-like odor when warm. [insecticide]		
	MW: 162.2	BP: 482 F (Decomposes)	VP: 0.08 mm MP: -110 F FP: 203 F
INCOM	Strong oxidizers, strong acids		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
	Acute Toxicity---Short-term high risk effects. (HE4)		
	Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)		
	Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)		
SYMPT	Nausea, salivation, abdominal pain, vomiting, diarrhea; headache, dizziness, hearing, visual disturbance; confusion, lassitude (weakness, exhaustion), incoordination; cardiac arrhythmias; convulsions, dyspnea (breathing difficulty); In Animals: teratogenic effects		
ORGAN	Central nervous system, cardiovascular system, lungs, gastrointestinal tract, reproductive system		
SLC1	MEDIA:		
	ANL SOLVENT: Ethyl Acetate with 0.01% Triethylamine		
	MAX V: 600 Liters	MAX F: 1.0 L/min	
	ANL 1: Gas chromatography; GC-NPD		
	REF: NIOSH 2551	CLASS: Partially Validated by NIOSH	
	NOTE: Keep cold. Protect from prolonged exposure to light		

o-Nitroaniline

IMIS	N106	CAS	88-74-4
		DOT	1661 153
DESC	Orange solid with a musty odor.		
	MW: 138.13	BP: 543 F	MP: 160.7 F FP: 335 F
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

p-Nitroaniline

IMIS	1865	CAS	100-01-6
SYN	para-Aminonitrobenzene, 4-Nitroaniline, 4-Nitrobenzenamine, p-Nitrophenylamine, PNA		
NIOSH	RTECS BY7000000	DOT	1661 153
MIOSHA	FINAL RULE (Table G-1-A):		
	TWA 3 mg/m3 (Skin)		
DESC	Bright yellow, crystalline powder with a slight ammonia-like odor.		
	MW: 138.1	BP: 630 F	VP: 0.00002 mm MP: 295 F FP: 390 F
INCOM	Strong oxidizers, strong reducers [Note: May result in spontaneous heating of		

organic materials in the presence of moisture.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation nose, throat; cyanosis, ataxia; tachycardia, tachypnea; dyspnea (breathing difficulty); irritability; vomiting, diarrhea; convulsions; resp arrest; anemia; methemoglobinemia; jaundice
 ORGAN Respiratory system, blood, heart, liver
 SLC1 MEDIA:
 ANL SOLVENT: Isopropanol
 MAX V: 350 Liters MAX F: 3.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: NIOSH 5033 SAE: 0.11 CLASS: Fully Validated by NIOSH

Nitrobenzene

IMIS **1870** CAS 98-95-3
 SYN Essence of mirbane, Nitrobenzol, Oil of mirbane
 NIOSH RTECS DA6475000 DOT 1662 152
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 5 mg/m³ (Skin)
 DESC Yellow, oily liquid with a pungent odor like paste shoe polish. [Note: A solid below 42°F.]
 MW: 123.1 BP: 411 F VP: 0.3 mm (77 F) MP: 42 F FP: 190 F
 INCOM Concentrated nitric acid, nitrogen tetroxide, caustics, phosphorus pentachloride, chemically-active metals such as tin or zinc
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 NTP Suspect Human Carcinogen - [Nitrobenzene]
 IARC Group 2B - possibly carcinogenic to humans - [Nitrobenzene]
 SYMPT Irritation eyes, skin; anoxia; dermatitis; anemia; methemoglobinemia; In Animals: liver, kidney damage; testicular effects
 ORGAN Eyes, skin, blood, liver, kidneys, cardiovascular system, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 150 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2005 SAE: 0.10 CLASS: Fully Validated by NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.9 ppm at 11.9 µm

para-Nitrobenzyl Bromide

IMIS **N105** CAS 100-11-8
 SYN 4-Nitrobenzyl Bromide; alpha-Bromo-4-Nitrotoluene
 DESC MW: 216.03
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Nitrocellulose

IMIS **N117** CAS 9004-70-0
 SYN Cellulose Nitrate; Gun Cotton; Proxylin; Nitrocotton

DESC A white solid.
 MP: Ignites at 160 to 170 C
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 BULK ANL 1: Colorimetric REF: (OSHA In-House File) CLASS: Not Validated
 ANL 2: Thin Layer Chromatography; (TLC) REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Limit the amount of bulk submitted to one gram or one mL.

p-Nitrochlorobenzene

IMIS **1872** CAS 100-00-5
 SYN 4-Chloronitrobenzene, p-Chloronitrobenzene, 1-Chloro-4-nitrobenzene, 4-Nitrochlorobenzene, PCNB, PNCB
 NIOSH RTECS CZ1050000 DOT 1578 152
 MIOSHA FINAL RULE (Table G-1-A): TWA 1 mg/m3 (Skin)
 DESC Yellow, crystalline solid with a sweet odor.
 MW: 157.6 BP: 468 F VP: 0.2 mm (86 F) MP: 182 F FP: 261 F
 INCOM Strong oxidizers, alkalis
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 IARC Group 2B - possibly carcinogenic to humans - [4-Chloronitrobenzene]
 SYMPT Anoxia; unpleasant taste; anemia; methemoglobinemia; In Animals: hematuria (blood in the urine); spleen, kidney, bone marrow changes; reproductive effects; [potential occupational carcinogen]
 ORGAN Blood, liver, kidneys, cardiovascular system, spleen, bone marrow, reproductive system
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 150 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2005 SAE: 0.17 CLASS: Fully Validated by NIOSH

n-Nitrodimethylamine

IMIS **N115** CAS 4164-28-7
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

4-Nitrodiphenylamine

IMIS **N107** CAS 836-30-6
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

4-Nitrodiphenyl (4-Nitrobiphenyl)

IMIS **1875** CAS 92-93-3
 SYN p-Nitrobiphenyl, 4-Nitrodiphenyl, p-Nitrodiphenyl, 4-Phenylnitrobenzene, p-Phenylnitrobenzene, PNB
 NIOSH RTECS DV5600000 DOT 2811 154
 MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
 DESC White to yellow, needle-like, crystalline solid with a sweetish odor.
 MW: 199.2 BP: 644 F MP: 237 F FP: 290 F
 INCOM Strong reducers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Cancer---Currently regulated by OSHA as carcinogen. (HE1)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [4-Nitrobiphenyl]

SYMPT Headache, drowsiness, dizziness; dyspnea (breathing difficulty); ataxia, lassitude (weakness, exhaustion); methemoglobinemia; urinary burning; acute hemorrhagic cystitis; [potential occupational carcinogen]

ORGAN Bladder, blood

SLC1 MEDIA:
ANL SOLVENT: Ethyl Acetate
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

SLC2 MEDIA:
ANL SOLVENT: Isopropanol
MAX V: 50 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: P&CAM 273 CLASS: Not Validated

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.

Nitroethane

IMIS **1880** CAS 79-24-3

SYN Nitroetan

NIOSH RTECS KI5600000 DOT 2842 129

MIOSHA FINAL RULE (Table G-1-A):
TWA 100 ppm, 310 mg/m3

DESC Colorless, oily liquid with a mild, fruity odor..
MW: 75.1 BP: 237 F VP: 21 mm (77 F) MP: -130 F FP: 82 F

INCOM Amines, strong acids, alkalis, and oxidizers; hydrocarbons, other combustibles; metal oxides

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Narcosis. (HE8)

SYMPT Dermatitis; In Animals: lacrimation (discharge of tears); dyspnea (breathing difficulty), pulmonary rales, edema; liver, kidney injury; narcosis

ORGAN Skin, respiratory system, central nervous system, kidneys, liver

SLC1 MEDIA:
ANL SOLVENT: Ethyl Acetate
MAX V: 3 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2526 SAE: 0.119 CLASS: Fully Validated by NIOSH

SAM2 NOTE: Separate front and back sorbent tubes.
MIRAN 1A: MIN. Det. Con. 2.1 ppm at 9.0 um

5-Nitro-2-Furaldehyde Semicarbazone

IMIS **N905** CAS 59-87-0

SYN Nitrofurazone

NIOSH RTECS LT7700000*

DESC Odorless pale yellow needles or yellow powder. pH (saturated aqueous solution) 6.0 - 6.5. Alkaline solutions are dark orange.
MW: 198.14 MP: 457 to 464 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Nitrofural]

(Nitrofurazone)]
SLC1 MEDIA:
ANL SOLVENT: Dimethylformamide
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Nitrogen Trifluoride

IMIS **1907** CAS 7783-54-2
SYN nitrogen fluoride, trifluorammine, trifluorammonia
NIOSH RTECS QX1925000 DOT 2451 122
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 ppm, 29 mg/m3
DESC Colorless gas with a moldy odor.
MW: 71.0 BP: -200 F MP: -340 F VP: >1 atm
INCOM Water, oil, grease; oxidizable materials; ammonia, carbon monoxide, methane, hydrogen, hydrogen sulfide, active metals; oxides
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Methemoglobinemia. (Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT None known in humans; In animals: methemoglobinemia; anoxia, cyanosis; lassitude (weakness, exhaustion), dizziness, headaches; liver, kidney injury
ORGAN Blood, liver, kidneys
LESS1 Field Analysis

Nitroglycerin

IMIS **1912** CAS 55-63-0
SYN Glyceryl trinitrate, NG, 1,2,3-Propanetriol trinitrate, Trinitroglycerine
NIOSH RTECS QX2100000 DOT 1204 127(≤ 1% solution in alcohol)
3064 127(1-5% solution in alcohol)
MIOSHA FINAL RULE (Table G-1-A):
STEL 0.1 mg/m3 (Skin)
DESC Colorless to pale-yellow, viscous liquid or solid (below 56°F). [Note: An explosive ingredient in dynamite (20-40%) with ethylene glycol dinitrate (80-60%).]
MW: 227.1 BP: Begins to Decompose (122 to 140 F) MP: 56 F
FP: Explodes
INCOM Heat, ozone, shock, acids [Note: An OSHA Class A Explosive (1910.109).]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
SYMPT Throbbing headache; dizziness; nausea, vomiting, abdominal pain; hypotension; flush; palpitations; methemoglobinemia; delirium, central nervous system depression; angina; skin irritation
ORGAN Cardiovascular system, blood, skin, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)

MIN T: 15 Minutes MAX F: 1.0 L/min (CEIL)
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 43 SAE: 0.13 CLASS: Fully Validated by OSHA
 NOTE: The sampling pump must be approved by NIOSH and/or MSHA as
 intrinsically safe for use in coal mines.

Nitromethane

IMIS **1920** CAS 75-52-5
 SYN Nitrocarbol
 NIOSH RTECS PA9800000 DOT 1261 129
 MIOSHA FINAL RULE (Table G-1-A): TWA 100 ppm, 250 mg/m3
 DESC Colorless, oily liquid with a disagreeable odor.
 MW: 61.0 BP: 214 F VP: 28 mm MP: -20 F FP: 95 F
 INCOM Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible
 materials; metallic oxides [Note: Slowly corrodes steel & copper when wet.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Nervous System Disturbances---Narcosis. (HE8)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good
 Housekeeping Practices are Followed). (HE18)
 NTP Suspect Human Carcinogen - [Nitromethane]
 IARC Group 2B - possibly carcinogenic to humans - [Nitromethane]
 SYMPT Dermatitis; In Animals: irritation eyes, respiratory system; convulsions, narcosis; liver
 damage
 ORGAN Eyes, skin, central nervous system, liver
 SLC1 MEDIA:
 ANL SOLVENT: Ethyl Acetate
 MAX V: 3 Liters MAX F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: NIOSH 2527 SAE: 0.152 CLASS: Fully Validated by
 NIOSH
 NOTE: Separate front and back sorbent sections
 SAM2 MIRAN 1A: MIN. Det. Con. 4.5 ppm at 3.4 um

p-Nitrophenol

IMIS **N607** CAS 100-02-7
 SYN 4-Hydroxynitrobenzene
 NIOSH RTECS SM2275000* DOT 1663 153
 DESC A white to light yellow crystalline solid.
 MW: 139.11 BP: 534 F MP: 235 to 239 F (Sublimes) VP: 1 mm FP: 377 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 WIPE MEDIA: Whatman 41 Filter Paper

1-Nitropropane

IMIS **1940** CAS 108-03-2

SYN Nitropropane, 1-NP
 NIOSH RTECS TZ5075000 DOT 2608 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 25 ppm, 90 mg/m3
 DESC Colorless liquid with a somewhat disagreeable odor.
 MW: 89.1 BP: 269 F VP: 8 mm MP: -162 F FP: 96 F
 INCOM Amines; strong acids, alkalis & oxidizers; hydrocarbons & other combustible materials; metal oxides
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Irritation eyes; headache, nausea, vomiting, diarrhea; In Animals: liver, kidney damage
 ORGAN Eyes, central nervous system, liver, kidneys
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 4 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 46 SAE: 0.12 CLASS: Fully Validated by OSHA
 SAM2 MIRAN 1A: Min. Det. Con. 4.8 ppm at 12.5 um

2-Nitropropane

IMIS **1941** CAS 79-46-9
 SYN Dimethylnitromethane, iso-Nitropropane, 2-NP
 NIOSH RTECS TZ5250000 DOT 2608 129
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 ppm, 35 mg/m3
 DESC Colorless liquid with a pleasant, fruity odor.
 MW: 89.1 BP: 249 F VP: 13 mm MP: -135 F FP: 75 F
 INCOM Amines; strong acids, alkalis & oxidizers; metal oxides; combustible materials
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 NTP Suspect Human Carcinogen - [2-Nitropropane]
 IARC Group 2B - possibly carcinogenic to humans - [2-Nitropropane]
 SYMPT Irritation eyes, skin, nose, respiratory system; headache, anorexia, nausea, vomiting, diarrhea; kidney, liver damage; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, central nervous system, kidneys, liver [in animals: liver tumors]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 4 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 46 SAE: 0.10 CLASS: Fully Validated by OSHA
 SAM2 MIRAN 1A: MIN. Det. Con. 2.3 ppm at 11.8 um

1-Nitropyrene

IMIS **N116** CAS 5522-43-0
 SYN 3-Nitropyrene

NIOSH RTECS UR2480000* DOT 2811 154
DESC Yellow needles or prisms (from ethanol)
MW: 247.26 MP: 311 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [1-Nitropyrene (see Nitroarenes [Selected])]
IARC Group 2A - probably carcinogenic to humans - [1-Nitropyrene]
SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

n-Nitrosodiamylamine

IMIS **N705** CAS 13256-06-9
SYN NDAmA; Di-n-pentyl nitrosamine; Di-n-amyl nitrosamine; dipentylamine, N-Nitroso-
DESC Clear light yellow liquid.
MW: 186.34
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 38 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodibutylamine

IMIS **1944** CAS 924-16-3
SYN butylamine, N-nitrosodi; N-butyl-N-nitroso-1-butamine; DBN; DBNA; dibutylamine, N-nitroso; dibutyl nitrosamine; di-n-butyl nitrosamine; N,N-di-n-butyl nitrosamine; NDBA; N-nitroso-di-n-butylamine
NIOSH RTECS EJ4025000* DOT 3082 171
DESC Pale yellow liquid.
MW: 158.25
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [N-Nitrosodi-n-butylamine (see N-Nitrosamines:15 listings)]
IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosodi-n-butylamine]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 27 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodiethanolamine

IMIS **0907** CAS 1116-54-7
SYN NDELA; DELNA; 2,2'-iminodi-N-nitrosoethanol; bis(β -hydroxyethyl)nitrosamine; nitrosoiminodiethanol; 2,2'-(nitrosoimino) bis[ethanol]; N-nitrosobis(2-hydroxyethyl)amine; NCI-C55583; diethylamine, 2,2'-dihydroxy-N-nitroso;

diethanolnitrosamine
NIOSH RTECS KL9550000* DOT 1993 128
DESC Yellow to dark brown very viscous liquid with no distinct odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
NTP Suspect Human Carcinogen - [N-Nitrosodiethanolamine (see N-Nitrosamines: 15 listings)]
IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosodiethanolamine]
SLC1 MEDIA:
ANL SOLVENT: Isopropanol
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 31 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Sample open-faced and store samples in freezer. Air sample and bulk must be protected from light. Collect a sample of the bulk substance and send to the lab in a separate mailing container at the time the air samples are submitted. Indicate on the sample sheet that a bulk sample has been submitted.
BULK Limit the amount of bulk submitted to one gram or one mL.
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 31 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Bulk samples which give positive results via HPLC-UV are confirmed by GC-TEA or HPLC-TEA.

n-Nitrosodiethylamine

IMIS **1947** CAS 55-18-5
SYN NDEA; DENA; DEN; DANA; Diethylnitrosamine; Diethylnitroso-amine; ethylamine, N-Nitrosodi; N, N-Diethylnitrosamine; N-Ethyl-N-nitroso ethanamine; Nitrosodiethylamine
NIOSH RTECS IA3500000 DOT 2810 153
DESC Clear slightly yellow liquid.
MW: 102.14 BP: 351 F FP: 145 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
NTP Suspect Human Carcinogen - [N-Nitrosodiethylamine (see N-Nitrosamines: 15 listings)]
IARC Group 2A - probably carcinogenic to humans - [N-Nitrosodiethylamine]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 27 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodiisopropylamine

IMIS **N706** CAS 601-77-4
SYN NDiPA; diisopropylamine, N-Nitroso
NIOSH RTECS IM4360000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:

ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 38 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.

BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodimethylamine

IMIS **1942** CAS 62-75-9
SYN Dimethylnitrosamine, N,N-Dimethylnitrosamine, DMNA, N-Methyl-N-nitroso-methanamine, NDMA, N-Nitroso-N,N-dimethylamine
NIOSH RTECS IQ0525000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Yellow, oily liquid with a faint, characteristic odor.
MW: 74.1 BP: 306 F VP: 3 mm
INCOM Strong oxidizers [Note: Should be stored in dark bottles.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Cancer---Currently regulated by OSHA as carcinogen. (HE1)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
NTP Suspect Human Carcinogen - [N-Nitrosodimethylamine (see N-Nitrosamines: 15 listings)]
IARC Group 2A - probably carcinogenic to humans - [N-Nitrosodimethylamine]
SYMPT Nausea, vomiting, diarrhea, abdominal cramps; headache; fever; enlarged liver, jaundice; decreased liver, kidney, pulmonary function; [potential occupational carcinogen]
ORGAN Liver, kidney, lungs [in animals; lung, kidney, liver & nasal cavity tumors]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 27 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodiphenylamine

IMIS **N109** CAS 86-30-6
SYN NDPA; diphenyl nitrosamine; Redax; Vulcatard; NDFA
NIOSH RTECS JJ9800000* DOT 3077 171
DESC Yellow to brown or orange powder or flakes or a black solid.
MW: 198.24 MP: 151.7 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [N-Nitrosodiphenylamine]
SLC1 MEDIA:
ANL SOLVENT: Isopropanol
MAX V: 250 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 23 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: The samples must be protected from light during and after sampling. Wrap

Bubbler with black tape to protect from light. Samples must be either stored in a freezer or analyzed within six days after collection.

BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosodipropylamine

IMIS **1948** CAS 621-64-7
SYN NDPA; di-n-propyl nitrosamine; N-nitrosodi-n-propylamine; DPNA; DPN; N-nitroso-N-propyl-1-propanamine; propylamine, N-nitroso-N-di; dipropyl nitrosamine; N-propyl-N-nitrosopropylamine
NIOSH RTECS JL9700000 DOT 3082 171
DESC Clear to pale yellow liquid.
MW: 130.19 BP: 403 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [N-Nitrosodi-n-propylamine (see N-Nitrosamines: 15 listings)]
IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosodi-n-propylamine]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 27 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosoethyl-n-Butylamine

IMIS **N707** CAS 4549-44-4
SYN NEBA; N-ethyl-N-nitrosobutylamine; butylamine, N-ethyl-N-nitroso-; butanamine, N-ethyl-N-nitroso-; ethyl-n-butyl nitrosamine; N-nitroso-n-butylethylamine
NIOSH RTECS EO5075000*
DESC Pale yellow oil.
MW: 130.191 VP: 0.087 mm FP: 93 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 38 SAE: 0.12 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosomethyl-n-Butylamine

IMIS **N708** CAS 7068-83-9
SYN NMBA; MBNA; butylamine, N-methyl-N-nitroso-; butanamine, N-methyl-N-nitroso-; methylbutyl nitrosamine; methyl-n-butyl nitrosamine; N-methyl-N-nitrosobutylamine; N-nitroso-n-butylmethylamine; nitrosomethyl-n-butylamine
NIOSH RTECS EO5425000*
DESC MW: 116.16 BP: 193.6 C FP: 32.6 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min

ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 38 SAE: 0.12 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.

BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosomethylethylamine

IMIS **N709** CAS 10595-95-6
SYN NMEA; NEMA; ethylamine, N-Methyl-N-nitroso; ethylmethylnitrosamine; N,N-methylethylnitrosamine; N-methyl-N-nitrosoethylamine; N-nitrosoethylmethylethylamine; N-methyl-N-nitroso-ethanamine
NIOSH RTECS KR9200000*
DESC Pale yellow oil.
MW: 88.11 BP: 170 C FP: 76 C
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosomethylethylamine]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 38 SAE: 0.12 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosomorpholine

IMIS **1943** CAS 59-89-2
SYN NMOR
NIOSH RTECS QE7525000* DOT 2810 153
DESC Yellow crystals. Golden liquid with many crystals at 68 F.
MW: 116.14 MP: 84 F VP: 25 mm
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [N-Nitrosomorpholine (see N-Nitrosamines: 15 listings)]
IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosomorpholine]
SLC1 MEDIA:
ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
MAX V: 75 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-TEA
REF: OSHA 27 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Media is no longer available. Contact SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosopiperidine

IMIS **1949** CAS 100-75-4
SYN NPIP; NO-Pip; 1-Nitrosopiperidine
NIOSH RTECS TN2100000* DOT 2811 154
DESC Light yellow oil or liquid.
MW: 114.17
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)

NTP Suspect Human Carcinogen - [N-Nitrosopiperidine (see N-Nitrosamines: 15 listings)]
 IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosopiperidine]
 SLC1 MEDIA:
 ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
 MAX V: 75 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-TEA
 REF: OSHA 27 SAE: 0.09 CLASS: Fully Validated by OSHA
 NOTE: Media is no longer available. Contact SLTC.
 BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitroso-n-Propyl-n-Butylamine

IMIS **N805** CAS 25413-64-3
 SYN NPBA; 1-butanamine, N-Nitroso-N-propyl; butylamine, N-Nitroso-N-propyl; N-Propyl-N-butylnitrosoamine
 DESC MW: 144.21 FP: 94.1 C
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
 MAX V: 75 Liters FLOW: 0.2 to 2.0 L/min
 ANL 1: Gas Chromatography; GC-TEA
 REF: OSHA 38 SAE: 0.11 CLASS: Fully Validated by OSHA
 NOTE: Media is no longer available. Contact SLTC.
 BULK Limit the amount of bulk submitted to one gram or one mL.

n-Nitrosopyrrolidine

IMIS **1950** CAS 930-55-2
 SYN NPYR; pyrrolidine, 1-Nitroso-; NO-Pyr
 NIOSH RTECS UY1575000* DOT 2810 153
 DESC Yellow liquid.
 MW: 100.14 BP: 417 F FP: 181 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [N-Nitrosopyrrolidine (see N-Nitrosamines: 15 listings)]
 IARC Group 2B - possibly carcinogenic to humans - [N-Nitrosopyrrolidine]
 SLC1 MEDIA:
 ANL SOLVENT: (75/25) (v/v) Dichloromethane/Methanol
 MAX V: 75 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-TEA
 REF: OSHA 27 SAE: 0.10 CLASS: Fully Validated by OSHA
 NOTE: Media is no longer available. Contact SLTC.
 BULK Limit the amount of bulk submitted to one gram or one mL.

Nitrotoluene, All Isomers

IMIS **1945** CAS 99-08-1 (m-); 88-72-2 (o-); 99-99-0 (p-)
 SYN m-methylnitrobenzene; 3-methylnitrobenzene; meta-nitrotoluene; 3-nitrotoluene, p-methylnitrobenzene; 4-methylnitrobenzene; para-nitrotoluene; 4-nitrotoluene; o-methylnitrobenzene; 2-methylnitrobenzene; ortho-nitrotoluene; 2-nitrotoluene
 NIOSH RTECS XT2975000 (m-); XT3150000 (o-); XT3325000 (p-)
 DOT 1664 152
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 ppm, 11 mg/m³ (Skin)
 DESC Meta: Yellow liquid with a weak, aromatic odor. [Note: A solid below 59°F.]

MW: 137.1 BP: 450 F MP: 59 F VP: 0.1 mm FP: 223 F
 Ortho: Yellow liquid with a weak, aromatic odor. [Note: A solid below 25°F.]
 MW: 137.1 BP: 432 F MP: 25 F VP: 0.1 mm FP: 223 F
 Para: Crystalline solid with a weak, aromatic odor.
 MW: 137.1 BP: 460 F MP: 126 F VP: 0.1 mm FP: 223 F

INCOM Strong oxidizers, sulfuric acid
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

IARC Group 2A - probably carcinogenic to humans - [2-Nitrotoluene]
 Group 3 - not classifiable as to its carcinogenicity to humans - [Nitrotoluenes]

SYMPT Anoxia, cyanosis; headache, lassitude (weakness, exhaustion), dizziness; ataxia; dyspnea (breathing difficulty); tachycardia; nausea, vomiting

ORGAN Blood, central nervous system, cardiovascular system, skin, gastrointestinal tract
SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 150 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2005 SAE: 0.10 CLASS: Fully Validated by NIOSH

SAM2 MIRAN 1A: MIN. Det. Con. 1.8 ppm at 11.8 µm

Nitrous Oxide

IMIS 1953 CAS 10024-97-2
SYN Dinitrogen monoxide, Hyponitrous acid anhydride, Laughing gas
NIOSH RTECS QX1350000 DOT 1070 122; 2201 122(refrigerated liquid)
DESC Colorless gas with a slightly sweet odor. [inhalation anesthetic] [Note: Shipped as a liquefied compressed gas.]
 MW: 44.0 BP: -127 F MP: -132 F VP: 51.3 atm

INCOM Aluminum, boron, hydrazine, lithium hydride, phosphine, sodium
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Asphyxiants, Anoxiants. (HE17)
 Hematologic (Blood) Disturbances---Anemias. (HE12)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Anaesthetics, volatile]
SYMPT Dyspnea (breathing difficulty); drowsiness, headache; asphyxia; reproductive effects; liquid: frostbite

ORGAN Respiratory system, central nervous system, reproductive system
SLC1 MEDIA: Vapor Trak 8530 Passive Dosimeter by KEM Medical Products
 MAX T: 16 Hours MIN T: 15 Minutes
 ANL 1: Infrared; IR** (Proprietary Analysis)
 REF: OSHA ID-166 CLASS: Fully Validated by OSHA
 NOTE: Wrap sample seals lengthwise on each dosimeter tube after sampling and ship samples.
 **NOTE: Sample analysis is proprietary and is conducted by the manufacturer.

Nonyl Alcohol

IMIS N118 CAS 143-08-8
SYN 1-Nonanol; Octyl Carbinol; Pelargonol Alcohol
NIOSH RTECS RB1575000* DOT 3082 171
DESC Colorless liquid with a rose or fruity odor.

MW: 144.26 BP: 415 F MP: 23 F FP: 165 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Norethindrone

IMIS **N608** CAS 68-22-4
SYN Micronor; 19-Norethisterone; Conceplan; Anouirle; 17-hydroxy-19-norpregn-4-en-20-yn-3-one; Norlutin; 17-hydroxy-19-nor-17- α -pregn-4-en-20-yn-3-one; NET; anhydrohydroxynorprogesterone
NIOSH RTECS RC8975000*
DESC White crystalline powder.
MW: 298.46 MP: 397.4 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Norethisterone]
SLC1 MEDIA:
MAX V: 500 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Nylon

IMIS **N806** CAS 63428-83-1
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Octabromodiphenyl Ether

IMIS **O105** CAS 32536-52-0
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,2,3,4,6,7,8,9-Octachlorodibenzodioxin

IMIS **D667** CAS 3268-87-9
SYN OCDD; Octachlorodibeno-p-Dioxin
DOT 2811 154
DESC Colorless crystals or white crystalline solid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Octachlorodibenzodioxins (All except 1,2,3,4,6,7,8,9-OCDD)

IMIS **P315**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Octachlorodibenzofurans (All Isomers)

IMIS **P317**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Octachloronaphthalene

IMIS **1955** CAS 2234-13-1
SYN Halowax® 1051, 1,2,3,4,5,6,7,8-Octachloronaphthalene, Perchloronaphthalene
NIOSH RTECS QK0250000
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m³ (Skin)
STEL 0.3 mg/m³ (Skin)

DESC Waxy, pale-yellow solid with an aromatic odor.
 MW: 403.7 BP: 770 F VP: <1 mm MP: 365 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Acne-form dermatitis; liver damage, jaundice
 ORGAN Skin, liver
 SLC1 MEDIA:
 ANL SOLVENT: Hexane
 MAX V: 30 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-ECD
 REF: NIOSH S97 SAE: 0.11 CLASS: Fully Validated by
 NIOSH

Octadecanol

IMIS **L135** CAS 112-92-5
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 10 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

Octamethylcyclotetrasiloxane

IMIS **M206** CAS 556-67-2
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 LESS1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 REC V: 12 Liters REC F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OHL2002S001 SAE: 0.077 CLASS: Validated In-House

1-Octanethiol

IMIS **O107** CAS 111-88-6
 SYN 1-Mercaptooctane, n-Octyl mercaptan, Octylthiol, 1-Octylthiol
 DESC Water-white liquid with a mild odor.
 MW: 146.3 BP: 390 F MP: -57 F FP: (oc) 115 F
 INCOM Oxidizers, reducing agents, strong acids & bases, alkali metals
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, nose, throat; lassitude (weakness, exhaustion), cyanosis,
 increased respiration, nausea, drowsiness, headache, vomiting
 ORGAN Eyes, skin, respiratory system, blood, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 15 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: NIOSH 2510 SAE: 0.14 CLASS: Fully Validated by
 NIOSH

Octanoic Acid

IMIS **C725** CAS 124-07-2
 SYN Caprylic Acid; Octic Acid
 NIOSH RTECS RH0175000* DOT 3265 153
 DESC A colorless to light yellow liquid with a mild odor.

MW: 144.21 BP: 463.5 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Octanol

IMIS **P139** CAS 111-87-5
SYN Octyl Alcohol
DESC A clear colorless liquid with a penetrating aromatic odor.
MW: 130.23 BP: 383 F MP: 5 F FP: 178 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Orthene

IMIS **1958** CAS 30560-19-1
SYN Acephate
NIOSH RTECS TB4760000* DOT 3018 152
DESC A white solid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Oryzalin

IMIS **1973** CAS 19044-88-3
SYN 4-(Dipropylamino)-3,5-dinitrobenzene-sulfuramide; Dirmal; Ryzelan; Surflan
NIOSH RTECS WO9350000* DOT 3077 171
DESC Yellow orange crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Osmium Tetroxide (as Os)

IMIS **1960** CAS 20816-12-0
SYN Osmic acid anhydride, Osmium oxide
NIOSH RTECS RN1140000 DOT 2471 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.002 mg/m³
STEL 0.006 mg/m³
DESC Colorless, crystalline solid or pale-yellow mass with an unpleasant, acrid, chlorine-like odor. [Note: A liquid above 105°F.]
MW: 254.2 BP: 266 F MP: 105 F VP: 7 mm
INCOM Hydrochloric acid, easily oxidized organic materials [Note: Begins to sublime below BP. Contact with other materials may cause fire.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, respiratory system; lacrimation (discharge of tears), visual disturbance; conjunctivitis; headache; cough, dyspnea (breathing difficulty); dermatitis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 480 Liters MIN V: 480 Liters MAX F: 1.0 L/min (TWA)

MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OHL2018S001 CLASS: Not Validated
 ANL 2: Neutron Activation Analysis; NAA
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Before sampling, contact SLTC for any additional instructions or changes to
 sampling strategies. When analysis of the compound is requested, an elemental
 analysis is performed and reported as the compound. Proposed method follows
 OSHA ID-125G.

Oxalic Acid

IMIS	1970	CAS	144-62-7
SYN	Ethanedioic acid, Oxalic acid (aqueous), Oxalic acid dihydrate		
NIOSH	RTECS RO2450000	DOT	3261 154
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	1 mg/m ³
		STEL	2 mg/m ³
DESC	Colorless, odorless powder or granular solid. [Note: The anhydrous form (COOH) ₂ is an odorless, white solid.] MW: 126.1 BP: Sublimes VP: <0.001 mm MP: 215 F (Sublimes)		
INCOM	Strong oxidizers, silver compounds, strong alkalis, chlorites [Note: Gives off water of crystallization at 215°F and begins to sublime.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/) Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14) Respiratory Effects---Acute lung damage/edema or other. (HE11) Acute Toxicity---Short-term high risk effects. (HE4)		
SYMPT	Irritation eyes, skin, mucous membrane; eye burns; localized pain, cyanosis; shock, collapse, convulsions; kidney damage		
ORGAN	Eyes, skin, respiratory system, kidneys		
LESS1	MEDIA: ANL SOLVENT: Sodium Carbonate/Sodium Bicarbonate MAX V: 960 Liters MAX F: 2.0 L/min (TWA) MAX V: 30 Liters MAX F: 2.0 L/min (STEL) ANL 1: Ion chromatography; IC REF: OHL2006S015 CLASS: Not Validated NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Within 1 hour after the sample has been collected, transfer the filter to a clean screw cap vial.		

Oxydemeton-Methyl

IMIS	K209	CAS	301-12-2
SYN	Metasystox R; Metasystemox; S- [2-(Ethylsulfinyl) ethyl] o, o-dimethyl phosphorothioate; Oxydemetonmethyl		
NIOSH	RTECS TG1420000*	DOT	2784 131
DESC	Clear amber liquid. MW: 246.3		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SLC1	MEDIA: ANL SOLVENT: Acetonitrile MAX V: 480 Liters MAX F: 1.0 L/min ANL 1: Gas Chromatography; GC-FPD REF: (OSHA In-House File) CLASS: Partially Validated NOTE: Obtain sampling tubes from SLTC.		

WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

4,4'-Oxydianiline

IMIS **1977** CAS 101-80-4
SYN 4,4'-Diaminodiphenyl Ether
NIOSH RTECS BY7900000 DOT 3077 171
DESC Odorless colorless crystals or an odorless fine, beige powder.
MW: 200.24 BP: Sublimes MP: 367 to 369 F FP: 426 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [4,4'-Oxydianiline]
IARC Group 2B - possibly carcinogenic to humans - [4,4'-Diaminodiphenyl ether]

Oxygen Difluoride

IMIS **1975** CAS 7783-41-7
SYN Difluorine monoxide, Fluorine monoxide, Oxygen fluoride
NIOSH RTECS RS2100000 DOT 2190 124
MIOSHA FINAL RULE (Table G-1-A):
CEIL 0.05 ppm, 0.1 mg/m3
Stayed, FR 54:2922, 1/19/89
DESC Colorless gas with a peculiar, foul odor. [Note: Shipped as a nonliquefied compressed gas.]
MW: 54.0 BP: -230 F VP: >1 atm MP: -371 F
INCOM Combustible materials, chlorine, bromine, iodine, platinum, metal oxides, moist air, hydrogen sulfide, hydrocarbons, water [Note: Reacts very slowly with water to form hydrofluoric acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin, respiratory system; headache; pulmonary edema; eye, skin burns (from contact with the gas under pressure)
ORGAN Eyes, skin, respiratory system
SLC1 Standard has been stayed until an analytical method can be developed.

Pancreatin

IMIS **P308** CAS 8049-47-6
SYN Diastase vera; Creon; Pancrease; Pancrex Vet; Pankrotanon; Zypanar
NIOSH RTECS RT9033000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: Immunoradiometric Assay
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Before sampling, contact SLTC CP Branch for instructions.

Papain

IMIS **P159** CAS 9001-73-4
SYN Arbuz; Caroid; Nematolyt; Papayotin; Summetrin; Tromasin; Velardon; Vermizym
NIOSH RTECS RU4950000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
MAX V: 60,000 Liters MAX F: 1,000 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Paraffin Wax (Fume)

IMIS **2000** CAS 8002-74-2
SYN Paraffin fume, Paraffin scale fume
NIOSH RTECS RV0350000 DOT 1993 128
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 mg/m3
DESC Paraffin wax is a white to slightly yellowish, odorless solid. [Note: Consists of a mixture of high molecular weight hydrocarbons (e.g., C₃₆H₇₄).]
MW: 350 to 420 MP: 115 to 154 F FP: 390 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; discomfort, nausea
ORGAN Eyes, skin, respiratory system
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Paraquat (Respirable Dust)

IMIS **1982** CAS 4682-14-7; 1910-42-5; 2074-50-2
SYN 1,1'-dimethyl-4,4'-bipyridinium dichloride; N,N'-dimethyl-4,4'-bipyridinium dichloride; paraquat chloride; paraquat dichloride [4682-14-7]
1,1'-Dimethyl-4,4'-bipyridinium dichloride, N,N'-Dimethyl-4,4'-bipyridinium dichloride, Paraquat chloride, Paraquat dichloride [Note: Paraquat is a cation (C₁₂H₁₄N₂⁺⁺; 1,1-Dimethyl-4,4-bipyridinium ion); the commercial product is the dichloride salt of paraquat.] [1910-42-5]
4,4'-bipyridinium, 1,1'-dimethyl-, bis(methyl sulfate); N,N'-dimethyl-4,4'-bipyridinium methosulfate; paraquat dimethosulfate [2074-50-2]
NIOSH RTECS DW2275000 DOT 2781 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3 (Skin)
DESC Yellow solid with a faint, ammonia-like odor. [herbicide] [Note: Paraquat may also be found commercially as a methyl sulfate salt C₁₂H₁₄N₂ • 2CH₃SO₄.]
MW: 257.2 BP: Decomposes MP: 572 F (Decomposes)
INCOM Strong oxidizers, alkylaryl-sulfonate wetting agents [Note: Corrosive to metals. Decomposes in presence of ultraviolet light.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Asphyxiants, Anoxiants. (HE17)
SYMPT Irritation eyes, skin, nose, throat, respiratory system; epistaxis (nosebleed); dermatitis; fingernail damage; irritation gastrointestinal tract; heart, liver, kidney damage
ORGAN Eyes, skin, respiratory system, heart, liver, kidneys, gastrointestinal tract
SLC1 MEDIA:

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Pentaborane

IMIS **1986** CAS 19624-22-7
SYN Pentaboron nonahydride
NIOSH RTECS RY8925000 DOT 1380 135
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.005 ppm, 0.01 mg/m³
STEL 0.015 ppm, 0.03 mg/m³
DESC Colorless liquid with a pungent odor like sour milk.
MW: 63.1 BP: 140 F VP: 171 mm MP: -52 F FP: 86 F
INCOM Oxidizers, halogens, water, halogenated hydrocarbons [Note: May ignite SPONTANEOUSLY in moist air. Corrosive to natural rubber. Hydrolyzes slowly with heat in water to form boric acid.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin; dizziness, headache, drowsiness, incoordination, tremor, convulsions, behavioral changes; tonic spasm face, neck, abdominal, limbs
ORGAN Eyes, skin, central nervous system
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as a separate sample. An analysis is performed for total Boron and reported as the compound.
SAM2 REAGENT KIT: MSA, Reagent# 82099, Filter# 82388, 0.01-1.0 ppm
WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Pentac

IMIS **1985** CAS 2227-17-0
SYN Bis (Pentachloro-2, 4-cyclopentadien-1-yl); Decachloro-Bi-2-cyclopentadiene-1-yl; Dienochlor
NIOSH RTECS DT8225000*
DESC Tan crystalline solid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Pentachlorobenzene

IMIS **P238** CAS 608-93-5
NIOSH RTECS DA6640000* DOT 3077 171
DESC White crystals
MW: 250.34 BP: 531 F MP: 187 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 12 Liters MAX F: 0.2 L/min

ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 5517 SAE: 0.15
NIOSH
NOTE: Separate filter and sorbent tube.

CLASS: Fully Validated by

Pentachlorodibenzodioxins (All Isomers)

IMIS **P305**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Pentachlorodibenzofurans (All Isomers)

IMIS **P307**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Pentachloroethane

IMIS **P119** CAS 76-01-7
SYN Ethane pentachloride, Pentalin
NIOSH RTECS KI6300000 DOT 1669 151
DESC Colorless liquid with a sweetish, chloroform-like odor.
MW: 202.3 BP: 322 F MP: -20 F VP: 3 mm
INCOM (Sodium-potassium alloy + bromoform), alkalis, metals, water [Note: Hydrolysis produces dichloroacetic acid. Reaction with alkalis & metals produces spontaneously explosive chloroacetylenes.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Pentachloroethane]
SYMPT In Animals: irritation eyes, skin; lassitude (weakness, exhaustion), restlessness, irreg respiration, muscle incoordination; liver, kidney, lung changes
ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 2517 SAE: 0.12 CLASS: Fully Validated by
NIOSH

Pentachloronaphthalene

IMIS **1988** CAS 1321-64-8
SYN Halowax® 1013, 1,2,3,4,5-Pentachloronaphthalene
NIOSH RTECS QK0300000
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m³ (Skin)
DESC Pale-yellow or white solid or powder with an aromatic odor.
MW: 300.4 BP: 636 F VP: <1 mm MP: 248 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Headache, lassitude (weakness, exhaustion), dizziness, anorexia; pruritus, acne-form skin eruptions; jaundice, liver necrosis
ORGAN Skin, liver, central nervous system
SLC1 MEDIA:

ANL SOLVENT: Toluene
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File)

CLASS: Partially Validated

Pentachloronitrobenzene

IMIS **P126** CAS 82-68-8
SYN Quintozene DOT 3077 171
DESC Crystalline pale yellow to white solid or powder with a musty moth ball odor.
MW: 295.34 BP: 622 F MP: 295 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Quintozene
(Pentachloronitrobenzene)]

Pentachlorophenol

IMIS **1989** CAS 87-86-5
SYN PCP, Penta, 2,3,4,5,6-Pentachlorophenol
NIOSH RTECS SM6300000 DOT 3155 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m3 (Skin)
DESC Colorless to white, crystalline solid with a benzene-like odor. [fungicide]
MW: 266.4 BP: 588 F (Decomposes) VP: 0.0001 mm (77 F) MP: 374 F
INCOM Strong oxidizers, acids, alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
NTP Suspect Human Carcinogen - [Pentachlorophenol (see Pentachlorophenol and By-
products of Its Synthesis)]
IARC Group 1 - carcinogenic to humans - [Pentachlorophenol (see also
Polychlorophenols)]
SYMPT Irritation eyes, nose, throat; sneezing, cough; lassitude (weakness, exhaustion),
anorexia, weight loss; sweating; headache, dizziness; nausea, vomiting; dyspnea
(breathing difficulty), chest pain; high fever; dermatitis
ORGAN Eyes, skin, respiratory system, cardiovascular system, liver, kidneys, central nervous
system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 48 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 39 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Obtain sampling tubes and instructions from Lab. Laboratory prepared XAD-
7. Sampling tube contains a Glass Fiber disc to trap aerosol component.
WIPE MEDIA: Glass Fiber Filter (37 mm)

1,3-Pentadiene

IMIS **P207** CAS 504-60-9
SYN Alpha-Methylbivinyll DOT 1993 128
DESC A clear colorless liquid with an acrid odor.

MW: 68.12 BP: 109 F MP: -222 F FP: -20 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Pentaerythritol Tetranitrate

IMIS **P147** CAS 78-11-5
SYN 1,3-Pentandiol 2,2-bis [(nitrooxy) methyl]-, dintrate ester PETN; Nitropentaerythritol;
Penthrith
DOT 0411 112
DESC White crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Pentaerythritol Triacrylate

IMIS **P215** CAS 3524-68-3
SYN Acrylic Acid, Pentaerithritol Triester; PETA
NIOSH RTECS UD3370000* DOT 3265 153
DESC Thick clear yellow liquid.
MW: 298.32 BP: 401 to 419 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Pentene

IMIS **P237** CAS 109-67-1
SYN Propylethylene
NIOSH RTECS SB2179000* DOT 1108 128
DESC Colorless liquid with an odor of gasoline.
MW: 70.13 BP: 85.8 F MP: -265 F FP: -60 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Peracetic Acid

IMIS **P230** CAS 79-21-0
SYN Peroxyacetic acid, acetic peroxide, monoperoacetic acid, peroxyacetic acid
NIOSH RTECS SD8750000 DOT 3107 145
ACGIH TLV:
STEL 0.4 ppm (inhalable fraction and vapor)
[2013]
DESC Colorless liquid with a strong, pungent acid odor. Used as a bactericide and fungicide, especially in food processing; as a reagent in making caprolactam and glycerol; as an oxidant for preparing epoxy compounds; as a bleaching agent; a sterilizing agent; and as a polymerization catalyst for polyester resins.
MW: 76.05 BP: 221 F MP: 32 F VP: 14.5 mm FP: -22 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
LESS1 MEDIA: Contact LESS [SKC 226-199UC]
ANL SOLVENT: 1 M H2SO4
MAX V: 240 Liters FLOW: 1.0 L/min
MAX V: 240 Liters MIN V: 30 Liters FLOW: 2.0 L/min
REF: Simultaneous Sampling of Peroxyacetic Acid and Hydrogen Peroxide in Workplace Atmospheres, The Annals of Occupational Hygiene, Volume 48, Issue 8, November 2004, Pages 715–721
NOTE: Peracetic Acid (IMIS **P230**) and hydrogen peroxide (IMIS **1470**) are sampled simultaneously. SKC 225-9030 (filter) is in the front and acts as a pre-filter for collecting hydrogen peroxide. This is attached to sorbent tube SKC 226-199UC (in

the back) for collection of peracetic acid. Samples should be protected from light during shipping and storage.

Perchloric Acid

IMIS **1981** CAS 7601-90-3
 DOT 1873 143
DESC A clear colorless odorless aqueous solution.
 MW: 100.46 MP: -170 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
 MAX V: 240 Liters MAX V: 120 Liters MAX F: 0.5 L/min
 ANL 1: Colorimetric
 REF: OSHA ID-115SG CLASS: Not Validated
 NOTE: Submit as a separate sample.

Perchloromethyl Mercaptan

IMIS **2030** CAS 594-42-3
SYN PCM, PMM, Trichloromethane sulfenyl chloride, Trichloromethyl sulfur chloride
NIOSH RTECS PB0370000 DOT 1670 157
MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 0.8 mg/m³
DESC Pale-yellow, oily liquid with an unbearable, acrid odor.
 MW: 185.9 BP: 297 F (Decomposes) VP: 3 mm
INCOM Alkalis, amines, hot iron, water [Note: Corrosive to most metals. Forms HCl, sulfur & CO₂ on contact with water.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
SYMPT Irritation eyes, skin, nose, throat; lacrimation (discharge of tears); cough, dyspnea (breathing difficulty), deep breath pain, coarse rales; vomiting; pallor, tachycardia; acidosis; anuria; liver, kidney damage
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 Call SLTC for assistance.
SAM2 MIRAN IA & IB: Min. Det. Con. 0.3 ppm at 13.2 um

Perchloryl Fluoride

IMIS **2033** CAS 7616-94-6
SYN Chlorine fluoride oxide, Chlorine oxyfluoride, Trioxychlorofluoride
NIOSH RTECS SD1925000 DOT 3083 124
MIOSHA FINAL RULE (Table G-1-A):
 TWA 3 ppm, 14 mg/m³
 STEL 6 ppm, 28 mg/m³
DESC Colorless gas with a characteristic, sweet odor. [Note: Shipped as a liquefied compressed gas.]
 MW: 102.5 BP: -52 F VP: 10.5 atm MP: -234 F
INCOM Combustibles, strong bases, amines, finely divided metals, reducing agents, alcohols
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation respiratory system; liquid: frostbite; In Animals: methemoglobinemia; cyanosis; lassitude (weakness, exhaustion), dizziness, headache; pulmonary edema; pneumonitis; anoxia

ORGAN Skin, respiratory system, blood
SLC1 MEDIA:
MAX V: 240 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Ion Selective Electrode; ISE
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as separate sample. Sample analyzed for Total F- and reported as the compound.

Perfluoroisobutylene

IMIS **P345** CAS 382-21-8
SYN octafluoroisobutene; PFIB; octafluoro-sec-butene; 1,1,3,3,3-Pentafluoro-2-trifluoromethyl-1-propene
NIOSH RTECS UD1800000*
DESC Colorless, odorless gas at room temp. When heated to decomposition it emits toxic fumes of hydrogen fluoride.
MW: 200.03 BP: 44.6 F MP: -202 F VP: 1740 mm
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Perylene

IMIS **P117** CAS 198-55-0
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Perylene]

alpha-Phellandrene

IMIS **P146** CAS 99-83-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Phenanthrene

IMIS **2038** CAS 85-01-8
SYN coal tar pitch volatiles; phenanthrin
NIOSH RTECS SF7900000*
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3
DESC Colorless monoclinic crystals with a faint aromatic odor. Solutions exhibit a blue fluorescence.
MW: 178.24 BP: 642 F MP: 212 F FP: 340 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Phenanthrene]
LESS1 MEDIA:
ANL SOLVENT: Acetonitrile
REC V: 960 Liters REC F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: OHL2006S019 SAE: 0.111 CLASS: Validated In-House
(In conjunction with Coal Tar Pitch Volatiles and Coke Oven Emissions.)
NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight.

Phenmedipham

IMIS **P149** CAS 13684-63-4
SYN Methyl m-hydroxycarbanilate-m-methylcarbanilate; Betanal; Kemifan; Spin-Aid; 3-

DESC Methoxy-carbonylamino phenyl-N-(3'-methylphenyl)carbamate
Colorless crystals or white powder.
MW: 300.34 MP: 289 to 291 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Phenothiazine

IMIS **2041** CAS 92-84-2
SYN Dibenzothiazine, Fenothiazine, Thiodiphenylamine
NIOSH RTECS SN5075000
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m³ (Skin)
DESC Grayish-green to greenish-yellow solid. [insecticide]
MW: 199.3 BP: 700 F MP: 365 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)
SYMPT Itching, irritation, reddening skin; hepatitis, hemolytic anemia, abdominal cramps,
tachycardia; kidney damage; skin photophobia (abnormal visual intolerance to light)
sensitization
ORGAN Skin, cardiovascular system, liver, kidneys
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Partially Validated

2-Phenoxyethanol

IMIS **P145** CAS 122-99-6
SYN Dowenol EP; Phenyl Cellosolve; Ethylene Glycol Phenyl Ether
NIOSH RTECS KM0350000*
DESC Colorless liquid with a pleasant odor.
MW: 138.17 BP: 473.4 F MP: 57 F FP: 250 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

2-Phenoxyethyl Acrylate

IMIS **P226** CAS 48145-04-6
SYN Phenoxyethyl acrylate; beta-Phenoxyethyl acrylate
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetone
ANL 1: Gas Chromatography; GC-FID
MAX V: 30 Liters MAX F: 0.5 L/min
REF: (OSHA In-House File) CLASS: Not Validated

Phenyl Acetic Acid

IMIS **P229** CAS 103-82-2
NIOSH RTECS AJ2430000

DESC MW: 136.16
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Phenyl-1-Cyclohexene

IMIS **P235** CAS 31017-40-0
SYN New rug odor; Phenyl Cyclohexene
NIOSH RTECS CZ1300000*
DESC MW: 158.24
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

o-Phenylenediamine

IMIS **P245** CAS 95-54-5
SYN 2-Aminoaniline; o-Benzenediamine; 1,2-Benzenediamine; Orthamine,
o-Diaminobenzene; 1,2-Diaminobenzene; 1,2-Phenylenediamine
NIOSH RTECS SS7875000* DOT 1673 153
DESC MW: 108.15 BP: 493 to 496 F MP: 216 to 219 F FP: 313 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [ortho-Phenylenediamine]
SLC1 MEDIA:
ANL SOLVENT: Aqueous EDTA
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 87 SAE: 0.13 CLASS: Fully Validated by OSHA
NOTE: The sampling device consists of a three-piece cassette. Each cassette contains two filters separated by the ring section. Samples are collected close-faced.

p-Phenylenediamine

IMIS **2042** CAS 106-50-3
SYN 4-Aminoaniline, 1,4-Benzenediamine, 1,4-Diaminobenzene, p-Diaminobenzene, 1,4-Phenylene diamine
NIOSH RTECS SS8050000 DOT 1673 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m3 (Skin)
DESC White to slightly red, crystalline solid.
MW: 108.2 BP: 513 F MP: 295 F VP: <1 mm FP: 312 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [para-Phenylenediamine]
SYMPT Irritation pharynx, larynx; bronchial asthma; sensitization dermatitis
ORGAN Respiratory system, skin
SLC1 MEDIA:
ANL SOLVENT: Aqueous EDTA
MAX V: 100 Liters MAX F: 1.0 L/min

ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 87 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: The sampling device consists of a three-piece cassette. Each cassette contains two filters separated by the ring section. Samples are collected close-faced.

m-Phenylenediamine (1,3-Phenylenediamine)

IMIS **P236** CAS 108-45-2
SYN 3-aminoaniline; m-benzenediamine; 1,3-benzenediamine; m-diaminobenzene; 1,3-diaminobenzene; 1,3-phenylenediamine; Developer C; Developer H; Developer M; Direct Brown GG; Direct Brown B
NIOSH RTECS SS7700000* DOT 1673 153
DESC Colorless or white colored needles that turn red or purple in air.
MW: 108.14 BP: 540 to 543 F MP: 145 to 147 F FP: 280 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [meta-Phenylenediamine]
SLC1 MEDIA:
ANL SOLVENT: Aqueous EDTA
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 87 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: The sampling device consists of a three-piece cassette. Each cassette contains two filters separated by the ring section. Samples are collected close-faced.

Phenyl Ether-Biphenyl Mix (Vapor)

IMIS **2053** CAS 8004-13-5
SYN Diphenyl oxide-diphenyl mixture, Dowtherm® A
NIOSH RTECS DV1500000
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 7 mg/m3
DESC Colorless to straw-colored liquid or solid (below 54°F) with a disagreeable, aromatic odor. [Note: A mixture typically contains 75% phenyl ether & 25% biphenyl.]
MW: 166 (approx.) BP: 495 F MP: 54 F FP: 239 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, nose, skin; nausea
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 40 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 2013 SAE: 0.172 CLASS: Partially Validated by NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 8.1 µm

Phenyl Ether (Vapor)

IMIS **2047** CAS 101-84-8
SYN Diphenyl ether, Diphenyl oxide, Phenoxy benzene, Phenyl oxide
NIOSH RTECS KN8970000 DOT 3077 171(international)
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 7 mg/m3
DESC Colorless solid or liquid with a geranium-like odor.
MW: 170.2 BP: 498 F MP: 82 F VP: 0.02 mm (77 F) FP: 239 F

INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Generally Low Risk Health Effects---Odor. (HE20)
 SYMPT Irritation eyes, nose, skin; nausea
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 50 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1617 SAE: 0.137 CLASS: Partially Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 8.0 µm

Phenyl Glycidyl Ether (PGE)

IMIS **2057** CAS 122-60-1
 SYN 1,2-Epoxy-3-phenoxy propane, Glycidyl phenyl ether, PGE, Phenyl 2,3-epoxypropyl ether
 NIOSH RTECS TZ3675000 DOT 2810 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 6 mg/m3
 DESC Colorless liquid. [Note: A solid below 38°F.]
 MW: 150.1 BP: 473 F VP: 0.01 mm MP: 38 F FP: 248 F
 INCOM Strong oxidizers, amines, strong acids, strong bases
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Narcosis. (HE8)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 IARC Group 2B - possibly carcinogenic to humans - [Phenyl glycidyl ether]
 SYMPT Irritation eyes, skin; upper respiratory system; skin sensitization; narcosis; possible hematopoietic, reproductive effects; [potential occupational carcinogen]
 ORGAN Eyes, skin, central nervous system, hematopoietic system, reproductive system [in animals: nasal cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 150 Liters MIN V: 80 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1619 SAE: 0.162 CLASS: Partially Validated by
 NIOSH

Phenylhydrazine

IMIS **2060** CAS 100-63-0
 SYN Hydrazinobenzene, Monophenylhydrazine
 NIOSH RTECS MV8925000 DOT 2572 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 20 mg/m3 (Skin)
 STEL 10 ppm, 45 mg/m3 (Skin)
 DESC Colorless to pale-yellow liquid or solid (below 67°F) with a faint, aromatic odor.
 MW: 108.1 BP: 470 F (Decomposes) VP: 0.04 mm (77 F) MP: 67 F

FP: 190 F
 INCOM Strong oxidizers, lead dioxide
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Skin sensitization, hemolytic anemia, dyspnea (breathing difficulty), cyanosis; jaundice; kidney damage; vascular thrombosis; [potential occupational carcinogen]
 ORGAN Blood, respiratory system, liver, kidneys, skin [in animals: tumors of the lungs, liver, blood vessels & intestine]
 SLC1 MEDIA:
 MAX V: 120 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Colorimetric
 REF: NIOSH 3518 CLASS: Fully Validated by NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 3.4 ppm at 8.5 um

Phenyl Isocyanate

IMIS **2132** CAS 103-71-9
 SYN phenylcarbimide; Carbanil; isocyanatobenzene
 DOT 2487 155
 DESC Colorless to yellow liquid with a pungent odor.
 MW: 119.12 BP: 325.4 MP: -22 F VP: 2.57 mm FP: (oc) 132 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Phenyl Isopropanol

IMIS **P156** CAS 617-94-7
 SYN alpha, alpha-Dimethylbenzyl Alcohol; Dimethylphenylmethanol; Phenyl dimethylcarbinol
 NIOSH RTECS DO4562000
 DESC MW: 136.19 MP: 36 C BP: 202 C
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Phenyl Mercaptan

IMIS **P105** CAS 108-98-5
 SYN Mercaptobenzene, Phenyl mercaptan, Thiophenol
 NIOSH RTECS DC0525000 DOT 2337 131
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 2 mg/m3
 DESC Water-white liquid with an offensive, garlic-like odor. [Note: A solid below 5°F.]
 MW: 110.2 BP: 336 F MP: 5 F VP: 1 mm (65 F) FP: 132 F
 INCOM Strong acids & bases, calcium hypochlorite, alkali metals [Note: Oxidizes on exposure to air.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Generally Low Risk Health Effects---Odor. (HE20)
 SYMPT Irritation eyes, skin, respiratory system; dermatitis; cyanosis; cough, wheezing, dyspnea (breathing difficulty), pulmonary edema, pneumonitis; headache, dizziness, central nervous system depression; nausea, vomiting; kidney, liver, spleen damage
 ORGAN Eyes, skin, respiratory system, central nervous system, kidneys, liver, spleen

SLC1 MEDIA:
ANL SOLVENT: 25% Hydrochloric Acid
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Protect samples from light until analysis.

1-Phenylnaphthalene

IMIS **P216** CAS 605-02-7
DESC Colorless to yellow liquid.
MW: 204.27
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2-Phenylnaphthalene

IMIS **P217** CAS 612-94-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Phenyl-beta-Naphthylamine

IMIS **N606** CAS 135-88-6
SYN 2-Anilinonaphthalene, β -Naphthylphenylamine, PBNA, 2-Phenylaminonaphthalene, Phenyl- β -naphthylamine
NIOSH RTECS QM4550000 DOT 3259 154
DESC White to yellow crystals or gray to tan flakes or powder. [Note: Commercial product may contain 20-30 ppm of β -Naphthylamine.]
MW: 219.3 BP: 743 F MP: 226 F
INCOM Oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [N-Phenyl-2-naphthylamine]
SYMPT Irritation; leucoplakia; acne, hypersensitivity to sunlight; [potential occupational carcinogen]
ORGAN Eyes, skin, bladder. [bladder cancer]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-FLU
REF: OSHA 96 SAE: 0.09 CLASS: Fully Validated by OSHA
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

o-Phenyl Phenol

IMIS **P227** CAS 90-43-7
SYN 2-Biphenylol; Biphenylol; (1,1'-Biphenyl)-2-ol; o-Diphenylol; o-Hydroxybiphenyl; Torsite; 2-Hydroxybiphenyl; o-Hydroxydiphenyl; 2-Hydroxydiphenyl; 2-Phenylphenol; Dowicide; Dowicide; Orthoxenol
NIOSH RTECS DV5775000* DOT 3077 171
DESC MW: 170.21 BP: 527 F MP: 131.9 to 135.5 F FP: 255 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [ortho-Phenylphenol]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID

Phenylphosphine

IMIS **2062** CAS 638-21-1
 SYN Fenylfosfin, PF, Phosphaniline
 NIOSH RTECS SZ2100000 DOT 2924 132
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.05 ppm, 0.25 mg/m3
 Stayed, FR 54:2922, 1/19/89

DESC Clear, colorless liquid with a foul odor.
 MW: 110.1 BP: 320 F

INCOM None Reported [Note: Spontaneously combustible in high concentrations in air.
 Potential exposure to gaseous PF when polyphosphinates are heated above 392°F.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)

SYMPT In Animals: blood changes, anemia, testicular degeneration; loss of appetite,
 diarrhea, lacrimation (discharge of tears), hind leg tremor; dermatitis

ORGAN Blood, central nervous system, skin, reproductive system

SLC1 Standard has been stayed until an analytical method can be developed.

Phenyl-2-Propanone

IMIS **P228** CAS 103-79-7
 SYN 1-Phenyl-2-Propanone; Phenylacetone
 NIOSH RTECS UC3500100*
 DESC Liquid.
 MW: 134.17
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1-Phenyl-3-Pyrazolidinone

IMIS **P205** CAS 92-43-3
 SYN Phenidone; 1-Phenyl-3-pyrazolidone
 NIOSH RTECS UQ8750000
 DESC MW: 162.19
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

3-Phenyltoluene

IMIS **P219** CAS 643-93-6; 28652-72-4
 SYN 3-Methylbiphenyl; 3-Methyl-1, 1'-biphenyl
 DESC Clear light yellow liquid with an aromatic odor.
 MW: 168.25 BP: 500 F FP: 210 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Phorate

IMIS **2064** CAS 298-02-2
 SYN O,O-Diethyl S-(ethylthio)methylphosphorodithioate, O,O-Diethyl S-ethylthiomethylthiothionophosphate, Thimet, Timet
 NIOSH RTECS TD9450000 DOT 2783 152(solid); 3018 152(liquid)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 mg/m3 (Skin)
 STEL 0.2 mg/m3 (Skin)

DESC Clear liquid with a skunk-like odor. [insecticide]
 MW: 260.4 MP: -45 F VP: 0.0008 mm FP: (oc) 320 F

INCOM Water, alkalis [Note: Hydrolyzed in the presence of moisture and by alkalis.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)

SYMPT Irritation eyes, skin, respiratory system; miosis; rhinorrhea (discharge of thin nasal mucus); headache; chest tightness, wheezing, laryngeal spasm, salivation, cyanosis; anorexia, nausea, vomiting, abdominal cramps, diarrhea; sweating; muscle fasciculation, lassitude (weakness, exhaustion), paralysis; dizziness, confusion, ataxia; convulsions, coma; low blood pressure; cardiac irreg

ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase

SLC1 MEDIA:
 MAX V: 480 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.

Phosdrin (Mevinphos)

IMIS **2065** CAS 7786-34-7

SYN 2-Carbomethoxy-1-methylvinyl dimethyl phosphate, Mevinphos [Note: Commercial product is a mixture of the cis- & trans-isomers.]

NIOSH RTECS GQ5250000 DOT 2783 152

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.01 ppm, 0.1 mg/m³ (Skin)
 STEL 0.03 ppm, 0.3 mg/m³ (Skin)

DESC Pale-yellow to orange liquid with a weak odor. [Note: Insecticide that may be absorbed on a dry carrier.]
 MW: 224.2 BP: Decomposes MP: 44 F (trans-); 70 F (cis-) VP: 0.003 mm
 FP: (oc) 347 F

INCOM Strong oxidizers [Note: Corrosive to cast iron, some stainless steels & brass.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)

SYMPT Irritation eyes, skin, respiratory system; miosis; rhinorrhea (discharge of thin nasal mucus); headache; chest tightness, wheezing, laryngeal spasm, salivation, cyanosis; anorexia, nausea, vomiting, abdominal cramps, diarrhea; paralysis; ataxia, convulsions; low blood pressure, cardiac irreg

ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase

SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.

Phosgene (Carbonyl Chloride)

IMIS	2070	CAS	75-44-5
SYN	Carbon oxychloride, Carbonyl chloride, Carbonyl dichloride, Chloroformyl chloride		
NIOSH	RTECS SY5600000	DOT	1076 125
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.1 ppm, 0.4 mg/m ³
DESC	Colorless gas with a suffocating odor like musty hay. [Note: A fuming liquid below 47°F. Shipped as a liquefied compressed gas.]		
	MW: 98.9	BP: 47 F	MP: -198 F VP: 1.6 atm
INCOM	Moisture, alkalis, ammonia, alcohols, copper [Note: Reacts slowly in water to form hydrochloric acid & carbon dioxide.]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
	Respiratory Effects---Acute lung damage/edema or other. (HE11)		
	Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)		
	Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)		
SYMPT	Irritation eyes; dry burning throat; vomiting; cough, foamy sputum, dyspnea (breathing difficulty), chest pain, cyanosis; liquid: frostbite		
ORGAN	Eyes, skin, respiratory system		
SLC1	See SAM2		
SLC2	MEDIA:		
	ANL SOLVENT: Toluene		
	MAX V: 240 Liters	MAX F: 1.0 L/min (TWA)	
	REC V: 15 Liters	REC F: 1.0 L/min (STEL)	
	ANL 1: Gas Chromatography; GC-NPD		
	REF: OSHA 61	SAE: 0.11	CLASS: Fully Validated by OSHA
	NOTE: When relative humidity at sampling site is low, reduce maximum sample size to 120 Liters and sampling rate to 0.5 L/min.		
SAM2	DET. TUBE: Draeger, CH 19401, 0.04-1.5 ppm		
	MSA, 89890, 0.1-10 ppm		

Phosmet

IMIS	2075	CAS	732-11-6
SYN	Imidan; Prolate; R-1504; Phosphorodithioic acid s- ((1,3-dihydro-1.3-dioxo-2H-isondol-2-yl) methyl)-o-o-dimethylester		
NIOSH	RTECS TE2275000*	DOT	3077 171
DESC	Off-white crystalline solid with an offensive odor.		
	MW: 317.32	BP: Decomposes	MP: 161 F
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SLC1	MEDIA:		
	MAX V: 120 Liters	MAX F: 1.0 L/min	
	ANL 1: High Performance Liquid Chromatography; HPLC-UV		
	REF: (OSHA In-House File)	CLASS: Not Validated	
BULK	Limit the amount of bulk submitted to one gram or one mL.		

Phosphine

IMIS	2080	CAS	7803-51-2
SYN	Hydrogen phosphide, Phosphorated hydrogen, Phosphorus hydride, Phosphorus trihydride		
NIOSH	RTECS SY7525000	DOT	2199 119
MIOSHA	FINAL RULE (Table G-1-A):		
		TWA	0.3 ppm, 0.4 mg/m ³
		STEL	1 ppm, 1 mg/m ³
DESC	Colorless gas with a fish- or garlic-like odor. [pesticide] [Note: Shipped as a liquefied		

compressed gas. Pure compound is odorless.]
 MW: 34.0 BP: -126 F VP: 41.3 atm MP: -209 F

INCOM Air, oxidizers, chlorine, acids, moisture, halogenated hydrocarbons, copper [Note: May ignite SPONTANEOUSLY on contact with air.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)

SYMPT Nausea, vomiting, abdominal pain, diarrhea; thirst; chest tightness, dyspnea (breathing difficulty); muscle pain, chills; stupor or syncope; pulmonary edema; liquid: frostbite

ORGAN Respiratory system

SLC1 MEDIA:
 ANL SOLVENT: Sulfuric Acid
 MAX V: 240 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA 1003 CLASS: Fully Validated by OSHA
 NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period. The stoichiometric factor for phosphine from phosphorus is 1.098. Place a glass fiber filter in front of the treated polyester filter to collect solid particles.

SAM2 DET. TUBE: Sensidyne, 7L, 0.15-5 ppm
 MIRAN IA & IB: MIN. Det. Con. 1.4 ppm at 10.1 um
 MIRAN 103: Range 0-100 ppm at 8.95 um
 HNU Photoionization Detector

Phosphorus Oxychloride

IMIS **2094** CAS 10025-87-3

SYN Phosphorus chloride [Phosphorus oxychloride], Phosphorus oxytrichloride, Phosphoryl chloride

NIOSH RTECS TH4897000 DOT 1810 137

MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 ppm, 0.6 mg/m3

DESC Clear, colorless to yellow, oily liquid with a pungent & musty odor. [Note: A solid below 34°F.]
 MW: 153.3 BP: 222 F MP: 34 F VP: 40 mm (81 F)

INCOM Water, combustible materials, carbon disulfide, dimethyl-formamide, metals (except nickel & lead) [Note: Decomposes in water to hydrochloric & phosphoric acids.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin, respiratory system; eye, skin burns; dyspnea (breathing difficulty), cough, pulmonary edema; dizziness, headache, lassitude (weakness, exhaustion); abdominal pain, nausea, vomiting; nephritis

ORGAN Eyes, skin, respiratory system, central nervous system, kidneys

SLC1 MEDIA:
 MAX V: 240 Liters MAX F: 1.0 L/min
 ANL 1: Ion Chromatography; IC
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as separate sample. Analysis based on total Phosphate and reported as the compound.

Phosphorus Pentachloride

IMIS **2091** CAS 10026-13-8
SYN Pentachlorophosphorus, Phosphoric chloride, Phosphorus perchloride
NIOSH RTECS TB6125000 DOT 1806 137
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 mg/m3

DESC White to pale-yellow, crystalline solid with a pungent, unpleasant odor.
MW: 208.3 BP: Sublimes MP: 324 F (Sublimes) VP: 1 mm (132 F)

INCOM Water, magnesium oxide, chemically-active metals such as sodium & potassium, alkalis, amines [Note: Hydrolyzes in water (even in humid air) to form hydrochloric acid & phosphoric acid. Corrosive to metals.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; bronchitis; dermatitis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Sodium Molybdate and Hydrazine Sulfate
MAX V: 48 Liters MAX F: 0.2 L/min
ANL 1: Colorimetric
REF: NIOSH S257 CLASS: Fully Validated by NIOSH
NOTE: Submit as a separate sample. Air being sampled should not pass through any hose or tubing before entering filter holder. Use a stainless steel backup pad in the filter cassette instead of a cellulose membrane.

Phosphorus Pentasulfide

IMIS **2092** CAS 1314-80-3
SYN Phosphorus persulfide, Phosphorus sulfide, Sulfur phosphide
NIOSH RTECS TH4375000 DOT 1340 139
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 mg/m3
STEL 3 mg/m3

DESC Greenish-gray to yellow, crystalline solid with an odor of rotten eggs.
MW: 222.3 or 444.6 BP: 957 F VP: 1 mm (572 F) MP: 550 F

INCOM Water, alcohols, strong oxidizers, acids, alkalis [Note: Reacts with water to form hydrogen sulfide, sulfur dioxide, and phosphoric acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Acute Toxicity---Short-term high risk effects. (HE4)

SYMPT Irritation eyes, skin, respiratory system; apnea, coma, convulsions; conjunctivitis pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), kerato-conjunctivitis, corneal vesiculation; dizziness; headache; lassitude (weakness, exhaustion); irritability, insomnia; gastrointestinal disturbance

ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Sodium Hydroxide and Hydrogen Peroxide
MAX V: 960 Liters MAX V: 120 Liters MAX F: 2.0 L/min (TWA)
MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
ANL 1: Ion Chromatography; IC
REF: OSHA ID-128SG CLASS: Partially Validated by OSHA
NOTE: Submit as a separate sample.

WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Phosphorus Pentoxide

IMIS **P103** CAS 1314-56-3
 DOT 1807 137

DESC A white amorphous powder.
 MW: 141.96 BP: 572 F (Sublimes) MP: 644 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
 MAX V: 960 Liters MAX V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Ion Chromatography; IC
 REF: OSHA ID-111 CLASS: Partially Validated by OSHA

NOTE: Submit as a separate sample. Samples analyzed as Phosphoric acid based on total Phosphate (PO4-3) analysis.

WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water.

Phosphorus Trichloride

IMIS **2093** CAS 7719-12-2

SYN Phosphorus chloride [Phosphorus trichloride]

NIOSH RTECS TH3675000 DOT 1809 137

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 ppm, 1.5 mg/m3
 STEL 0.5 ppm, 3 mg/m3

DESC Colorless to yellow, fuming liquid with an odor like hydrochloric acid.
 MW: 137.4 BP: 169 F VP: 100 mm MP: -170 F

INCOM Water, chemically-active metals such as sodium & potassium, aluminum, strong nitric acid, acetic acid, organic matter [Note: Hydrolyzes in water to form hydrochloric acid and phosphoric acid.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin, nose, throat; pulmonary edema; eye, skin burns

ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Visible Spectrophotometry
 REF: NIOSH 6402 CLASS: Partially Validated by NIOSH

NOTE: Submit as a separate sample. Ship in sealed bubblers.

Phosphorus (Yellow)

IMIS **2090** CAS 7723-14-0

SYN Elemental phosphorus, White phosphorus

NIOSH RTECS TH3500000 DOT 1381 136

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3

DESC White to yellow, soft, waxy solid with acrid fumes in air. [Note: Usually shipped or stored in water.]
 MW: 124.0 BP: 536 F VP: 0.03 mm MP: 111 F

INCOM Air, oxidizers (including elemental sulfur & strong caustics), halogens [Note: Ignites SPONTANEOUSLY in moist air.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Acute Toxicity---Short-term high risk effects. (HE4)

SYMPT Irritation eyes, resp tract; eye, skin burns; abdominal pain, nausea, jaundice; anemia; cachexia; dental pain, salivation, jaw pain, swelling
ORGAN Eyes, skin, respiratory system, liver, kidneys, jaw, teeth, blood
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 7905 SAE: 0.15 CLASS: Fully Validated by NIOSH
BULK Limit the amount of bulk submitted to one gram or one mL.

Phosvel

IMIS **P128** CAS 21609-90-5
SYN o- (4-Bromo-2, 5-dichlorophenyl) o-methylphenylphosphoro-thioate; Leptophos; MBCP; Abor; VCS 506
NIOSH RTECS TB1720000* DOT 3464 151
DESC White crystalline or colorless amorphous solid, the technical product is a light tan powder.
MW: 412.07 MP: 158 to 159 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Phthalic Acid

IMIS **P198** CAS 88-99-3
SYN benzene-1,2-dicarboxylic acid; 1,2-benzenecarboxylic acid; o-phthalic acid; o-dicarboxybenzene
NIOSH RTECS TH9625000*
DESC MW: 166.13 BP: Decomposes MP: 410 to 412 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (50/50) Ethanol/Water
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: (OSHA In-House File) CLASS: Not Validated
COND Column: CN Mobile Phase: 50/50/0.1 Acetonitrile/Water/H3PO4 Detector: 254 or 280 nm

Phthalic Anhydride

IMIS **2110** CAS 85-44-9
SYN 1,2-Benzenedicarboxylic anhydride, PAN, Phthalic acid anhydride
NIOSH RTECS TI3150000 DOT 2214 156
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 6 mg/m3
DESC White solid (flake) or a clear, colorless, mobile liquid (molten) with a characteristic, acrid odor.
MW: 148.1 BP: 563 F MP: 267 F VP: 0.0015 mm FP: 305 F
INCOM Strong oxidizers, water [Note: Converted to phthalic acid in hot water.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

SYMPT Irritation eyes, skin, upper respiratory system; conjunctivitis; nasal ulcer bleeding; bronchitis, bronchial asthma; dermatitis; In Animals: liver, kidney damage

ORGAN Eyes, skin, respiratory system, liver, kidneys

LESS1 MEDIA:
 ANL SOLVENT: (90/10) Acetonitrile/Dimethyl Sulfoxide
 MAX V: 75 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OHL2007S011 SAE: 0.108 CLASS: Validated In-House

m-Phthalodinitrile

IMIS **2015** CAS 626-17-5

SYN 1,3-Benzenedicarbonitrile, 1,3-Dicyanobenzene, m-Dicyanobenzene, Isophthalodinitrile, m-PDN

NIOSH RTECS CZ1900000 DOT 2811 154

MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3

DESC Needle-like, colorless to white, crystalline, flaky solid with an almond-like odor.
 MW: 128.1 BP: Sublimes MP: 324 F (Sublimes) VP: 0.01 mm

INCOM Strong oxidizers (e.g., chlorine, bromine, fluorine)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)

SYMPT Headache, nausea, confusion; In Animals: irritation eyes, skin

ORGAN Eyes, skin, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 20 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: (OSHA In-House File) CLASS: Not Validated

Picloram (Respirable Fraction)

IMIS **P158** CAS 1918-02-1

SYN 4-Amino-3,5,6-trichloropicolinic acid, 4-Amino-3,5,6-trichloro-2-picolinic acid, ATCP, Tordonæ

NIOSH RTECS TJ7525000

MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3

DESC Colorless to white crystals with a chlorine-like odor. [herbicide]
 MW: 241.5 BP: Decomposes MP: 424 F (Decomposes)
 VP: 0.0000006 mm (95 F)

INCOM Hot concentrated alkali (hydrolyzes)

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Picloram]

SYMPT Irritation eyes, skin, respiratory system; nausea; In Animals: liver, kidney changes

ORGAN Eyes, skin, respiratory system, liver, kidneys

SLC1 MEDIA:

Piperazine Dihydrochloride

IMIS **P155** CAS 142-64-3
SYN Piperazine hydrochloride [Note: The monochloride, C₄H₁₀N₂ HCl, is also commercially available.]
NIOSH RTECS TL4025000
MIOSHA FINAL RULE (Table G-1-A): TWA 5 mg/m³
DESC White to cream-colored needles or powder
MW: 159.1 MP: 635 F
INCOM Water [Note: Slightly hygroscopic (i.e., absorbs moisture from the air).]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, respiratory system; skin burns, sensitization; asthma; adache, nausea, vomiting, gastrointestinal upset, heincoordination, muscle weak
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

Piperonyl Butoxide

IMIS **P209** CAS 51-03-6
SYN α -(2-(2-butoxyethoxy)ethoxy)-4,5-methylenedioxy-2-propyltoluene; butyl carbitol 6-propylpiperonyl ether; butacide; 6-propylpiperonyl butyl diethylene glycol ether
NIOSH RTECS XS8050000* DOT 2810 153
DESC Pale yellow to light brown liquid with a mild odor and a faint bitter taste.
MW: 338.45 BP: 356 F (1 mm) FP: 340 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Piperonyl butoxide]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 30 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Pipron

IMIS **P225** CAS 3478-94-2
SYN 3-(2-Methylpiperidino) propyl-3, 4-dichlorobenzoate; Piperalin
NIOSH RTECS DG7700000*
DESC Viscous, amber liquid.
MW: 330.2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Pirimicarb

IMIS **P206** CAS 23103-98-2

SYN Ester of Dimethylcarbamic Acid, 2-(Dimethylamino)-5,6-dimethyl-4-pyrimidinyl;
 Fernos; Pirimor; Pyrimor; Aphox
 NIOSH RTECS EZ9100000*
 DESC Colorless solid. [Insecticide]
 MW: 238.29
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL 1: Gas Chromatography; GC-NPD
 REF: (OSHA In-House File) CLASS: Not Validated

Pirimiphos Methyl

IMIS **P309** CAS 29232-93-7
 SYN o-(2-(diethylamino)-6-methyl-4-pyrimidinyl) o,o-dimethyl ester phosphorothioic acid;
 pyridimine phosphate; Plant Protection; PP511; Actellifog; Blex; Silosan
 NIOSH RTECS TF1410000* DOT 3082 171
 DESC Yellow or straw-colored liquid.
 MW: 305.37 BP: Decomposes
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated

Pindone (2-Pivalyl-1,3-Indandione)

IMIS **2125** CAS 83-26-1
 SYN tert-Butyl valone, 1,3-Dioxo-2-pivaloyl-indane, Pival®, Pivalyl, 2-Pivalyl-1,3-
 indandione
 NIOSH RTECS NK6300000 DOT 2810 153
 MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3
 DESC Bright-yellow powder with almost no odor. [rodenticide]
 MW: 230.3 BP: Decomposes MP: 230 F VP: Very Low
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 SYMPT Epistaxis (nosebleed), excess bleeding from minor cuts, bruises; smoky urine, black
 tarry stools; abdominal, back pain
 ORGAN Blood prothrombin
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 200 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Immediately after sampling place front section of tube in vial with the filter.
 Seal and ship with backup section of tube.
 BULK Limit the amount of bulk submitted to one gram or one mL.

Platinum, Metal (as Pt)

IMIS **P211** CAS 7440-06-4
 SYN Platinum black, Platinum metal, Platinum sponge
 NIOSH RTECS TP2160000 DOT 3089 170(powder)

MIOSHA FINAL RULE (Table G-1-A):
TWA 1 mg/m³
DESC Silvery, whitish-gray, malleable, ductile metal.
MW: 195.1 BP: 6921 F MP: 3222 F
INCOM Aluminum, acetone, arsenic, ethane, hydrazine, hydrogen peroxide, lithium, phosphorus, selenium, tellurium, various fluorides
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation skin, respiratory system; dermatitis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: (82/18) (v/v) Hydrochloric Acid/Nitric Acid
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated

Platinum, Soluble Salts (as Pt)

IMIS 2130 CAS 7440-06-4
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.002 mg/m³
DESC Appearance and odor vary depending upon the specific soluble platinum salt.
INCOM Varies
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
SYMPT Irritation eyes, nose; cough, dyspnea (breathing difficulty), wheezing, cyanosis; dermatitis, sensitization skin; lymphocytosis
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 960 Liters MIN V: 400 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample.

Polytetrafluoroethylene Decomposition Products (Teflon)

IMIS **2135** CAS 9002-84-0
DESC Varies.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Polytetrafluoroethylene]

Potable Water

IMIS **P445**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Potassium p-tert-Amylphenate

IMIS **P318** CAS 53404-18-5
SYN Potassium para-tert-amylphenate
DESC MW: 203.35
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Propargyl Alcohol

IMIS **2167** CAS 107-19-7
SYN 1-Propyn-3-ol, 2-Propyn-1-ol, 2-Propynyl alcohol
NIOSH RTECS UK5075000 DOT 1986 131
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 2 mg/m³ (Skin)
DESC Colorless to straw-colored liquid with a mild, geranium odor.
MW: 56.1 BP: 237 F MP: -62 F VP: 12 mm FP (oc) 97 F
INCOM Phosphorus pentoxide, oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation skin, mucous membrane; central nervous system depression; In Animals:
liver, kidney damage
ORGAN Skin, respiratory system, central nervous system, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 6 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 97 SAE: 0.12 CLASS: Fully Validated by OSHA

beta-Propiolactone

IMIS **2163** CAS 57-57-8
SYN BPL, Hydroacrylic acid, β -lactone, 3-Hydroxy- β -lactone, 3-Hydroxy-propionic acid, β -Lactone, 2-Oxetanone, 3-Propiolactone
NIOSH RTECS RQ7350000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A) Carcinogens (29 CFR 1910.1003):
DESC Colorless liquid with a slightly sweet odor.
MW: 72.1 BP: Decomposes (-323 F) VP: 3 mm (77 F) MP: -28 F
FP: 165 F
INCOM Acetates, halogens, thiocyanates, thiosulfates [Note: May polymerize upon storage.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [b-Propiolactone]
IARC Group 2B - possibly carcinogenic to humans - [beta-Propiolactone]
SYMPT Skin irritation, blistering, burns; corneal opacity; frequent urination; dysuria;
hematuria (blood in the urine); [potential occupational carcinogen]
ORGAN Kidney, skin, lungs, eyes [in animals: tumors of the liver, skin & stomach]

Propionaldehyde

IMIS **P129** CAS 123-38-6
SYN methylacetaldehyde; propanal; propionic aldehyde; propyl aldehyde
DOT 1275 129P
DESC A clear colorless liquid with an overpowering fruity odor.
MW: 58.08 BP: 120 F MP: -114 F VP: 235 mm FP: 15 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 5 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated by
NIOSH

Propionic Acid

IMIS **2168** CAS 79-09-4

SYN Carboxyethane, Ethanecarboxylic acid, Ethylformic acid, Metacetic acid, Methyl acetic acid, Propanoic acid
NIOSH RTECS UE5950000 **DOT** 1848 132
MIOSHA FINAL RULE (Table G-1-A): **TWA** 10 ppm, 30 mg/m3
DESC Colorless, oily liquid with a pungent, disagreeable, rancid odor. [Note: A solid below 5°F.]
 MW: 74.1 BP: 286 F MP: 5 F VP: 3 mm FP: 126 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
SYMPT Irritation eyes, skin, nose, throat; blurred vision, corneal burns; skin burns; abdominal pain, nausea, vomiting
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
 ANL SOLVENT: (50/50) Acetone/Water
 ALT SOLVENT: 0.0015 M Borate Buffer for IC analysis
 MAX V: 18 Liters MAX F: 0.2 L/min
 ANL 1: Ion Chromatography; IC
 REF: (OSHA In-House File) **CLASS:** Partially Validated
SAM2 DET. TUBE: Draeger, 67 22701, 1-15 ppm

Propoxur

IMIS **0318** **CAS** 114-26-1
SYN Aprocarb®, o-Isopropoxyphenyl-N-methylcarbamate, N-Methyl-2-isopropoxyphenyl-carbamate
NIOSH RTECS FC3150000 **DOT** 2757 151
MIOSHA FINAL RULE (Table G-1-A): **TWA** 0.5 mg/m3
DESC White to tan, crystalline powder with a faint, characteristic odor. [insecticide]
 MW: 209.3 BP: Decomposes MP: 187 to 197 F VP: 0.000007 mm
 FP: >300 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Miosis, blurred vision; sweating, salivation; abdominal cramps, nausea, diarrhea, vomiting; headache, lassitude (weakness, exhaustion), muscle twitching
ORGAN Central nervous system, liver, kidneys, gastrointestinal tract, blood cholinesterase
SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) **CLASS:** Partially Validated
 NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm) **SOLVENT:** Isopropanol
BIOL Erythrocyte Cholinesterase

2-Propoxyethanol

IMIS **P136** **CAS** 2807-30-9
SYN Propyl Cellosolve; Ethylene Glycol Propyl Ether
DESC Liquid; colorless; mild, rancid odor; floats and mixes with water.
 MW: 104.15 BP: 301 F FP: 120 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
 MAX V: 10 Liters MAX F: 0.2 L/min

n-Propoxypropanol

IMIS **P202** CAS 30136-13-1
DESC Colorless liquid.
MW: 118.17 BP: 301.6 F MP: -112 F FP: 128 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Propylamine

IMIS **P137** CAS 107-10-8
SYN 1-aminopropane; mono-n-propylamine
DOT 1277 132
DESC A clear colorless liquid with an ammonia-like odor.
MW: 59.11 BP: 119.5 F MP: -117.4 F FP: -35 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Propyl Benzene

IMIS **P107** CAS 103-65-1
SYN Benzene, propyl; isocumene
DOT 2364 128
DESC A clear colorless liquid.
MW: 120.2 BP: 318.2 F VP: 7.52 mm FP: 118 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Propylenediamine

IMIS **P109** CAS 78-90-0
SYN 1,2-diaminopropane
DOT 2258 132
DESC A colorless liquid with an ammonia-like odor. Strongly irritates skin and tissue.
MW: 74.13 BP: 248.9 F MP: -35 F FP: 92 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Propylene Dichloride (1,2-Dichloropropane)

IMIS **2190** CAS 78-87-5
SYN 1,2-Dichloropropane, Dichloro-1,2-propane
NIOSH RTECS UC8300000 DOT 1279 130
MIOSHA FINAL RULE (Table G-1-A):
TWA 75 ppm, 350 mg/m3
STEL 110 ppm, 510 mg/m3
DESC Colorless liquid with a chloroform-like odor. [pesticide]
MW: 113.0 BP: 206 F VP: 40 mm MP: -149 F FP: 60 F
INCOM Strong oxidizers, strong acids, active metals
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Narcosis. (HE8)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
IARC Group 1 - carcinogenic to humans - [1,2-Dichloropropane]
SYMPT Irritation eyes, skin, respiratory system; drowsiness, dizziness; liver, kidney damage;
In Animals: central nervous system depression; [potential occupational carcinogen]
ORGAN Eyes, skin, respiratory system, liver, kidneys, central nervous system [in animals:
liver & mammary gland tumors]

SLC1 MEDIA:
 ANL SOLVENT: 15% (v/v) Acetone/Cyclohexane
 MAX V: 3.5 Liters MAX F: 0.2 L/min (TWA)
 MAX V: 3 Liters MAX F: 0.2 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1013 SAE: 0.09 CLASS: Fully Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.8 ppm at 9.9 um

Propylene Glycol

IMIS **P108** CAS 57-55-6
 SYN 1,2-dihydroxypropane; methylethylene glycol; monopropylene glycol; 1,2-propanediol, 1,2-propylene glycol; 1,2-propylenglycol
 DESC Thick odorless colorless liquid.
 MW: 76.1 BP: 370.8 F MP: -76 F FP: 210 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 60 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 5523 CLASS: Partially Validated by
 NIOSH
 NOTE: Ship cold to laboratory for analysis.

1,2-Propylene Glycol Dinitrate

IMIS **2200** CAS 6423-43-4
 SYN PGDN, Propylene glycol-1,2-dinitrate, 1,2-Propylene glycol dinitrate
 NIOSH RTECS TY6300000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 ppm, 0.3 mg/m3
 DESC Colorless liquid with a disagreeable odor. [Note: A solid below 18°F.]
 MW: 166.1 MP: 18 F
 INCOM Ammonia compounds, amines, oxidizers, reducing agents, combustible materials
 [Note: Similar to Ethylene glycol dinitrate in explosion potential.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes; conjunctivitis; methemoglobinemia; headache, impaired balance,
 visual disturbance; In Animals: liver, kidney damage
 ORGAN Eyes, central nervous system, blood, liver, kidneys
 SLC1 MEDIA:
 MAX V: 15 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-TEA
 REF: (OSHA In-House File) CLASS: Not Validated

Propylene Imine

IMIS **2213** CAS 75-55-8
 SYN 2-Methylaziridine, 2-Methylethyleneimine, Propyleneimine, Propylene imine
 (inhibited), Propylenimine
 NIOSH RTECS CM8050000 DOT 1921 131P(inhibited)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 ppm, 5 mg/m3 (Skin)
 DESC Colorless, oily liquid with an ammonia-like odor.

MW: 57.1 BP: 152 F MP: -85 F VP: 112 mm FP: 25 F

INCOM Acids, strong oxidizers, water, carbonyl compounds, quinones, sulfonyl halides
[Note: Subject to violent polymerization in contact with acids. Hydrolyzes in water to form methylethanolamine.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

NTP Suspect Human Carcinogen - [2-Methylaziridine]

IARC Group 2B - possibly carcinogenic to humans - [2-Methylaziridine (Propyleneimine)]

SYMPT Eye, skin burns; [potential occupational carcinogen]

ORGAN Eyes, skin [in animals: nasal tumors]

SLC1 MEDIA:
MAX V: 48 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

NOTE: Folin's reagent should be obtained from SLC. Store reagent in a refrigerator and discard after 5 days. While sampling, wrap impingers and vials with aluminum foil to protect from light. After sampling, keep samples cool. Ship samples to SLC by overnight carrier packaged in a container with cold packs to keep samples cool.

SAM2 DET. TUBE: MSA, 92115, 2-300 ppm
Draeger, CH 31801, 0.25-3.0 ppm
Sensidyne, 180, 1-60 ppm

BULK Limit the amount of bulk submitted to one gram or one mL.

Propylene Oxide (1,2-Epoxypropane)

IMIS **2215** CAS 75-56-9

SYN 1,2-Epoxy propane, Methyl ethylene oxide, Methyloxirane, Propene oxide, 1,2-Propylene oxide

NIOSH RTECS TZ2975000 DOT 1280 127P

MIOSHA FINAL RULE (Table G-1-A): TWA 20 ppm, 50 mg/m³

DESC Colorless liquid with a benzene-like odor. [Note: A gas above 94°F.]
MW: 58.1 BP: 94 F MP: -170 F VP: 445 mm FP: -35 F

INCOM Anhydrous chlorides of iron, tin, and aluminum; peroxides of iron and aluminum; alkali metal hydroxides; iron; strong acids, caustics & peroxides [Note: Polymerization may occur due to high temperatures or contamination with alkalis, aqueous acids, amines & acidic alcohols.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

NTP Suspect Human Carcinogen - [Propylene Oxide]

IARC Group 2B - possibly carcinogenic to humans - [Propylene oxide]

SYMPT Irritation eyes, skin, respiratory system; skin blisters, burns; [potential occupational carcinogen]

ORGAN Eyes, skin, respiratory system [in animals: nasal tumors]

SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 5 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1612 SAE: 0.119 CLASS: Partially Validated by
NIOSH
NOTE: Refrigerated

n-Propyl Nitrate

IMIS **2185** CAS 627-13-4
SYN Propyl ester of nitric acid
NIOSH RTECS UK0350000 DOT 1865 131
MIOSHA FINAL RULE (Table G-1-A):
TWA 25 ppm, 105 mg/m3
STEL 40 ppm, 170 mg/m3
DESC Colorless to pale yellow liquid with an ether-like odor.
MW: 105.1 BP: 231 F MP: -148 F VP: 18 mm FP: 68 F
INCOM Strong oxidizers, combustible materials [Note: Forms explosive mixtures with
combustible materials.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation eyes, skin; methemoglobinemia, anoxia, cyanosis; dyspnea
(breathing difficulty), lassitude (weakness, exhaustion), dizziness, headache
ORGAN Eyes, skin, blood
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 70 Liters MAX F: 1.0 L/min (TWA)
MAX V: 15 Liters MAX F: 1.0 L/min (STEL)
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH S227 SAE: 0.09 CLASS: Fully Validated by
NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 0.4 at 10.4 µm

Propyl Paraben

IMIS **P208** CAS 94-13-3
SYN Propyl 4-hydroxybenzoate; 4-Hydroxybenzoic acid propyl ester; Propyl Chemosept;
Propyl p-hydroxybenzoate; Nipasol; Chemocide PK; Solbrol P; Propyl Parasept
NIOSH RTECS DH2800000*
DESC Colorless crystals or white powder or chunky white solid. Odorless or faint aromatic
odor.
MW: 180.2 MP: 203 to 208 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (WOHL) CLASS: Not Validated

Pyrene

IMIS **2217** CAS 129-00-0
SYN benzo(d,e,f)phenanthrene
NIOSH RTECS UR2450000*
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 mg/m3
DESC Colorless solid, solid and solutions have a slight blue fluorescence.
MW: 202.26 BP: 759 F MP: 313 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)

NTP Human Carcinogen - [Coal-Tar Pitch (see Coal Tar and Coal-Tar Pitches)]

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Pyrene]

SLC1 MEDIA:
ANL SOLVENT: Benzene
MAX V: 960 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV-FLU
REF: OSHA 58 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Validation in conjunction with Coal Tar Pitch Volatiles and Coke Oven Emissions.
NOTE: After sampling, filter must be transferred to a vial with a Teflon-lined cap. Sample must be protected from direct sunlight.

Pyrethrum

IMIS **2216** CAS 8003-34-7

SYN Cinerin I or II, Jasmolin I or II, Pyrethrin I or II, Pyrethrum I or II [Note: Pyrethrum is a variable mixture of Cinerin, Jasmolin, and Pyrethrin.]

NIOSH RTECS UR4200000

MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3

DESC Brown, viscous oil or solid. [insecticide]
MW: 316 to 374 FP: 180 to 190 F

INCOM Strong oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

SYMPT Erythema, dermatitis, papules, pruritus, rhinorrhea (discharge of thin nasal mucus); sneezing; asthma

ORGAN Respiratory system, skin, central nervous system

LESS1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 400 Liters MAX F: 4.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OHL2015S002 SAE: 0.11 CLASS: Validated In-House

Pyridine

IMIS **2220** CAS 110-86-1

SYN Azabenzene, Azine

NIOSH RTECS UR8400000 DOT 1282 129

MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 15 mg/m3

DESC Colorless to yellow liquid with a nauseating, fish-like odor.
MW: 79.1 BP: 240 F VP: 16 mm MP: -44 F FP: 68 F

INCOM Strong oxidizers, strong acids

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)

IARC Group 2B - possibly carcinogenic to humans - [Pyridine]

SYMPT Irritation eyes; headache, anxiety, dizziness, insomnia; nausea, anorexia; dermatitis; liver, kidney damage
ORGAN Eyes, skin, central nervous system, liver, kidneys, gastrointestinal tract,
SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
MAX V: 150 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1613 SAE: 0.10 CLASS: Fully Validated by NIOSH

1-(2-Pyridinyl)piperazine

IMIS **P115** CAS 34803-66-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
WIPE MEDIA: Glass Fiber Filter (37 mm)

Quadrol

IMIS **Q106** CAS 102-60-3
SYN Edetol; N, N, N', N'-Tetrakis (2-hydroxypropyl) ethylenediamine
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Qualitative Elemental Analysis

IMIS **Q100**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: X-Ray Fluorescence; XRF
REF: OSHA ID-204 CLASS: Fully Validated by OSHA
NOTE: Method is used to screen samples.

Quantitative GC Analysis

IMIS **Q115**

Quantitative HPLC Analysis

IMIS **Q116**

Quinone

IMIS **2222** CAS 106-51-4
SYN 1,4-Benzoquinone, p-Benzoquinone, 1,4-Cyclohexadiene dioxide, p-Quinone
NIOSH RTECS DK2625000 DOT 2587 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 ppm, 0.4 mg/m³
DESC Pale-yellow solid with an acrid, chlorine-like odor.
MW: 108.1 BP: Sublimes MP: 240 F FP: 100 to 200 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [para-Quinone]
SYMPT Eye irritation, conjunctivitis; keratitis (inflammation of the cornea); skin irritation
ORGAN Eyes, skin
SLC1 MEDIA:
ANL SOLVENT: (20/80) Ethanol/Hexane
MAX V: 24 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH S181 Modified SAE: 0.14 CLASS: Fully Validated by

NIOSH

Rabon

IMIS **2234** CAS 961-11-5; 22248-79-9
 SYN 2-Chloro-1-(2,4,5-Trichlorophenyl) vinyl dimethyl phosphate; Stirophos; Stirofus; Tetrachlorvinphos
 NIOSH RTECS TB9100000*
 DESC Colorless crystals or white powder.
 MW: 365.96 MP: 203 to 207 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 2B - possibly carcinogenic to humans - [Tetrachlorvinphos]
 SLC1 MEDIA:
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Radon

IMIS **R100** CAS 10043-92-2
 SYN radon gas; alphanon; niton; radium emanation
 DESC Colorless, odorless gas.
 MW: 222.02 BP: -79.1 F MP: -95.8 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Human Carcinogen - [Radon (see Ionizing Radiation)]
 IARC Group 1 - carcinogenic to humans - [Radon-222 and its decay products]
 SLC1 MEDIA: E-PERM Sampler; Passive Monitor ≥10 days
 REF: OSHA ID-208 CLASS: Partially Validated by OSHA
 NOTE: Obtain sampler from SLTC.

Ramrod

IMIS **2165** CAS 1918-16-7
 SYN Propachlor; Acetamide, 2 Chloro-N- (1-methylethyl)-N-Phenyl; Bexton, Bexton 4L; CP31393; Niticid; Satecid
 NIOSH RTECS AE1575000* DOT 2811 154
 DESC Light tan solid. [herbicide]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 120 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated
 BULK Limit the amount of bulk submitted to one gram or one mL.

Resmethrin

IMIS **2233** CAS 10453-86-8
 SYN dimethyl 3-(2-methyl-1-propenyl)cyclopropanecarboxylate; benzofurolinone; chryson
 NIOSH RTECS GZ1310000 DOT 3082 171
 DESC Waxy white to tan solid; colorless crystals.
 MW: 338.48
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
 ANL SOLVENT: Acetonitrile
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

WIPE MEDIA: Whatman 41 Filter Paper
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

Resorcinol

IMIS **2221** CAS 108-46-3
 SYN 1,3-Benzenediol, m-Benzenediol, 1,3-Dihydroxybenzene, m-Dihydroxybenzene, 3-Hydroxyphenol, m-Hydroxyphenol

NIOSH RTECS VG9625000 DOT 2876 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 ppm, 45 mg/m3
 STEL 20 ppm, 90 mg/m3

DESC White needles, plates, crystals, flakes, or powder with a faint odor. [Note: Turns pink on exposure to air or light, or contact with iron.]
 MW: 110.1 BP: 531 F MP: 228 F FP: 261 F

INCOM Acetanilide, albumin, alkalis, antipyrine, camphor, ferric salts, menthol, spirit nitrous ether, strong oxidizers & bases [Note: Hygroscopic (i.e., absorbs moisture from the air).]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Resorcinol]

SYMPT Irritation eyes, skin, nose, throat, upper respiratory system; methemoglobinemia; cyanosis, convulsions; restlessness, bluish skin, increased heart rate, dyspnea (breathing difficulty); dizziness, drowsiness, hypothermia, hematuria (blood in the urine); spleen, kidney, liver changes; dermatitis

ORGAN Eyes, skin, respiratory system, cardiovascular system, central nervous system, blood, spleen, liver, kidneys

SLC1 MEDIA:
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

Rhodium, Metal Fume & Insoluble Compounds (as Rh)

IMIS **2223** CAS 7440-16-6
 DESC Elemental rhodium
 NIOSH RTECS VI9069000 (metal) DOT 3089 170
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3

DESC Metal: White, hard, ductile, malleable solid with a bluish-gray luster.
 MW: 102.9 BP: 6741 F MP: 6571 F

INCOM Chlorine trifluoride, oxygen difluoride

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)

SYMPT Possible resp sensitization

ORGAN Respiratory system
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) SAE: 0.202 CLASS: Partially Validated
NOTE: Sodium Bisulfite Fusion. Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Analytical method does not distinguish between dust and fume. Rhodium and Platinum soluble salts may also be collected on same filter.

Rhodium, Soluble Compounds (as Rh)

IMIS 2225 CAS 7440-16-6
SYN Soluble rhodium trichloride; Hydrated rhodium trichloride
DOT 3089 170
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.001 mg/m3
DESC Appearance and odor vary depending upon the specific soluble rhodium compound.
INCOM Varies
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation eyes; central nervous system damage
ORGAN Eyes, central nervous system
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) SAE: 0.20 CLASS: Partially Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Platinum, soluble salts, and Rhodium, metal fume and dust, can be sampled on the same filter.

Ronnel

IMIS **2226** CAS 299-84-3
SYN O,O-Dimethyl O-(2,4,5-trichlorophenyl) phosphorothioate, Fenchlorophos
NIOSH RTECS TG0525000 DOT 2811 154
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3
DESC White to light-tan, crystalline solid. [insecticide] [Note: A liquid above 106°F.]
MW: 321.6 BP: Decomposes MP: 106 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation eyes; cholinesterase inhibition; liver, kidney damage
ORGAN Skin, liver, kidneys, blood plasma
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Rosaniline

IMIS **R118** CAS 632-99-5

SYN C.I. Basic Violet 14; Basic parafoch sine; Calcozine Magenta N; CI 42500; p Fuch sine; Fuch sine DR-001; Fuch shin SP; Fuch sine SPC; Pararosanine NCI-C-54739; Paramagenta; Magenta
NIOSH RTECS CX9850000*
DESC Dark green powder. A dye derived from triphenylmethane. MW: 337.88 MP: >392 F (Decomposes)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 1 - carcinogenic to humans - [Magenta production]
 Group 2B - possibly carcinogenic to humans - [Magenta]
SLC1 MEDIA: Bulk
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Rosin Core Solder Pyrolysis Products (Organics)

IMIS 2227
SYN Rosin core soldering flux pyrolysis products, Rosin flux pyrolysis products
DESC Pyrolysis products of rosin core solder include acetone, aliphatic aldehydes, methyl alcohol, methane, ethane, various abietic acids (the major components of rosin), CO & CO2.
 Properties vary depending upon the specific rosin core solder being used.
INCOM Varies
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, nose, throat, upper respiratory system [potential occupational carcinogen (in the presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]
ORGAN Eyes, respiratory system [nasal cancer; thyroid gland tumors in animals (in presence of Formaldehyde, Acetaldehyde, or Malonaldehyde)]
SLC1 MEDIA:
 NOTE: Possible compounds to sample for:
 Acetaldehyde (IMIS 0010) NTP: Suspect Human Carcinogen IARC: Group 2B
 Abietic Acid (IMIS A616)
 Acetone (IMIS 0040)
 Formaldehyde (IMIS 1290) NTP: Human Carcinogen IARC: Group 1

Rotenone

IMIS 2228 CAS 83-79-4
SYN 1,2,12,12a-Tetrahydro-8,9-dimethoxy-2-(1-methyl-ethenyl)-[1]benzopyrano [3,4-b]furo[2,3-h][1] benzopyran-6(6aH)-one
NIOSH RTECS DJ2800000 DOT 2588 151
MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
DESC Colorless to red, odorless, crystalline solid. [insecticide]
 MW: 394.4 BP: Decomposes VP: <0.00004 mm MP: 330 F
INCOM Strong oxidizers, alkalis
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Irritation eyes, skin, respiratory system; numb mucous membrane; nausea, vomiting, abdominal pain; muscle tremor, incoordination, clonic convulsions, stupor
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 MEDIA:

ANL SOLVENT: Acetonitrile
MAX V: 400 Liters MAX F: 4.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 5007 SAE: 0.13 CLASS: Fully Validated by
NIOSH

Rozol

IMIS **R109** CAS 3691-35-8
SYN Chlorophacinone
NIOSH RTECS NK5335000* DOT 2811 154
DESC Crystals. [Note: Commercially available as oil concentrate and as dust concentrate.
Used as an anticoagulant rodenticide. Chronic acting, multiple dose rodenticide]
MW: 374.82 MP: 284 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Rubidium

IMIS **R110** CAS 7440-17-7
SYN Rubidium Metal
DOT 1423 138
DESC A soft silvery metal.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MIN V: 240 Liters MAX F: 1.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as a separate sample. When analysis of a compound is requested,
an elemental analysis is performed and reported as the compound.

Ruthenium

IMIS **R108** CAS 7440-18-8
DESC A hard, brittle, grayish-white rare earth metal.
MW: 101.1
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Saccharin

IMIS **S226** CAS 81-07-2
DESC White crystals. Odorless or faintly aromatic odor.
MW: 183.19 BP: Sublimes MP: 444 F (Decomposes)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Saccharin and its
salts]

Safrotin

IMIS **S229** CAS 31218-83-4
SYN Propetamphos
NIOSH RTECS GQ4750000* DOT 3018 152
DESC Yellow oily liquid.
MW: 281.31

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated

Sarin

IMIS **S315** CAS 107-44-8
SYN GB; Methylphosphonofluoridic acid 1-methyl ethyl ester; Sarin II; Trilone; MFI; TLI 618; Isopropoxymethylphosphoryl fluoride; Isopropyl methanefluorophosphonate; Isopropyl methylfluorophosphate; Isopropyl Methylphosphonofluoridate; Fluoroisopropoxymethyl phosphine phosphine oxide; Fluoroisopropoxymethylphosphine; Methylfluoro-isopropyl ester; T144; T2106
NIOSH RTECS TA8400000
DESC A chemical warfare nerve agent. A colorless, odorless liquid.
MW: 140.11 BP: 297 F MP: -71 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Obtain sampling tubes from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)

Scopolamine Methyl Nitrate

IMIS **S150** CAS 6106-46-3
SYN hyoscine methyl nitrate; mescomine; methscopolamine nitrate; Skopolate; Skopyl; Viscope
NIOSH RTECS YM3675150*
DESC Odorless, white crystalline powder.
MW: 380.4 MP: 718.2 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Selenium & Compounds (as Se)

IMIS 2230 CAS 7782-49-2
SYN Elemental selenium, Selenium alloy
NIOSH RTECS VS7700000 DOT 2658 152(powder)
MIOSHA FINAL RULE (Table G-1-A): TWA 0.2 mg/m3
DESC Amorphous or crystalline, red to gray solid. [Note: Occurs as an impurity in most sulfide ores.]
MW: 79.0 BP: 1265 F MP: 392 F
INCOM Acids, strong oxidizers, chromium trioxide, potassium bromate, cadmium
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Selenium Sulfide]
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Selenium and selenium compounds]

SYMPT Irritation eyes, skin, nose, throat; visual disturbance; headache; chills, fever; dyspnea (breathing difficulty), bronchitis; metallic taste, garlic breath, gastrointestinal disturbance; dermatitis; eye, skin burns; In Animals: anemia; liver necrosis, cirrhosis; kidney, spleen damage

ORGAN Eyes, skin, respiratory system, liver, kidneys, blood, spleen

SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) SAE: 0.21 CLASS: Partially Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period.

Selenium Hexafluoride (as Se)

IMIS **2231** CAS 7783-79-1

SYN Selenium fluoride

NIOSH RTECS VS9450000 DOT 2194 125

MIOSHA FINAL RULE (Table G-1-A):
TWA 0.05 ppm, 0.4 mg/m3

DESC Colorless gas.
MW: 193.0 BP: -30 F VP: >1 atm MP: -59 F

INCOM Water [Note: Hydrolyzes very slowly in cold water.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Selenium and selenium compounds]

SYMPT In Animals: pulmonary irritation, edema

ORGAN Respiratory system

SLC1 Use MIRAN 1A & 1B or 103
NOTE: PEL = 0.05 ppm which is below the minimum detectable concentration of 0.07 ppm for the MIRAN. Therefore, the MIRAN is usable for screening purposes only.

SAM2 MIRAN IA & IB: MIN. Det. Con. 0.07 ppm at 12.9 um

Silicon Tetrafluoride

IMIS **S241** CAS 7783-61-1

SYN Silicon Fluoride; F4S; Tetrafluoro-Silane; Silicon Tetrafluoride (DOT)

NIOSH RTECS VW2327000* DOT 1859 125

DESC A colorless, nonflammable, corrosive and toxic gas with a pungent odor similar to that of hydrochloric acid.
MW: 104.079

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Silicon Tetrahydride

IMIS **2237** CAS 7803-62-5

SYN Monosilane, Silane, Silicane

MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 7 mg/m3

DESC Colorless gas with a repulsive odor.
MW: 32.1 BP: -169 F MP: -301 F VP: >1 atm

INCOM Halogens (bromine, chlorine, carbonyl chloride, antimony pentachloride, tin(IV) chloride), water

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin, mucous membrane; nausea, headache

ORGAN Eyes, skin, respiratory system, central nervous system

SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as a separate sample. Analysis is performed for total Silicon and reported as the compound. Samples should be stored and shipped in plastic as soon after sampling as possible. Keep blank solution in MFGB for the same time period as samples.

Silvex

IMIS **S125** CAS 93-72-1
SYN 2,4,5-Trichlorophenoxypropionic acid; Weed-B-Gon; 2-(2,4,5-Trichlorophenoxy) propionic acid; 2,4,5-TP; Fenoprop
DOT 3077 171
DESC White powder.
MW: 261.51 BP: >300 F (0.5 mm) MP: 347 to 351 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Chlorophenoxy herbicides]
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Simazine

IMIS **C637** CAS 122-34-9
SYN Aquazine; Batazina; Herbazin; Taphazine; Zeapur; Princep; Printop; 2-chloro-4,6-bis(ethylamino)-s-triazine; CAT; CDT; Simadex; Simanex; 2-chloro-4,6-bis(ethylamino)-1,3,5-triazine; 1-chloro-3,5-bisethylamino-2,4,6-triazine
NIOSH RTECS XY5250000* DOT 3077 171
DESC White to off-white crystalline powder.
MW: 201.69 MP: 437 to 441 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Simazine]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Sodium Azide (as HN₃)

IMIS 2243 CAS 26628-22-8
SYN Azide, Azium, Sodium salt of hydrazoic acid
NIOSH RTECS VY8050000 DOT 1687 153
MIOSHA FINAL RULE (Table G-1-A):
CEIL 0.1 ppm (Skin)
DESC Colorless to white, odorless, crystalline solid. [pesticide] [Note: Forms hydrazoic acid (HN₃) in water.]
MW: 65.0 BP: Decomposes MP: 527 F (Decomposes)
INCOM Acids, metals, water [Note: Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin; headache, dizziness, lassitude (weakness, exhaustion), blurred vision; low blood pressure, bradycardia; kidney changes

ORGAN Eyes, skin, central nervous system, cardiovascular system, kidneys
 SLC1 MEDIA:
 MIN V: 5 Liters MIN T: 5 Minutes MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Chromatography; IC-UV-VIS
 REF: OSHA ID-211 SAE: 0.09 CLASS: Fully Validated by OSHA
 NOTE: The Silica gel is coated with a reactive substrate. After collection keep samples refrigerated. Ship samples with cold-packs as soon as possible using normal shipping procedures

Sodium Azide (as NaN₃)

IMIS **S113** CAS 26628-22-8
 SYN Azide, Azium, Sodium salt of hydrazoic acid
 NIOSH RTECS VY8050000 DOT 1687 153
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.3 mg/m³ (Skin)
 DESC Colorless to white, odorless, crystalline solid. [pesticide] [Note: Forms hydrazoic acid (HN₃) in water.]
 MW: 65.0 BP: Decomposes MP: 527 F (Decomposes)
 INCOM Acids, metals, water [Note: Over a period of time, sodium azide may react with copper, lead, brass, or solder in plumbing systems to form an accumulation of the HIGHLY EXPLOSIVE compounds of lead azide & copper azide.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin; headache, dizziness, lassitude (weakness, exhaustion), blurred vision; low blood pressure, bradycardia; kidney changes
 ORGAN Eyes, skin, central nervous system, cardiovascular system, kidneys
 SLC1 MEDIA:
 MIN V: 5 Liters MIN T: 5 Minutes MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Chromatography; IC-UV-VIS
 REF: OSHA ID-211 SAE: 0.09 CLASS: Fully Validated by OSHA
 NOTE: The Silica gel is coated with a reactive substrate. After collection keep samples refrigerated. Ship samples with cold-packs as soon as possible using normal shipping procedures

Sodium Fluoroacetate

IMIS **2250** CAS 62-74-8
 SYN SFA, Sodium monofluoroacetate
 NIOSH RTECS AH9100000 DOT 2629 151
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 mg/m³ (Skin)
 STEL 0.15 mg/m³ (Skin)
 DESC Fluffy, colorless to white (sometimes dyed black), odorless powder. [Note: A liquid above 95°F.] [rodenticide]
 MW: 100.0 BP: Decomposes VP: Low MP: 392 F
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 SYMPT Vomiting; anxiety, auditory hallucinations; facial paresthesia; twitching face muscle; pulsus alternans, ectopic heartbeat, tachycardia, cardiac arrhythmias; pulmonary edema; nystagmus; convulsions; liver, kidney damage
 ORGAN Respiratory system, cardiovascular system, liver, kidneys, central nervous system
 SLC1 MEDIA:
 MAX V: 960 Liters MAX F: 2.0 L/min (TWA)
 MAX V: 30 Liters MAX F: 2.0 L/min (STEL)

ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: When the analysis of a compound is requested, an elemental analysis is performed for sodium and reported as the compound. Submit as a separate sample.

Sodium Lauryl Sulfate

IMIS **S110** CAS 151-21-3
SYN Sulfuric Acid, Monododecyl Ester, Sodium Salt; Lauryl Sodium Sulfate; Dodecyl Sodium Sulfate
NIOSH RTECS WT1050000*
DESC White to pale yellow paste or liquid with a mild odor.
MW: 288.38 MP: 399 to 405 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Sodium Metasilicate

IMIS **S245** CAS 6834-92-0
SYN Sodium Silicate; Silicic Acid (H₂SiO₃) Disodium Salt; Crystamet; Disodium Metasilicate; Water Glass; Disodium Monosilicate; Orthosil; Sodium Metasilicate, Anhydrous; Sodium Silicate; Metso Beads, Drymet
NIOSH RTECS VV9275000* DOT 1759 154
DESC A powdered or flaked solid substance.
MW: 122.08
Usually obtained as a glass; also orthorhombic crystals. Usually prepared from sand (SiO₂) and soda ash (NaCO₃) by fusion. Soluble in cold water, hydrolyzed by hot water. Insoluble in alcohol, acids, salt solutions.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 Call SLTC Inorganic Division for guidance. (801-487-0680)

Sodium p-Nitrophenol

IMIS **S326** CAS 824-78-2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Sodium Pentachlorophenate

IMIS **2261** CAS 131-52-2
DOT 2567 154
DESC A white or tan, powdered solid.
MW: 288.35 BP: Decomposes
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Pentachlorophenol, Sodium Salt (see Pentachlorophenol and By-products of Its Synthesis)]

Sodium o-Phenyl Phenate

IMIS **S238** CAS 132-27-4
SYN Bactrol; Orphenol; Dowicide A; Topane; Natriphene; 2-Biphenylol; Sodium Salt
NIOSH RTECS DV7700000*
DESC Beige flaky solid.
MW: 192.2
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Sodium ortho-phenylphenate]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID

Sodium Tripolyphosphate

IMIS **2262** CAS 7758-29-4
 SYN Sodium Phosphate, Tribasic
 DOT 3262 154
 DESC A colorless to white crystalline solid.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Soil

IMIS **S777**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 Call OSHA SLTC for instructions.

Solder Fume (Metals)

IMIS **S131**
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA ID-206 CLASS: Fully Validated by OSHA
 NOTE: Solder Fume metals include Ag, Cd, Cu, Pb, Sb, Sn, and Zn. If the filter is not overloaded, samples may be collected up to an 8-hour period. The physical form of a sample (dust, mist, or fume) is identified by the compliance officer using available documentation of materials and processes

Stearic Acid

IMIS **S115** CAS 57-11-4
 DESC White solid with a mild odor.
 MW: 284.48 BP: 721 F MP: 156.7 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NOTE: OSHA staff only, please contact SLTC at 801-233-5100

Stibine (Antimony Hydride)

IMIS **2267** CAS 7803-52-3
 SYN Antimony hydride, Antimony trihydride, Hydrogen antimonide
 NIOSH RTECS WJ0700000 DOT 2676 119
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 ppm, 0.5 mg/m3
 DESC Colorless gas with a disagreeable odor like hydrogen sulfide.
 MW: 124.8 BP: -1 F VP: >1 atm MP: -126 F
 INCOM Acids, halogenated hydrocarbons, oxidizers, moisture, chlorine, ozone, ammonia
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Respiratory Effects---Acute lung damage/edema or other. (HE11)
 Explosive, Flammable, Safety (No Adverse Effects Encountered When Good Housekeeping Practices are Followed). (HE18)
 SYMPT Headache, lassitude (weakness, exhaustion); nausea, abdominal pain; lumbar pain, hematuria (blood in the urine), hemolytic anemia; jaundice; pulmonary irritation
 ORGAN Blood, liver, kidneys, respiratory system
 LESS1 MEDIA (L): Tared Low Ash Polyvinyl Chloride (LAPVC) filter, 5 microns
 MAX V: 960 Liters MIN V: 480 Liters REC F: 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS

ANL SOLVENT: Hydrochloric Acid/Nitric Acid
REF: OHL2018S001 SAE: 0.112 CLASS: Validated In-House
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. When analysis of a compound is requested, an elemental analysis is performed and reported as the compound. The stoichiometric factor for stibine from antimony is 1.025.

SLC1 MEDIA:
ANL SOLVENT: Hydrochloric Acid
MAX V: 50 Liters MAX F: 0.2 L/min
ANL 1: Colorimetric (Rhodamine B)
REF: NIOSH 6008 CLASS: Fully Validated by NIOSH
NOTE: Media no longer available.
SAM2 REAGENT KIT: MSA, Reagent# 81101, Filter# 81220, 0.025-1.0 ppm

Strontium

IMIS **S100** CAS 7440-24-6
DESC Naturally occurring element. Pale yellow, soft metal.
MW: 87.62
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: NIOSH 7300 CLASS: Not Validated

Strychnine

IMIS **2275** CAS 57-24-9
SYN Nux vomica, Strychnos
NIOSH RTECS WL2275000 DOT 1692 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.15 mg/m3
DESC Colorless to white, odorless, crystalline solid. [pesticide]
MW: 334.4 BP: Decomposes MP: 514 F VP: Low
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Acute Toxicity---Short-term high risk effects. (HE4)
SYMPT Stiff neck, facial muscle; restlessness, anxiety, increased acuity of perception; increased reflex excitability; cyanosis; tetanic convulsions with opisthotonos
ORGAN Central nervous system
SLC1 MEDIA:
MAX V: 1000 Liters MIN V: 70 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 5016 SAE: 0.10 CLASS: Fully Validated by NIOSH

Subtilisins

IMIS **9220** CAS 1395-21-7; 9014-01-1
SYN Bacillus subtilis, Bacillus subtilis BPN, Bacillus subtilis Carlsburg, Proteolytic enzymes, Subtilisin BPN, Subtilisin Carlsburg [Note: Commercial proteolytic enzymes are used in laundry detergents.]
MIOSHA FINAL RULE (Table G-1-A):
STEL 0.00006 mg/m3 (60 minutes)
NOTE: Sampling assesses Compliance with the subtilisins PEL with a high volume

sampler (600-800 liters per minute) for at least 60 minutes.
 NIOSH RTECS CO9450000 (BPN); CO9550000 (Carlsburg)
 DESC Light-colored, free-flowing powders. [Note: A protein containing numerous amino acids.]
 MW: 28,000 (approx.)
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Respiratory Effects Other Than Irritation---Respiratory sensitization (asthma or other). (HE9)
 Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SYMPT Irritation eyes, skin, respiratory system; resp sensitization (enzyme asthma): sweating, headache, chest pain, flu-like symptoms, cough, breathlessness, wheezing
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA: BULK
 NOTE: Currently, the only analytical procedure is for Subtilisins in bulk material. Using this analytical procedure for air monitoring would require an air volume of approximately 48,000 Liters to measure Subtilisins at or below the current TLV. OSHA staff members may call the SLTC for guidance.

Sudan I

IMIS **S106** CAS 842-07-9
 NIOSH RTECS QL4900000*
 DESC Dark reddish-yellow leaflets or orange powder.
 MW: 248.3 BP: >212 F MP: 268 to 271 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Sudan I]
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Sample needs to be refrigerated.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Sudan III

IMIS **S107** CAS 85-86-9
 NIOSH RTECS QK4250000*
 DESC Reddish brown crystals.
 MW: 352.4
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Sudan III]
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV-VIS
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Sample needs to be refrigerated
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Sulfadiazine

IMIS **S127** CAS 68-35-9

NIOSH RTECS WP1925000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Sulfamethazine

IMIS **S228** CAS 57-68-1
SYN Sulfanilamide, N (Sup 1)-(4,6-dimethyl-2-pyrimidinyl); Sulfamezathine;
Sulfamethiazine; Sulfadimerazine; Sulfisomidine; Superseptil; Sulmet; Diazil; Diazyl;
Pirmazin; Primazin
NIOSH RTECS WO9275000*
DESC Odorless sticky, white or creamy-white crystalline powder.
MW: 278.33 MP: 387 to 392 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Sulfamethazine]
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
WIPE MEDIA: Whatman 41 Filter Paper

Sulfapyridine

IMIS **S126** CAS 144-83-2
DESC Odorless or almost odorless white or yellowish-white crystalline powder.
MW: 249.29 MP: 376 to 379 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
BULK ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

m-Sulfobenzoic Acid

IMIS **S128** CAS 121-53-9
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 200 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

4,4'-Sulfonyldianiline

IMIS **S116** CAS 80-08-0
SYN DDS; Dapson; Diaminodiphenylsulfone
NIOSH RTECS BY8925000*
DESC Odorless white or creamy white crystalline powder.
MW: 248.3 MP: 347 to 349 F FP: >320 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Dapsone]

Sulfur Hexafluoride

IMIS **2300** CAS 2551-62-4
SYN Sulfur fluoride [Note: May contain highly toxic sulfur pentafluoride as an impurity.]

NIOSH RTECS WS4900000 DOT 1080 126
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 6000 mg/m3
 DESC Colorless, odorless gas. [Note: Shipped as a liquefied compressed gas. Condenses directly to a solid upon cooling.]
 MW: 146.1 BP: Sublimes MP: -83 F (Sublimes) VP: 21.5 atm
 INCOM Disilane
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)
 Asphyxiants, Anoxiants. (HE17)
 SYMPT Asphyxia: increased breath rate, pulse rate; slight muscle incoordination, emotional upset; lassitude (weakness, exhaustion), nausea, vomiting, convulsions; liquid: frostbite
 ORGAN Respiratory system
 SLC1 Field Analysis
 SAM2 MIRAN IA & IB
 MIRAN 103

Sulfur Monochloride

IMIS **2320** CAS 10025-67-9
 SYN Sulfur chloride, Sulfur subchloride, Thiosulfurous dichloride
 NIOSH RTECS WS4300000 DOT 1828 137
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 1 ppm, 6 mg/m3
 DESC Light-amber to yellow-red, oily liquid with a pungent, nauseating, irritating odor.
 MW: 135.0 BP: 280 F VP: 7 mm MP: -107 F
 INCOM Peroxides, oxides of phosphorous, organics, water [Note: Decomposes violently in water to form hydrochloric acid, sulfur dioxide, sulfur, sulfite, thiosulfate, and hydrogen sulfide. Corrosive to metals.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 SYMPT Irritation eyes, skin, mucous membrane; lacrimation (discharge of tears); cough; eye, skin burns; pulmonary edema
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 MAX V: 30 Liters MAX F: 1.0 L/min (TWA)
 MIN T: 5 Minutes MAX F: 1.0 L/min (CEIL)
 ANL 1: Ion Chromatography; IC
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as separate sample. An analysis is performed for total Cl- and reported as the compound.

Sulfur Pentafluoride

IMIS **2321** CAS 5714-22-7
 SYN Disulfur decafluoride, Sulfur decafluoride
 NIOSH RTECS WS4480000 DOT 3287 151
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.01 ppm, 0.1 mg/m3
 Stayed, FR 54:2922, 1/19/89
 DESC Colorless liquid or gas (above 84°F) with an odor like sulfur dioxide.
 MW: 254.1 BP: 84 F VP: 561 mm MP: -134 F
 INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
SYMPT Irritation eyes, skin, respiratory system; In Animals: pulmonary edema, hemorrhage
ORGAN Eyes, skin, respiratory system, central nervous system
SLC1 Standard has been stayed until an analytical method can be developed.

Sulfur Tetrafluoride

IMIS **2322** CAS 7783-60-0
 SYN Tetrafluorosulfurane
 NIOSH RTECS WT4800000 DOT 2418 125
 MIOSHA FINAL RULE (Table G-1-A):
 CEIL 0.1 ppm, 0.4 mg/m3
 DESC Colorless gas with an odor like sulfur dioxide. [Note: Shipped as a liquefied compressed gas.]
 MW: 108.1 BP: -41 F MP: -185 F VP: 10.5 atm (70 F)
 INCOM Moisture, concentrated sulfuric acid, dioxygen difluoride [Note: Readily hydrolyzed by moisture, forming hydrofluoric acid & thionyl fluoride.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
 SYMPT Irritation eyes, skin, mucous membrane; eye, skin burns (from SF4 releasing hydrofluoric acid on exposure to moisture); liquid: frostbite; In Animals: dyspnea (breathing difficulty), lassitude (weakness, exhaustion), rhinorrhea (discharge of thin nasal mucus)
 ORGAN Eyes, skin, respiratory system
 SLC1 MEDIA:
 MAX V: 90 Liters MIN V: 22.5 Liters MAX F: 1.5 L/min
 ANL 1: Ion Selective Electrode; ISE
 REF: OSHA ID-110 CLASS: Fully Validated by OSHA
 NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Hydrogen fluoride is collected on a Na₂CO₃ impregnated backup pad. An analysis is performed for total F- and reported as the compound.

Sulfuryl Fluoride

IMIS **2323** CAS 2699-79-8
 SYN Sulfur difluoride dioxide, Vikane®
 NIOSH RTECS WT5075000 DOT 2191 123
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 20 mg/m3
 STEL 10 ppm, 40 mg/m3
 DESC Colorless, odorless gas. [insecticide/fumigant] [Note: Shipped as a liquefied compressed gas.]
 MW: 102.1 BP: -68 F MP: -212 F VP: 15.8 atm (70 F)
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects---Acute lung damage/edema or other. (HE11)
Acute Toxicity---Short-term high risk effects. (HE4)
 SYMPT Conjunctivitis, rhinitis, pharyngitis, paresthesia; liquid: frostbite; In Animals: narcosis, tremor, convulsions; pulmonary edema; kidney injury
 ORGAN Eyes, skin, respiratory system, central nervous system, kidneys
 SLC1 MEDIA:
 MAX V: 10 Liters MIN V: 1.3 Liters MAX F: 0.1 L/min

ANL 1: Ion Chromatography; IC
REF: NIOSH 6012 SAE: 0.11 CLASS: Fully Validated by
NIOSH
NOTE: Ship at 0 C.
MIRAN IA & IB

SAM2

Sulprofos

IMIS **S129** CAS 35400-43-2
SYN Bolstar®, O-Ethyl O-(4-methylthio)phenyl S-propylphosphorodithioate
NIOSH RTECS TE4165000 DOT 3018 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 mg/m3
DESC Tan-colored liquid with a sulfide-like odor.
MW: 322.5 VP: >8 mm
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Nausea, vomiting, abdominal cramps, diarrhea, salivation; headache, dizziness, lassitude (weakness, exhaustion); rhinorrhea (discharge of thin nasal mucus), chest tightness; blurred vision, miosis; cardiac irreg; muscle fasciculation; dyspnea (breathing difficulty)
ORGAN Respiratory system, central nervous system, cardiovascular system, blood cholinesterase
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated

2,4,5-T

IMIS **2324** CAS 93-76-5
SYN 2,4,5-Trichlorophenoxyacetic acid
NIOSH RTECS AJ8400000 DOT 2765 152
MIOSHA FINAL RULE (Table G-1-A):
TWA 10 mg/m3
DESC Colorless to tan, odorless, crystalline solid. [herbicide]
MW: 255.5 BP: Decomposes VP: 1x10⁻⁷ mm MP: 307 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
IARC Group 2B - possibly carcinogenic to humans - [Chlorophenoxy herbicides]
SYMPT In Animals: ataxia; skin irritation, acne-like rash; liver damage
ORGAN Skin, liver, gastrointestinal tract
SLC1 MEDIA:
MAX V: 200 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA Modified NIOSH 5001 SAE: 0.09 CLASS: Fully
Validated by NIOSH/OSHA
WIPE MEDIA: Whatman 41 Filter Paper

Tannin

IMIS **T117** CAS 1401-55-4

SYN Tannic Acid
 NIOSH RTECS WW5057000*
 DESC Light yellow to tan solid with a faint odor.
 MW: 1701
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Tannic acid and tannins]
 SLC1 MEDIA:
 ANL SOLVENT: Distilled Tetrahydrofuran (dry)
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Not Validated

TEDP (Tetraethyl Dithiopyrophosphate)

IMIS **2327** CAS 3689-24-5
 SYN Bladafum®, Dithion®, Sulfotep, Tetraethyl dithionopyrophosphate, Tetraethyl dithiopyrophosphate, ThioTEPP®
 NIOSH RTECS XN4375000 DOT 1704 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 mg/m3 (Skin)
 DESC Pale-yellow liquid with a garlic-like odor. [Note: A pesticide that may be absorbed on a solid carrier or mixed in a more flammable liquid.]
 MW: 322.3 BP: Decomposes VP: 0.0002 mm
 INCOM Strong oxidizers, iron [Note: Corrosive to iron.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 SYMPT Irritation eyes, skin; eye pain, blurred vision, lacrimation (discharge of tears); rhinorrhea (discharge of thin nasal mucus); headache; cyanosis; anorexia, nausea, vomiting, diarrhea; localized sweating, lassitude (weakness, exhaustion), twitching, paralysis, Cheyne-Stokes respiration, convulsions, low blood pressure, cardiac irreg
 ORGAN Eyes, skin, respiratory system, central nervous system, cardiovascular system, blood cholinesterase
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 480 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BULK Limit the amount of bulk submitted to one gram or one mL.

Tellurium Hexafluoride (as Te)

IMIS **2332** CAS 7783-80-4
 SYN Tellurium fluoride
 NIOSH RTECS WY2800000 DOT 2195 125
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.02 ppm, 0.2 mg/m3
 DESC Colorless gas with a repulsive odor.
 MW: 241.6 BP: Sublimes VP: >1 atm MP: -36 F (Sublimes)
 INCOM Water [Note: Hydrolyzes slowly in water to telluric acid.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Headache; dyspnea (breathing difficulty); garlic breath; In Animals: pulmonary

edema
 ORGAN Respiratory system
 SLC1 MEDIA:
 ANL SOLVENT: Sodium Hydroxide
 REC V: 400 Liters MAX F: 1.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: NIOSH S187 CLASS: Fully Validated by
 NIOSH
 NOTE: Interference from particulate tellurium compounds may be eliminated by
 putting a filter cassette before the charcoal tube.
 SAM2 MIRAN IA & IB: MIN. Det. Con. 0.08 ppm at 13.4 um

Tellurium Metal & Compounds (as Te)

IMIS **2330** CAS 13494-80-9
 SYN Aurum paradoxum, Metallum problematum
 NIOSH RTECS WY2625000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3
 DESC Odorless, dark-gray to brown, amorphous powder or grayish-white, brittle solid.
 MW: 127.6 BP: 1814 F MP: 842 F
 INCOM Oxidizers, chlorine, cadmium
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Garlic breath, sweating; dry mouth, metallic taste; drowsiness; anorexia, nausea, no
 sweating; dermatitis; In Animals: central nervous system, red blood cell changes
 ORGAN Skin, central nervous system, blood
 LESS1 MEDIA:
 ANL SOLVENT: Nitric Acid/Hydrochloric Acid
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OHL2018S001 CLASS: Fully Validated by OSHA
 NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour
 period. Refer to OSHA ID-121 [AP 1].

Temephos (Abate) (Respirable Fraction)

IMIS **T195** CAS 3383-96-8
 SYN Abate®, Temefos, O,O,O'O'-Tetramethyl O,O'-thiodi-p-phenylene phosphorothioate
 NIOSH RTECS TF6890000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3
 DESC White, crystalline solid or liquid (above 87°F). [insecticide] [Note: Technical grade is
 a viscous, brown liquid.]
 MW: 466.5 BP: 248 to 257 F (Decomposes) MP: 87 F
 VP: 0.00000007 mm (77 F)
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
 mutagen (except Code HE1 chemicals). (HE2)
 SYMPT Irritation eyes, blurred vision; dizziness; dyspnea (breathing difficulty); salivation;
 abdominal cramps, nausea, diarrhea, vomiting
 ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, blood

SLC1 cholinesterase
 MEDIA:
 MAX V: 816 Liters MAX F: 2.5 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BIOL Cholinesterase inhibition
 BULK Limit the amount of bulk submitted to one gram or one mL.

Temephos (Abate) (Total Dust)

IMIS **0005** CAS 3383-96-8
 SYN Abate®, Temefos, O,O,O'O'-Tetramethyl O,O'-thiodi-p-phenylene phosphorothioate
 NIOSH RTECS TF6890000 DOT 3077 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 mg/m3
 DESC White, crystalline solid or liquid (above 87°F). [insecticide] [Note: Technical grade is a viscous, brown liquid.]
 MW: 466.5 BP: 248 to 257 F (Decomposes) MP: 87 F
 VP: 0.00000007 mm (77 F)
 INCOM None Reported
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Nervous System Disturbances---Cholinesterase inhibition. (HE6)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
 SYMPT Irritation eyes, blurred vision; dizziness; dyspnea (breathing difficulty); salivation; abdominal cramps, nausea, diarrhea, vomiting
 ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, blood cholinesterase
 SLC1 MEDIA:
 MAX V: 960 Liters MAX F: 2.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Obtain sampling tubes from SLTC.
 WIPE MEDIA: Glass Fiber Filter (37 mm)
 BIOL Cholinesterase inhibition
 BULK Limit the amount of bulk submitted to one gram or one mL.

TEPP (Tetraethyl Pyrophosphate)

IMIS **2334** CAS 107-49-3
 SYN Ethyl pyrophosphate, Tetraethyl pyrophosphate, Tetron®
 NIOSH RTECS UX6825000 DOT 2783 152(solid); 3018 152(liquid)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.05 mg/m3 (Skin)
 DESC Colorless to amber liquid with a faint, fruity odor. [insecticide] [Note: A solid below 32°F.]
 MW: 290.2 BP: Decomposes VP: 0.0002 mm MP: 32 F
 INCOM Strong oxidizers, alkalis, water [Note: Hydrolyzes quickly in water to form pyrophosphoric acid.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Nervous System Disturbances---Cholinesterase inhibition. (HE6)

SYMPT Eye pain, blurred vision, lacrimation (discharge of tears); rhinorrhea (discharge of thin nasal mucus); headache, chest tightness, cyanosis; anorexia, nausea, vomiting, diarrhea; lassitude (weakness, exhaustion), twitching, paralysis, Cheyne-Stokes respiration, convulsions; low blood pressure, cardiac irreg; sweating

ORGAN Eyes, respiratory system, central nervous system, cardiovascular system, gastrointestinal tract, blood cholinesterase

SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.

Terbufos

IMIS **2333** CAS 13071-79-9

SYN phosphorodithioic acid S-[[1.1-dimethylethyl]thio]methyl]-o,o-diethyl ester; Counter 15G

NIOSH RTECS TD7200000* DOT 2783 152(solid); 3018 152(liquid)

DESC Clear, colorless to pale yellow liquid..
MW: 288.45 BP: 156 F (0.1 mm) MP: -20.6 F FP: 190 F

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.

WIPE MEDIA: Glass Fiber Filter (37 mm)

BULK Limit the amount of bulk submitted to one gram or one mL.

Terphenyls (o-, m-, p- Isomers)

IMIS **2335** CAS 26140-60-3 [92-94-4; 92-06-8; 84-15-1]

SYN o(m or p)-diphenylbenzene; 1,2(3 or 4)-diphenylbenzene; 2(3 or 4)-phenylbiphenyl; 1,2(3 or 4)-Terphenyl; o(m or p)-terphenyl; o(m or p)-triphenyl

NIOSH RTECS WZ6470000 [m-]; WZ6472000 [o-]; WZ6475000 [p-]

MIOSHA FINAL RULE (Table G-1-A):
CEIL 0.5 ppm, 5 mg/m3

DESC Yellow solid (needles). [m-]; Colorless or light-yellow solid. [o-]; White or light-yellow solid. [p-]
MW: 230.3 BP: 689 F [m-]; 630 F [o-]; 761 F [p-] MP: 192 F [m-]; 136 F [o-]; 415 F [p-] FP: (oc) 375 F [m-]; (oc) 325 F [o-]; 405 F [p-]

INCOM None Reported

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)

SYMPT Irritation eyes, skin, mucous membrane; thermal skin burns; headache; sore throat;
In Animals: liver, kidney damage

ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: Benzene
MIN T: 15 Minutes MAX F: 1.7 L/min (CEIL)
ANL 1: High Performance Liquid Chromatography; HPLC-FLU
REF: (OSHA In-House File) SAE: 0.16 CLASS: Partially Validated
NOTE: Immediately after sampling, transfer filter and backup pad to small screw cap bottle.

alpha-Terpinene

IMIS **T108** CAS 99-86-5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Terpineol

IMIS **T139** CAS 98-55-5
SYN Mixture of alpha, beta & gamma-Terpineol
NIOSH RTECS WZ6600000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: (95/5) Carbon Disulfide/Isopropanol
ALT SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Tetrabromobisphenol A

IMIS **T137** CAS 79-94-7
DESC White powder.
MW: 543.9 MP: 356 to 363 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2A - probably carcinogenic to humans - [Tetrabromobisphenol A]
SLC1 MEDIA:
ANL SOLVENT: (85/10/5) Isooctane/Isopropanol/Methanol
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

1,2,3,5-Tetrachlorobenzene

IMIS **C635** CAS 634-90-2
NIOSH RTECS DB9445000*
DESC White crystals or off-white solid.
MW: 215.89 BP: 475 F FP: >235 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 12 Liters MAX F: 0.2 L/min
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Based on NIOSH 5517 for 1,2,4,5-Tetrachlorobenzene.

1,2,4,5-Tetrachlorobenzene

IMIS **T345** CAS 95-94-3
SYN Benzene, 1,2,4,5-tetrachloro-

NIOSH RTECS DB9450000* DOT 3077 171
DESC Odorless white flakes or chunky solid.
MW: 215.89 BP: 464 to 475 F MP: 280 to 284 F FP: 311 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Hexane
MAX V: 12 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: NIOSH 5517 SAE: 0.15 CLASS: Fully Validated by
NIOSH

2,3,7,8-Tetrachloro-Dibenzo-p-Dioxin

IMIS **2326** CAS 1746-01-6
SYN Dioxin, Dioxine, TCDBD, TCDD, 2,3,7,8-TCDD [Note: Formed during past production of 2,4,5-trichlorophenol, 2,4,5-T & 2(2,4,5-trichlorophenoxy)propionic acid.]
NIOSH RTECS HP3500000 DOT 2811 154
DESC Colorless to white, crystalline solid. [Note: Exposure may occur through contact at previously contaminated worksites.]
MW: 322.0 BP: Decomposes MP: 581 F
INCOM UV light (Decomposes)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Human Carcinogen - [2,3,7,8-Tetrachlorodibenzo-p-dioxin]
IARC Group 1 - carcinogenic to humans - [2,3,7,8-Tetrachlorodibenzo-para-dioxin]
SYMPT Irritation eyes; allergic dermatitis, chloracne; porphyria; gastrointestinal disturbance; possible reproductive, teratogenic effects; In Animals: liver, kidney damage; hemorrhage; [potential occupational carcinogen]
ORGAN Eyes, skin, liver, kidneys, reproductive system [in animals: tumors at many sites]
SLC1 MEDIA:
MAX V: 30 Liters MAX F: 1.0 L/min
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Call Laboratory if further information is needed.
BULK Limit the amount of bulk submitted to one gram or one mL.

Tetrachlorodibenzodioxin (All Isomers Except 2,3,7,8-TCDD)

IMIS **T149**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,3,7,8-Tetrachlorodibenzofuran

IMIS **T148** CAS 51207-31-9
NIOSH RTECS HP5295200*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 30 Liters MAX F: 1.0 L/min
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Call Laboratory if further information is needed.

Tetrachlorodibenzofuran (All Isomers Except 2,3,7,8-TCDF)

IMIS **T157**
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

1,1,1,2-Tetrachloro-2,2-Difluoroethane

IMIS **2337** CAS 76-11-9

SYN 2,2-Difluoro-1,1,1,2-tetrachloroethane, Freon® 112a, Halocarbon 112a, Refrigerant 112a
 NIOSH RTECS K11425000 DOT 1078 126
 MIOSHA FINAL RULE (Table G-1-A): TWA 500 ppm, 4170 mg/m3
 DESC Colorless solid with a slight, ether-like odor. [Note: A liquid above 105°F.]
 MW: 203.8 BP: 197 F VP: 40 mm MP: 105 F
 INCOM Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, calcium, magnesium & sodium; acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin; central nervous system depression; pulmonary edema; drowsiness; dyspnea (breathing difficulty)
 ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 2 Liters MIN V: 0.5 Liters MAX F: 0.035 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1016 SAE: 0.11 CLASS: Partially Validated by NIOSH

1,1,2,2-Tetrachloro-1,2-Difluoroethane

IMIS **2339** CAS 76-12-0
 SYN 1,2-Difluoro-1,1,2,2-tetrachloroethane, Freon® 112, Halocarbon 112, Refrigerant 112
 NIOSH RTECS K11420000 DOT 1078 126
 MIOSHA FINAL RULE (Table G-1-A): TWA 500 ppm, 4170 mg/m3
 DESC Colorless solid with a slight, ether-like odor. [Note: A liquid above 105°F.]
 MW: 203.8 BP: 199 F VP: 40 mm MP: 77 F
 INCOM Chemically-active metals such as potassium, beryllium, powdered aluminum, zinc, calcium & sodium; acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT In Animals: irritation eyes, skin; conjunctivitis; pulmonary edema; narcosis
 ORGAN Eyes, skin, respiratory system, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 2 Liters MIN V: 0.5 Liters MAX F: 0.035 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1016 SAE: 0.09 CLASS: Partially Validated by NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.5 ppm at 9.8 um

1,1,2,2-Tetrachloroethane

IMIS **2340** CAS 79-34-5
 SYN Acetylene tetrachloride, Symmetrical tetrachloroethane
 NIOSH RTECS K18575000 DOT 1702 151
 MIOSHA FINAL RULE (Table G-1-A): TWA 1 ppm, 7 mg/m3 (Skin)
 DESC Colorless to pale-yellow liquid with a pungent, chloroform-like odor.
 MW: 167.9 BP: 296 F VP: 5 mm MP: -33 F
 INCOM Chemically-active metals, strong caustics, fuming sulfuric acid [Note: Degrades slowly when exposed to air.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

IARC Group 2B - possibly carcinogenic to humans - [1,1,2,2-Tetrachloroethane]
 SYMPT Nausea, vomiting, abdominal pain; tremor fingers; jaundice, hepatitis, liver tenderness; dermatitis; leukocytosis (increased blood leukocytes); kidney damage; [potential occupational carcinogen]
 ORGAN Skin, liver, kidneys, central nervous system, gastrointestinal tract [in animals: liver tumors]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 30 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1019 SAE: 0.167 CLASS: Partially Validated by NIOSH

Tetrachloronaphthalene

IMIS **2350** CAS 1335-88-2
 SYN Halowax® [Tetrachloronaphthalene], Nibren wax [Tetrachloronaphthalene], Seekay wax [Tetrachloronaphthalene]
 NIOSH RTECS QK3700000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 mg/m3 (Skin)
 DESC Colorless to pale-yellow solid with an aromatic odor.
 MW: 265.9 BP: 599 to 680 F VP: <1 mm MP: 360 F FP: (oc) 410 F
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 SYMPT Acne-form dermatitis; headache, lassitude (weakness, exhaustion), anorexia, dizziness; jaundice, liver injury
 ORGAN Liver, skin, central nervous system
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: (OSHA In-House File) CLASS: Partially Validated

Tetrachlorophenol

IMIS **2355** CAS 25167-83-3
 SYN 2,3,4,6-Tetrachlorophenol
 DOT 2020 153
 DESC Needles (from petroleum ether, ligroin) or beige solid.
 MW: 231.89 BP: Sublimes MP: 241 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 48 Liters MAX F: 0.2 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: OSHA 45 SAE: 0.11 CLASS: Fully Validated by OSHA
 NOTE: Obtain sampling tubes and instructions from SLTC. Laboratory prepared XAD-7 sampling tube contains a Glass Fiber disc to trap aerosol component.

Tetrachlorophthalic Anhydride

IMIS **T320** CAS 117-08-8

DOT 3077 171
DESC Odorless needle-like crystals or white powder.
MW: 285.9 BP: 700 F MP: 491 to 494 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Tetraethylene Glycol Diacrylate

IMIS **T159** CAS 17831-71-9
DOT 1760 154
DESC Pale yellow liquid.
MW: 302.31 FP: <65 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Tetraethyleneglycol Dimethacrylate

IMIS **T246** CAS 109-17-1
SYN 2-Propenoic acid, 2-methyl-, oxybis (2,1-ethanedioxy-2, 1-ethanedioyl) ester; TGM 4; SR209
NIOSH RTECS OZ4000000*
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
DESC MW: 330.38
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Not Validated

Tetraethylenepentamine

IMIS **T196** CAS 112-57-2
SYN 1,2-Ethanediamine, N- (2-aminoethyl)-N'- (2-((2-aminoethyl) amino) ethyl)-; 1,4,7,10,13-Pentaazatridecane
NIOSH RTECS KH8585000* DOT 2320 153
DESC A viscous liquid.
MW: 189.31 BP: 644 F MP: -40 F FP: 325 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 15 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Tetraethyl Lead (as Pb)

IMIS **2360** CAS 78-00-2
SYN Lead tetraethyl, TEL, Tetraethylplumbane
NIOSH RTECS TP4550000 DOT 1649 131
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.075 mg/m3 (Skin)
DESC Colorless liquid (unless dyed red, orange, or blue) with a pleasant, sweet odor.
[Note: Main usage is in anti-knock additives for gasoline.]

MW: 323.5 BP: 228 F (Decomposes) VP: 0.2 mm MP: -202 F FP: 200 F
 INCOM Strong oxidizers, sulfuryl chloride, rust, potassium permanganate [Note:
 Decomposes slowly at room temperature and more rapidly at higher temperatures.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Acute Toxicity---Short-term high risk effects. (HE4)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
 NTP Suspect Human Carcinogen - [Lead Compounds (see Lead and Lead Compounds)]
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Lead compounds,
 organic]
 SYMPT Insomnia, lassitude (weakness, exhaustion), anxiety; tremor, hyper-reflexia,
 spasticity; bradycardia, hypotension, hypothermia, pallor, nausea, anorexia, weight
 loss; confusion, hallucinations, psychosis, mania, convulsions, coma; eye irritation
 ORGAN Central nervous system, cardiovascular system, kidneys, eyes
 SLC1 MEDIA:
 MAX V: 480 Liters MIN V: 240 Liters MAX F: 1.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OHL2018S001 SAE: 0.13 CLASS: Partially Validated
 NOTE: Submit as a separate sample. When analysis of a compound is requested, an
 elemental analysis (from charcoal tube) is performed and reported as lead.
 SLC2 MEDIA:
 MAX V: 200 Liters MIN V: 30 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-PID
 REF: NIOSH 2533 CLASS: Fully Validated by
 NIOSH
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Distilled Water (See NOTE -
 reported as total Lead)

Tetrafluoroethylene

IMIS **T145** CAS 116-14-3
 SYN ethylene tetrafluoride; perfluoroethylene; perfluoroethene; tetrafluoroethene
 DOT 1081 116p
 DESC Colorless, odorless gas.
 MW: 100.02 BP: -105.3 F MP: -224.5 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Tetrafluoroethylene]
 IARC Group 2A - probably carcinogenic to humans - [Tetrafluoroethylene]

Tetrahydronaphthalene

IMIS **T321** CAS 119-64-2
 DOT 1993 128
 DESC A light colored liquid.
 MW: 132.21 BP: 406 F MP: -23.1 F FP: 176 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Tetramethrin

IMIS **T411** CAS 7696-12-0
 SYN Neo-Pynamin; Neopynamin Forte; Tetramethrine; Phthalthrin
 NIOSH RTECS GZ1730000* DOT 2588 151
 DESC Colorless crystals with slight odor.

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
WIPE MEDIA: Glass Fiber Filter (37 mm)

1,2,3,4-Tetramethylbenzene

IMIS **T156** CAS 488-23-3
SYN Prehnitene
NIOSH RTECS DC0465000*
DESC Odorless, colorless liquid.
MW: 134.22
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

1,2,3,5-Tetramethylbenzene

IMIS **T167** CAS 527-53-7
SYN Isodurene
NIOSH RTECS DC0475000* DOT 1993 128
DESC A pale yellow to white liquid with a camphor-like odor.
MW: 134.22 BP: 388.4 F MP: -10.6 F FP: 146 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

1,2,4,5-Tetramethylbenzene

IMIS **T166** CAS 95-93-2
SYN Durene
NIOSH RTECS DC0500000* DOT 1325 133
DESC Colorless crystals with a camphor-like odor.
MW: 134.22 BP: 386.2 F MP: 174.6 F FP: 130 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 10 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Tetramethyl Butanediamine

IMIS **T147** CAS 97-84-7
DOT 1993 128
DESC Colorless liquid.
MW: 144.3 BP: 329 F MP: <-148 F FP: 114 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Tetramethyldiaminobenzophenone

IMIS **T206** CAS 90-94-8
SYN 4,4'-bis(Dimethylamino)-benzophenone; bis[4-(Dimethylamino)phenyl]-methanone;

NIOSH RTECS DJ0250000* DOT 3143 151
 DESC White to greenish crystalline leaflets or blue powder.
 MW: 268.36 BP: >680 F MP: 342 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 NTP Suspect Human Carcinogen - [Michler's Ketone]
 IARC Group 2B - possibly carcinogenic to humans - [Michler's ketone [4,4'-Bis(dimethylamino)-benzophenone]]
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 180 Liters MAX F: 1.0 L/min
 ANL 1: High Performance Liquid Chromatography; HPLC-UV
 REF: (OSHA In-House File) CLASS: Partially Validated

Tetramethyl Lead (as Pb)

IMIS **2370** CAS 75-74-1
 SYN Lead tetramethyl, Tetramethylplumbane, TML
 NIOSH RTECS TP4725000 DOT 1649 152; 3483 152(flammable)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.075 mg/m3 (Skin)
 DESC Colorless liquid (unless dyed red, orange, or blue) with a fruity odor. [Note: Main usage is in anti-knock additives for gasoline.]
 MW: 267.3 BP: 212 F (Decomposes) VP: 23 mm MP: -15 F FP: 100 F
 INCOM Strong oxidizers such as sulfuryl chloride or potassium permanganate
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
 Acute Toxicity---Short-term high risk effects. (HE4)
 NTP Suspect Human Carcinogen - [Lead Compounds (see Lead and Lead Compounds)]
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Lead compounds, organic]
 SYMPT Insomnia, bad dreams, restlessness, anxious; hypotension; nausea, anorexia; delirium, mania, convulsions; coma
 ORGAN Central nervous system, cardiovascular system, kidneys
 SLC1 MEDIA:
 MAX V: 480 Liters MIN V: 240 Liters MAX F: 1.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: (OSHA In-House File) CLASS: Partially Validated
 NOTE: Submit as a separate sample. When analysis of a compound is requested, an elemental analysis (from charcoal tube) is performed and reported as lead.
 SLC2 MEDIA:
 MAX V: 100 Liters MIN V: 15 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-PID
 REF: NIOSH 2534 CLASS: Fully Validated by NIOSH
 WIPE MEDIA: Whatman Smear Tab SOLVENT: Distilled Water (See NOTE - reported as total Lead)

Tetramethyl Succinonitrile

IMIS **2380** CAS 3333-52-6
 SYN Tetramethyl succinodinitrile, TMSN

NIOSH RTECS WN4025000 DOT 3439 151
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.5 ppm, 3 mg/m³ (Skin)
 DESC Colorless, odorless solid. [Note: Forms cyanide in the body.]
 MW: 136.2 BP: Sublimes MP: 338 F (Sublimes)
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Headache, nausea; convulsions, coma; liver, kidney, gastrointestinal effects
 ORGAN Central nervous system, liver, kidneys, gastrointestinal tract
 SLC1 MEDIA:
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 REC V: 50 Liters REC F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH S155 SAE: 0.12 CLASS: Fully Validated by
 NIOSH
 NOTE: Submit as a separate sample.

Tetranitromethane

IMIS **2395** CAS 509-14-8
 SYN Tetan, TNM
 NIOSH RTECS PB4025000 DOT 1510 143
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 ppm, 8 mg/m³
 DESC Colorless to pale-yellow liquid or solid (below 57°F) with a pungent odor.
 MW: 196.0 BP: 259 F VP: 8 mm MP: 57 F
 INCOM Hydrocarbons, alkalis, metals, oxidizers, aluminum, toluene, cotton [Note:
 Combustible material wet with tetranitromethane may be highly explosive.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
 respiratory, hematologic or reproductive. (HE3)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 NTP Suspect Human Carcinogen - [Tetranitromethane]
 IARC Group 2B - possibly carcinogenic to humans - [Tetranitromethane]
 SYMPT Irritation eyes, skin, nose, throat; dizziness, headache; chest pain, dyspnea
 (breathing difficulty); methemoglobinemia, cyanosis; skin burns
 ORGAN Eyes, skin, respiratory system, blood, central nervous system
 SLC1 MEDIA:
 MAX V: 250 Liters MIN V: 20 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-NPD
 REF: NIOSH 3513 CLASS: Fully Validated by
 NIOSH
 NOTE: Refrigeration recommended.

Tetrasodium Pyrophosphate

IMIS **T102** CAS 7722-88-5
 SYN Pyrophosphate, Sodium pyrophosphate, Tetrasodium diphosphate, Tetrasodium
 pyrophosphate (anhydrous), TSPP
 NIOSH RTECS UX7350000
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m³
 DESC Odorless, white powder or granules. [Note: The decahydrate (Na₄P₂O₇ • 10H₂O) is

in the form of colorless, transparent crystals.]
 MW: 265.9 BP: Decomposes MP: 1810 F

INCOM Strong acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin, nose, throat; dermatitis
 ORGAN Eyes, skin, respiratory system

LESS1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Gravimetric
 REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
 ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 ANL SOLVENT: Deionized Water
 REF: OHL2018S001 CLASS: Not Validated
 NOTE: Submit as a separate sample. If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis. The stoichiometric factor for tetrasodium pyrophosphate from sodium is 2.891.

LESS2 MEDIA:
 ANL 1: Ion Chromatography; IC
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 REF: OSHA ID-111 CLASS: Partially Validated by OSHA
 NOTE: The two most important crystalline sodium polyphosphates are the pyrophosphate (n=2) and the tripolyphosphate, also called the triphosphate (n=3) (Na_n+2PnO_{3n+1}). Submit as a separate sample. An analysis is performed for total Na and PO₄-3 and reported as the compound.

WIPE MEDIA: Whatman Smear Tab SOLVENT: Deionized Water

Tetryl

IMIS **2410** CAS 479-45-8
 SYN N-Methyl-N,2,4,6-tetranitroaniline, Nitramine, 2,4,6-Tetryl, 2,4,6-Trinitrophenyl-N-methylnitramine

NIOSH RTECS BY6300000 DOT 0208 112
 MIOSHA FINAL RULE (Table G-1-A): TWA 1.5 mg/m³ (Skin)

DESC Colorless to yellow, odorless, crystalline solid.
 MW: 287.2 BP: 356 to 374 F (Explodes) VP: <1 mm MP: 268 F
 FP: Explodes

INCOM Oxidizable materials, hydrazine
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Sensitization dermatitis, itch, erythema (skin redness); edema on nasal folds, cheeks, neck; keratitis (inflammation of the cornea); sneezing; anemia; cough, coryza; irritability; malaise (vague feeling of discomfort), headache, lassitude (weakness, exhaustion), insomnia; nausea, vomiting; liver, kidney damage

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys
 SLC1 MEDIA:
 MAX V: 100 Liters MAX F: 1.5 L/min
 ANL 1: Colorimetric
 REF: NIOSH S225 SAE: 0.11 CLASS: Fully Validated by NIOSH

BULK Limit the amount of bulk submitted to one gram or one mL.

Thallium, Soluble Sompounds (as Tl)

IMIS **2420** CAS 7440-28-0
NIOSH RTECS XG3425000 DOT 3288 151
MIOSHA FINAL RULE (Table G-1-A): TWA 0.1 mg/m3 (Skin)

DESC Appearance and odor vary depending upon the specific soluble thallium compound.
INCOM Varies
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Nausea, diarrhea, abdominal pain, vomiting; ptosis, strabismus; peri neuritis, tremor; retrosternal (occurring behind the sternum) tightness, chest pain, pulmonary edema; convulsions, chorea, psychosis; liver, kidney damage; alopecia; paresthesia legs
ORGAN Eyes, respiratory system, central nervous system, liver, kidneys, gastrointestinal tract, body hair
LESS1 MEDIA:
ANL SOLVENT: Deionized Water/Acidified with HNO3
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OHL2018S001 CLASS: Not Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Refer to OSHA ID-121 [AP 2].

4,4'-Thiobis(6-tert-Butyl-m-Cresol) (Respirable Fraction)

IMIS **T165** CAS 96-69-5
SYN 4,4'-Thiobis(3-methyl-6-tert-butylphenol), 1,1'-Thiobis(2-methyl-4-hydroxy-5-tert-butylbenzene)
NIOSH RTECS GP3150000
MIOSHA FINAL RULE (Table G-1-A): TWA 5 mg/m3

DESC Light-gray to tan powder with a slightly aromatic odor.
MW: 358.6 MP: 302 F FP: 420 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)
SYMPT Irritation eyes, skin, respiratory system
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 2.5 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Preceded by a SKC aluminum cyclone.

4,4'-Thiobis(6-tert-Butyl-m-Cresol) (Total Dust)

IMIS **2422** CAS 96-69-5
SYN 4,4'-Thiobis(3-methyl-6-tert-butylphenol), 1,1'-Thiobis(2-methyl-4-hydroxy-5-tert-butylbenzene)
NIOSH RTECS GP3150000
MIOSHA FINAL RULE (Table G-1-A): TWA 10 mg/m3

DESC Light-gray to tan powder with a slightly aromatic odor.
MW: 358.6 MP: 302 F FP: 420 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Generally Low Risk Health Effects---Nuisance particulates, vapors or gases. (HE19)
SYMPT Irritation eyes, skin, respiratory system
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 100 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Thioglycolic Acid

IMIS **2423** CAS 68-11-1
SYN Acetyl mercaptan, Mercaptoacetate, Mercaptoacetic acid, 2-Mercaptoacetic acid, 2-Thioglycolic acid, Thiovanic acid
NIOSH RTECS AI5950000 DOT 1940 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 4 mg/m³ (Skin)
DESC Colorless liquid with a strong, disagreeable odor characteristic of mercaptans. [Note: Olfactory fatigue may occur after short exposures.]
MW: 92.1 MP: 2 F VP: 10 mm (64 F) FP: >230 F
INCOM Air, strong oxidizers, bases, active metals (e.g., sodium potassium, magnesium, calcium) [Note: Readily oxidized by air.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, throat; lacrimation (discharge of tears), corneal damage; skin burns, blisters; In Animals: lassitude (weakness, exhaustion); gasping respirations; convulsions
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

Thionyl Chloride

IMIS **T104** CAS 7719-09-7
SYN Sulfinyl Chloride; Sulfur Chloride Oxide; Sulfurous Dichloride; Sulfurous Oxychloride; Thionyl Dichloride; UN 1836; Sulfur Oxychloride
NIOSH RTECS XM5150000 DOT 1836 137
MIOSHA FINAL RULE (Table G-1-A):
CEIL 1 ppm, 5 mg/m³
DESC Colorless to yellow to reddish liquid with a pungent odor like sulfur dioxide. [Note: Fumes form when exposed to moist air.]
MW: 119.0 BP: 169 F MP: -156 F VP: 100 mm (70 F)
INCOM Water, acids, alkalis, ammonia, chloryl perchlorate [Note: Reacts violently with water to form sulfur dioxide & hydrogen chloride.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, mucous membrane; eye, skin burns
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
MIN T: 15 Minutes MAX F: 1.0 L/min (CEIL)
ANL 1: Ion Chromatography; IC
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: The analyte is hydrolyzed by water to SO₂ and HCl. Proposed sampling and analytical procedure follows OSHA ID-174SG for total Cl⁻ which is reported as the

compound.

Thiophanate

IMIS **T408** CAS 23564-06-9
SYN Cercobin; Topsin; Nematax; 1,2-bis (3-Ethoxycarbonyl-2-thioureido) benzene
NIOSH RTECS BA3650000*
DESC Colorless crystals.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 180 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
WIPE MEDIA: Glass Fiber Filter (37 mm)

Thiophanate-Methyl

IMIS **D347** CAS 23564-05-8
SYN cercobin methyl; enovit methyl; neotopsin; sigma; trevin; Zyban; dimethyl ester 4,4'-o-phenylenebis(3-thioallophanic) acid
NIOSH RTECS BA3675000
DESC Colorless crystals or light brown powder.
MW: 342.42 MP: 342 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 240 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated

Thiophene

IMIS **T106** CAS 110-02-1
NIOSH RTECS XM7350000* DOT 2414 130
DESC A colorless liquid with an unpleasant odor.
MW: 84.114 BP: 183.9 F MP: -36.8 F FP: 30 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 70 Liters REC F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 255 CLASS: Partially Validated by
NIOSH

Thiourea

IMIS **T109** CAS 62-56-6
SYN thiocarbamide; isothiourea; sulourea; 2-thiourea
NIOSH RTECS YU2800000* DOT 2811 154
DESC White or off-white crystals or powder.
MW: 76.12 MP: 349 to 352 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [Thiourea]
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Thiourea]
SLC1 MEDIA:
ANL SOLVENT: Methanol

Hydroxide (76-87-9); Methyl Tin Mercaptide; Tetramethyl Tin (594-27-4)
 NIOSH RTECS XP7320000
 MIOSHA FINAL RULE (Table G-1-A):

TWA 0.1 mg/m³ (Skin)

DESC Appearance, odor, and properties vary depending upon specific compound
 INCOM Strong oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

SYMPT Irritation eyes, skin, respiratory system; headache, dizziness; psycho-neurologic disturbance; sore throat, cough; abdominal pain, vomiting; urine retention; paresis, focal anesthesia; skin burns, pruritus; In Animals: hemolysis; hepatic necrosis; kidney damage

ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys, urinary tract, blood

SLC1 MEDIA:
 TRIBUTYLTIN FLUORIDE (1983-10-4)
 ANL SOLVENT: Nitric Acid
 REC V: 200 Liters FLOW: 1.0 to 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA ID-223SG CLASS: Partially Validated by OSHA
 NOTE: Submit as separate samples for each compound. Call laboratory when other organo-tins are to be sampled.
 MEDIA:
 DIBUTYLTIN DILAURATE (77-58-7)
 ANL SOLVENT: Toluene Extraction
 REC V: 500 Liters FLOW: 1.0 to 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA ID-218SG CLASS: Partially Validated by OSHA
 NOTE: Submit as separate samples for each compound. Call laboratory when organo-tins are to be sampled.
 MEDIA:
 TRIBUTYLTIN BENZOATE (4342-36-3)
 ANL SOLVENT: 1-Propanol extraction
 REC V: 200 Liters FLOW: 1.0 to 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA ID-222SG CLASS: Partially Validated by OSHA
 NOTE: Submit as separate samples for each compound. Call laboratory when organo-tins are to be sampled.
 MEDIA:
 METHYL TIN MERCAPTIDE
 REC V: 150 Liters MAX F: 1.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: OSHA ID-219SG CLASS: Partially Validated by OSHA
 NOTE: Submit as separate samples for each compound. Call laboratory when organo-tins are to be sampled.

MEDIA:
STANNOUS-2-ETHYL HEXANOATE (301-10-0)
ANL SOLVENT: Aqua Regia
REC V: 100 Liters FLOW: 1.0 to 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OSHA ID-221SG CLASS: Partially Validated by
OSHA
NOTE: Submit as separate samples for compound. Call laboratory when organo-tins
are to be sampled.

MEDIA:
BUTYLTIN TRICHLORIDE (1118-46-3)
ANL SOLVENT: Toluene/Acetic Acid Extraction
REC V: 250 Liters FLOW: 1.0 to 1.5 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OSHA ID-217SG CLASS: Partially Validated by
OSHA
NOTE: Submit as separate samples for compound. Call laboratory when organo-tins
are to be sampled.

MEDIA:
Bis-(TRIBUTYLTIN) OXIDE (56-35-9)
ANL SOLVENT: 1-Propanol extraction
REC V: 200 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as separate samples for compound. Call laboratory when organo-tins
are to be sampled.

MEDIA:
DIBUTYLTIN MALEATE (78-04-6)
ANL SOLVENT: Sulfuric Acid/30% Hydrogen Peroxide/Hydrochloric Acid
REC V: 200 Liters FLOW: 1.0 to 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OSHA ID-224SG CLASS: Partially Validated by
OSHA
NOTE: Submit as separate samples for compound. Call laboratory when organo-tins
are to be sampled.

MEDIA:
TRIPHENYLTIN HYDROXIDE (76-87-9)
ANL SOLVENT: 90% Ethanol/10% Ammonium Hydroxide Extraction
REC V: 200 Liters FLOW: 1.0 to 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OSHA ID-225SG CLASS: Partially Validated by
OSHA
NOTE: Submit as separate samples for compound. Call laboratory when organo-tins
are to be sampled.

MEDIA:
TETRAMETHYL TIN (594-27-4)
ANL SOLVENT: Carbon Disulfide
MAX V: 20 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Tin Oxide (as Sn)

IMIS **2432** CAS 21651-19-4
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 mg/m3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX F: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.050 CLASS: Validated In-House
NOTE: If the gross weight of the sample yields a concentration below the standard for the air contaminate, LESS will not perform an elemental analysis.
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
ANL SOLVENT: Hydrochloric Acid/Nitric Acid
REF: OHL2018S001 CLASS: Fully Validated by OSHA
NOTE: If the filter is not overloaded, samples may be collected up to an 8-hour period when determining a TWA concentration. The stoichiometric factor for tin oxide from tin is 1.135. [OSHA ID-121; AP 4].

Tobias Acid

IMIS **T188** CAS 81-16-3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
BULK ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

o-Tolidine

IMIS **2450** CAS 119-93-7
SYN 4,4'-Diamino-3,3'-dimethylbiphenyl, Diaminoditoly, 3,3'-Dimethylbenzidine, 3,3'-Dimethyl-4,4'-diphenyldiamine, 3,3'-Tolidine
NIOSH RTECS DD1225000
DESC White to reddish crystals or powder. [Note: Darkens on exposure to air. Often used in paste or wet cake form. Used as a basis for many dyes.]
MW: 212.3 BP: 572 F MP: 264 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
NTP Suspect Human Carcinogen - [3,3'-Dimethylbenzidine (see 3,3'-Dimethylbenzidine and Dyes Metabolized to 3,3'-Dimethylbenzidine)]
IARC Group 2B - possibly carcinogenic to humans - [3,3'-Dimethylbenzidine (ortho-Tolidine)]
SYMPT Irritation eyes, nose; In Animals: liver, kidney damage; [potential occupational carcinogen]
ORGAN Eyes, respiratory system, liver, kidneys. [in animals: liver, bladder & mammary gland tumors]
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 71 SAE: 0.13 CLASS: Fully Validated by OSHA
NOTE: Transfer sample filter to a separate glass vial and add 2 mL of deionized water within 10 hours after sampling. Obtain coated filters from SLTC.
WIPE MEDIA: Glass Fiber Filter (37 mm)

o-Tolidine Based Dyes

IMIS	T169	CAS	119-93-7
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
NTP	Suspect Human Carcinogen - [3,3'-Dimethylbenzidine (see 3,3'-Dimethylbenzidine and Dyes Metabolized to 3,3'-Dimethylbenzidine)]		
IARC	Group 2B - possibly carcinogenic to humans - [3,3'-Dimethylbenzidine (ortho-Tolidine)]		
SLC1	MEDIA: MAX V: 500 Liters MIN V: 150 Liters MAX F: 3.0 L/min ANL 1: High Performance Liquid Chromatography; HPLC-UV REF: NIOSH 5013 CLASS: Partially Validated by NIOSH NOTE: This method does not differentiate between different dyes. Keep samples dry and cool. Protect samples from heat and light.		
WIPE	MEDIA: Glass Fiber Filter (37 mm)		
BULK	For any dye analysis, a bulk sample of the dye must be sent to SLTC. Limit the amount of bulk submitted to one gram or one mL. If possible include the Safety Data Sheet and color index number of dye.		

Toluene-2,4-Diamine

IMIS	2465	CAS	95-80-7
SYN	Diaminotoluene, Methylphenylene diamine, TDA, Toluenediamine isomers, Tolylenediamine [Note: Various isomers of TDA exist.]		
NIOSH	RTECS XS9445000; XS9625000 (2,4-TDA) DOT 1709 151(2,4-toluenediamine)		
DESC	Colorless to brown, needle-shaped crystals or powder. [Note: Tends to darken on storage & exposure to air. Properties given are for 2,4-TDA.] MW: 122.2 BP: 558 F MP: 210 F VP: 1 mm (224 F) FP: 300 F		
INCOM	None Reported		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
NTP	Suspect Human Carcinogen - [2,4-Diaminotoluene]		
IARC	Group 2B - possibly carcinogenic to humans - [2,4-Diaminotoluene]		
SYMPT	Irritation eyes, skin, nose, throat; dermatitis; ataxia, tachycardia, nausea, vomiting, convulsions, resp depression; methemoglobinemia, cyanosis, headache, lassitude (weakness, exhaustion), dizziness, bluish skin; liver injury; [potential occupational carcinogen]		
ORGAN	Eyes, skin, respiratory system, blood, cardiovascular system, liver [in animals: liver, skin & mammary gland tumors]		
SLC1	MEDIA: ANL SOLVENT: Deionized Water MAX V: 100 Liters MAX F: 1.0 L/min ANL 1: Gas Chromatography; GC-ECD REF: OSHA 65 SAE: 0.10 CLASS: Fully Validated by OSHA NOTE: Filter must be transferred to a vial containing 2 mL of deionized water within 10 hours of sample collection. Samples must be shipped and stored under reduced temperatures to help minimize loss of analyte. Sample should be analyzed as soon as possible. Obtain coated filters from SLTC.		

Toluene-2,6-Diamine

IMIS	T197	CAS	823-40-5
SYN	2,6-Diaminotoluene		
NIOSH	RTECS XS9750000*	DOT	3077 171

DESC Colorless prisms (from water).
MW: 122.17 MP: 223 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 65 SAE: 0.10 CLASS: Fully Validated by OSHA
NOTE: Filter must be transferred to a vial containing 2 mL of deionized water within 10 hours of sample collection. Samples must be shipped and stored under reduced temperatures to help minimize loss of analyte. Sample should be analyzed as soon as possible. Obtain coated filters from SLTC.

p-Toluenesulfonic Acid

IMIS **T176** CAS 104-15-4
SYN 4-Methylbenzenesulfonic Acid; Tosic acid
NIOSH RTECS XT6300000*
DESC Colorless to black solid.
MW: 172.20 MP: 221 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 120 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
SLC2 MEDIA:
ANL SOLVENT: 0.0147 N H3PO4
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated
SLC3 MEDIA:
ANL SOLVENT: 2% Isopropanol in water (v/v)
MAX V: 1000 Liters MIN V: 10 Liters FLOW: 1.0 to 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 5043 CLASS: Partially Validated by NIOSH

Toluenesulfonyl Chloride

IMIS **T187** CAS 98-59-9
SYN P-toluene sulfonylchloride
DOT 1759 154
DESC A white to gray powdered solid with a distinctive odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

m-Toluidine

IMIS **T339** CAS 108-44-1
SYN 3-Amino-1-methylbenzene, 1-Aminophenylmethane, m-Aminotoluene, 3-Methylaniline, 3-Methylbenzenamine, 3-Toluidine, meta-Toluidine, m-Tolylamine
NIOSH RTECS XU2800000 DOT 1708 153
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 9 mg/m3 (Skin)
DESC Colorless to light-yellow liquid with an aromatic, amine-like odor. [Note: Used as a basis for many dyes.]

MW: 107.2 BP: 397 F MP: -23 F VP: 1 mm (106 F) FP: 107 F
 INCOM Oxidizers, acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Irritation eyes, skin; dermatitis; hematuria (blood in the urine), methemoglobinemia; cyanosis, nausea, vomiting, low blood pressure, convulsions; anemia, lassitude (weakness, exhaustion)
 ORGAN Eyes, skin, blood, cardiovascular system
 SLC1 MEDIA:
 ANL SOLVENT: 3 mL 0.17 N NaOH and 2.0 mL Toluene
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 73 SAE: 0.09 CLASS: Fully Validated by OSHA
 NOTE: Samples collected closed-face.

o-Toluidine

IMIS **2475** CAS 95-53-4
 SYN 2-Aminotoluene, o-Aminotoluene, 1-Methyl-2-aminobenzene, 2-Methylaniline, o-Methylaniline, ortho-Toluidine, o-Tolylamine
 NIOSH RTECS XU2975000 DOT 1708 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 ppm, 22 mg/m3 (Skin)
 DESC Colorless to pale-yellow liquid with an aromatic, aniline-like odor.
 MW: 107.2 BP: 392 F VP: 0.3 mm MP: 6 F FP: 185 F
 INCOM Strong oxidizers, nitric acid, bases
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Acute Toxicity---Short-term high risk effects. (HE4)
 NTP Human Carcinogen - [o-Toluidine (see o-Toluidine and Its Hydrochloride)]
 IARC Group 1 - carcinogenic to humans - [ortho-Toluidine]
 SYMPT Irritation eyes; anoxia, headache, cyanosis; lassitude (weakness, exhaustion), dizziness, drowsiness; micro hematuria (blood in the urine); eye burns; dermatitis; [potential occupational carcinogen]
 ORGAN Eyes, skin, blood, kidneys, liver, cardiovascular system. [bladder cancer]
 SLC1 MEDIA:
 ANL SOLVENT: 3 mL 0.17 N NaOH and 2.0 mL Toluene
 MAX V: 100 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-ECD
 REF: OSHA 73 SAE: 0.09 CLASS: Fully Validated by OSHA
 NOTE: Samples collected closed-face.
 SAM2 MIRAN 1A: MIN. Det. Con. 0.9 ppm at 13.5 um

p-Toluidine

IMIS **T105** CAS 106-49-0
 SYN 4-Aminotoluene, 4-Methylaniline, 4-Methylbenzenamine, 4-Toluidine, para-Toluidine, p-Tolylamine
 NIOSH RTECS XU3150000 DOT 1708 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 2 ppm, 9 mg/m3 (Skin)
 DESC White solid with an aromatic odor. [Note: Used as a basis for many dyes.]
 MW: 107.2 BP: 393 F MP: 111 F VP: 1 mm (108 F) FP: 188 F
 INCOM Oxidizers, acids
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

SYMPT Irritation eyes, skin; dermatitis; hematuria (blood in the urine), methemoglobinemia; cyanosis, nausea, vomiting, low blood pressure, convulsions; anemia, lassitude (weakness, exhaustion); [potential occupational carcinogen]
ORGAN Eyes, skin, blood, cardiovascular system. [in animals: liver tumors]
SLC1 MEDIA:
ANL SOLVENT: 3 mL 0.17 N NaOH and 2.0 mL Toluene
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: OSHA 73 SAE: 0.09 CLASS: Fully Validated by OSHA
NOTE: Samples collected closed-face.

o-Tolyl Isocyanate

IMIS **T189** CAS 614-68-6
SYN 1-Isocyanato-2-methyl Benzene
DESC Liquid.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Torak

IMIS **T178** CAS 10311-84-9
SYN Dialifor; s- (2-Chloro-1-phthalimidoethyl)-o, o-diethylphosphorodithioate; Dialifos
DOT 2811 154
DESC White crystalline solid, also reported as a colorless oil, colorless.
MW: 393.8 MP: 153 to 156 F (solid)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Triallyl Isocyanurate

IMIS **T326** CAS 1025-15-6
SYN Triallyl-1, 3,5-triazine-2, 4,6-(1H, 3H, 5H)-trione
DOT 3077 171
DESC White crystalline solid.
MW: 249.27 BP: 300 to 306 F (4 mm) MP: 74 to 77 F FP: 230 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-NPD
REF: (OSHA In-House File) CLASS: Not Validated

Tribromoethylene

IMIS **T126** CAS 598-16-3
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Tributylamine

IMIS **2478** CAS 102-82-9
DOT 2542 153
DESC A pale yellow liquid with an ammonia-like odor.
MW: 185.4 BP: 415 F MP: -94 F FP: 185 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Tributyl Phosphate

IMIS **2477** CAS 126-73-8
SYN Butyl phosphate, TBP, Tributyl ester of phosphoric acid, Tri-n-butyl phosphate
NIOSH RTECS TC7700000
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.2 ppm, 2.5 mg/m³
DESC Colorless to pale-yellow, odorless liquid.
MW: 266.3 BP: 552 F (Decomposes) VP: 0.004 mm (77 F) MP: -112 F
FP: (oc) 295 F
INCOM Alkalis, oxidizers, water, moist air
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Moderate. (HE15)
Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)
SYMPT Irritation eyes, skin, respiratory system, headache; nausea
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: Diethyl Ether
MAX V: 100 Liters MIN V: 2 Liters MAX F: 1.5 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 5034 SAE: 0.13 CLASS: Partially Validated by
NIOSH
NOTE: If ambient temperature above 23 C, use two filter cassettes in series. After sampling separate cassettes and seal firmly with plugs.

Tributylphosphorotrithioate

IMIS **2476** CAS 78-48-8
SYN DEF; S, S, S-Tributyl Phosphorotrithioate
NIOSH RTECS TG5425000* DOT 2811 154
DESC Colorless to pale yellow liquid with mercaptan-like odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 480 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: (OSHA In-House File) CLASS: Not Validated

Trichloroacetic Acid

IMIS **T337** CAS 76-03-9
SYN TCA, Trichloroethanoic acid
NIOSH RTECS AJ7875000 DOT 1839 153(solid); 2564 153(liquid)
MIOSHA FINAL RULE (Table G-1-A):
TWA 1 ppm, 7 mg/m³
DESC Colorless to white, crystalline solid with a sharp, pungent odor.
MW: 163.4 BP: 388 F MP: 136 F VP: 1 mm (124 F)
INCOM Moisture, iron, zinc, aluminum, strong oxidizers [Note: Decomposes on heating to form phosgene & hydrogen chloride. Corrosive to metals.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Trichloroacetic acid]
SYMPT Irritation eyes, skin, nose, throat, respiratory system; cough, dyspnea (breathing difficulty), delayed pulmonary edema; eye, skin burns; dermatitis; salivation, vomiting, diarrhea
ORGAN Eyes, skin, respiratory system, gastrointestinal tract
SLC1 MEDIA:

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Trichloronaphthalene

IMIS **2483** CAS 1321-65-9
SYN Halowax® [Trichloronaphthalene], Nibren wax [Trichloronaphthalene], Seekay wax [Trichloronaphthalene]
NIOSH RTECS QK4025000 DOT 2811 154
MIOSHA FINAL RULE (Table G-1-A): TWA 5 mg/m³ (Skin)
DESC Colorless to pale-yellow solid with an aromatic odor.
MW: 231.5 BP: 579 to 669 F VP: <1 mm MP: 199 F FP: (oc) 392 F
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
SYMPT Anorexia, nausea; dizziness; jaundice, liver injury
ORGAN Liver
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 100 Liters MAX F: 1.0 L/min
ANL 1: Gas Chromatography; GC-ECD
REF: (OSHA In-House File) CLASS: Partially Validated by OSHA

Trichlorophenol

IMIS **2484** CAS 25167-82-2
SYN 2,4,5-Trichlorophenol (95-95-4); 2,4,6-Trichlorophenol (88-06-2)
DOT 2020 153
DESC Solid crystals or flakes with a strong disinfectant odor.
MW: 485 F MP: 135 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 2B - possibly carcinogenic to humans - [Chlorophenols (see Polychlorophenols)]

1,2,3-Trichloropropane

IMIS **2510** CAS 96-18-4
SYN Allyl trichloride, Glycerol trichlorohydrin, Glyceryl trichlorohydrin, Trichlorohydrin
NIOSH RTECS TZ9275000 DOT 2810 153
MIOSHA FINAL RULE (Table G-1-A): TWA 10 ppm, 60 mg/m³
DESC Colorless liquid with a chloroform-like odor.
MW: 147.4 BP: 314 F VP: 3 mm MP: 6 F FP: 160 F
INCOM Chemically-active metals, strong caustics & oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Irritation-Eyes, Nose, Throat, Skin---Marked. (HE14)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
Nervous System Disturbances---Narcosis. (HE8)
IARC Group 2A - probably carcinogenic to humans - [1,2,3-Trichloropropane]
SYMPT Irritation eyes, nose, throat; central nervous system depression; In Animals: liver,

kidney injury; [potential occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, central nervous system, liver, kidneys [in animals:
 forestomach, liver & mammary gland cancer]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 60 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 1003 SAE: 0.12 CLASS: Partially Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 1.0 ppm at 12.4 µm

2,3,6-Trichlorotoluene

IMIS **T198** CAS 2077-46-5
 SYN 1,2,4-Trichloro-3-Methylbenzene
 NIOSH RTECS XT9300000*
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated

1,1,1-Trichloro-2,2,2-Trifluoroethane

IMIS **T199** CAS 354-58-5
 SYN 1,1,1-Trichlorotrifluoroethane
 NIOSH RTECS KJ3975000*
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 3 Liters MAX F: 0.1 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Not Validated
 SLC2 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 REC V: 1 Liter REC F: 0.05 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: OSHA 113 CLASS: Fully Validated by OSHA

1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)

IMIS **2485** CAS 76-13-1
 SYN CFC-113, Chlorofluorocarbon-113, Freon® 113, Genetron® 113, Halocarbon 113,
 Refrigerant 113, TTE
 NIOSH RTECS KJ4000000 DOT 3082 171
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1000 ppm, 7600 mg/m³
 STEL 1250 ppm, 9500 mg/m³
 DESC Colorless to water-white liquid with an odor like carbon tetrachloride at high
 concentrations. [Note: A gas above 118 F]
 MW: 187.4 BP: 118 F VP: 285 mm MP: -31 F
 INCOM Chemically-active metals such as calcium, powdered aluminum, zinc, magnesium,
 and beryllium. [Note: Decomposes if in contact with alloys containing >2%
 magnesium.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Acute Toxicity---Short-term high-risk effects. (HE4)
 Nervous System Disturbances---Narcosis. (HE8)
 Irritation-Eyes, Nose, Throat, Skin---Mild. (HE16)
 SYMPT Irritation skin, throat, drowsiness, dermatitis; central nervous system depression; In
 Animals: cardiac arrhythmias, narcosis
 ORGAN Skin, heart, central nervous system, cardiovascular system
 LESS1 MEDIA: 2 Anasorb CMS tubes in series (150/75 mg) (no longer available)
 ANL SOLVENT: (99/1) Carbon Disulfide/Dimethylformamide
 REC V: 1 Liters REC F: 0.05 L/min (TWA)
 MIN V: 0.75 Liters REC F: 0.05 L/min (STEL)
 ANL 1: Gas Chromatography; GC-FID
 REF: OHL2006S002 SAE: 0.141 CLASS: Validated In-House
 NOTE: Contact laboratory prior to sampling.

Trichlorphon

IMIS **T116** CAS 52-68-6
 DOT 2783 152(solid); 3018 152(liquid)
 DESC White crystalline solid.
 MW: 257.44 BP: 212 F (0.1 mm) MP: 181 to 183 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Trichlorfon]
 SLC1 MEDIA:
 ANL SOLVENT: Toluene
 MAX V: 400 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: More than 100% was recovered from the sampling device. This needs to be investigated.

2,4,6-Tridimethylaminomethyl Phenol

IMIS **2479** CAS 90-72-2
 DOT 2735 153
 DESC An amber to red-brown liquid with an amine odor.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Triethylenediamine

IMIS **T118** CAS 280-57-9
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Triethylene Glycol

IMIS **T409** CAS 112-27-6
 SYN Ethylene Glycol Dihydroxyethyl Ether; 2,2'-Ethylenedioxydiethanol; Triglycol; Trigen;
 TEG; Glycol Bis (Hydroxyethyl) Ether; Di-beta-Hydroxyethoxyethane
 NIOSH RTECS YE4550000*
 DESC Colorless liquid with a mild odor.
 MW: 150.17 BP: 545 F MP: 24.3 F FP: 330 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 ANL SOLVENT: Methanol
 MAX V: 60 Liters MAX F: 1.0 L/min (TWA)
 MAX V: 15 Liters MAX F: 1.0 L/min (STEL)

ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 5523
NIOSH
NOTE: Ship cold to laboratory for analysis.

CLASS: Partially Validated by

Triethylenetetramine

IMIS **2497** CAS 112-24-3
SYN N,N'-bis(2-aminoethyl)-1,2-diaminoethane; N,N'-bis(2-aminoethyl)-1,2-ethanediamine
NIOSH RTECS YE6650000* DOT 2259 153
DESC A yellowish liquid with a strong ammonia odor.
MW: 146.26 BP: 511 to 513 F MP: 54 F FP: 275 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
LESS1 MEDIA:
ANL SOLVENT: Dimethylformamide
REC V: 10 Liters REC F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OHL2006S007 CLASS: Validated In-House

Triethyl Phosphate

IMIS **T168** CAS 78-40-0
DOT 3265 153
DESC A colorless, corrosive liquid.
MW: 182.16 BP: 149 to 421 F MP: -69.5 F FP: 240 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Trifluorobromomethane

IMIS **2500** CAS 75-63-8
SYN Bromotrifluoromethane, Fluorocarbon 1301, Freon® 13B1, Halocarbon 13B1, Halon® 1301, Monobromotrifluoromethane, Refrigerant 13B1, Trifluoromonobromomethane
NIOSH RTECS PA5425000 DOT 1009 126
MIOSHA FINAL RULE (Table G-1-A):
TWA 1000 ppm, 6100 mg/m3
DESC Colorless, odorless gas. [Note: Shipped as a liquefied compressed gas.]
MW: 148.9 BP: -72 F MP: -267 F VP: >1 atm
INCOM Chemically-active metals (such as calcium, powdered aluminum, zinc & magnesium)
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Dizziness; cardiac arrhythmias; liquid: frostbite
ORGAN Central nervous system, heart
SLC1 MEDIA:
ANL SOLVENT: Methylene Chloride
ALT SOLVENT: Carbon Disulfide
MAX V: 1 Liter MIN V: 0.1 Liters MAX F: 0.05 L/min
ANL 1: Gas Chromatography; GC-FID
REF: NIOSH 1017 SAE: 0.11 CLASS: Partially Validated by
NIOSH
SAM2 MIRAN 1A: MIN. Det. Con. 0.01 ppm at 8.5 um

1,1,1-Trifluoroethane

IMIS **T186** CAS 420-46-2
DOT 2035 115
DESC Colorless, highly flammable gas.

MW: 84.04
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,2,2-Trifluoroethanol

IMIS **T286** CAS 75-89-8
SYN TFE
NIOSH RTECS KM5250000*
DESC Colorless liquid with ethanol-like odor
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Acetone
MAX V: 5 Liters MAX F: 0.1 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Trifluralin

IMIS **T338** CAS 1582-09-8
SYN Agreflan; Elancolan; alpha, alpha, alpha-Trifluoro-2, 6-Dinitro-N, N-Dipropyl-p-Toluidine; Treficon; Treflan; Trifluraline; Trim; Crisalin
NIOSH RTECS XU9275000* DOT 3077 171
DESC Herbicide; Yellow-orange crystalline solid.
MW: 335.32 BP: Decomposes MP: 115 to 117 F FP: >185 F
Freely soluble in acetone, Stoddard solvent, Xylene, slightly soluble in water.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Trifluralin]
SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.

Trimellitic Anhydride

IMIS **2502** CAS 552-30-7
SYN 1,2,4-Benzenetricarboxylic anhydride, 4-Carboxyphthalic anhydride, TMA [Trimellitic anhydride], TMAN, Trimellitic acid anhydride [Note: TMA is also a synonym for Trimethylamine.]
NIOSH RETCS DC2050000
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.005 ppm, 0.04 mg/m3
DESC Colorless solid.
MW: 192.1 MP: 322 F VP: 0.000004 mm
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, respiratory system; pulmonary edema, resp sensitization; rhinitis, asthma, cough, wheezing, dyspnea (breathing difficulty), malaise (vague feeling of discomfort), fever, muscle aches, sneezing
ORGAN Eyes, skin, respiratory system
SLC1 MEDIA:
ANL SOLVENT: 0.02 N Ammonium Hydroxide
MAX V: 480 Liters MAX F: 2.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV

REF: OSHA 98 SAE: 0.11 CLASS: Fully Validated by OSHA
NOTE: Store filters under refrigeration and use within 1 month. Small interfering peaks start appearing after that time. Collect sample open-face.

Trimethylamine

IMIS	T127	CAS	75-50-3
SYN	N,N-Dimethylmethanamine, TMA [Trimethylamine] [Note: May be used in an aqueous solution (typically 25%, 30%, or 40% TMA.)]		
NIOSH	RTECS PA0350000	DOT	1083 118(anhydrous) 1297 132(aqueous solution)
MIOSHA	FINAL RULE (Table G-1-A):	TWA	10 ppm, 24 mg/m ³
		STEL	15 ppm, 36 mg/m ³
DESC	Colorless gas with a fishy, amine odor. [Note: A liquid below 37°F. Shipped as a liquefied compressed gas.] MW: 59.1 BP: 37 F MP: -179 F VP: 1454 mm (70 F) FP: 20 F (liquid)		
INCOM	Strong oxidizers (including bromine), ethylene oxide, nitrosating agents (e.g., sodium nitrite), mercury, strong acids [Note: Corrosive to many metals (e.g., zinc, brass, aluminum, copper).]		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
SYMPT	Irritation eyes, skin, nose, throat, respiratory system; cough, dyspnea (breathing difficulty), delayed pulmonary edema; blurred vision, corneal necrosis; skin burns; liquid: frostbite		
ORGAN	Eyes, skin, respiratory system		
SLC1	MEDIA: ANL SOLVENT: 50:50 Methanol: Deionized Water MAX V: 20 Liters MAX F: 0.2 L/min ANL 1: Gas Chromatography; GC-FID REF: (OSHA In-House File) CLASS: Partially Validated		
SAM2	DET. TUBE: MSA, 92115, 5-200 ppm		

Trimethylolpropane Triacrylate

IMIS	T158	CAS	15625-89-5
SYN	2-Ethyl-2- (hydroxymethyl)-1,3-propanediol Triacrylate; TMPTA		
NIOSH	RTECS AT4810000*		
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		
IARC	Group 2B - possibly carcinogenic to humans - [Trimethylolpropane triacrylate, technical grade]		
SLC1	MEDIA: ANL SOLVENT: Methanol MAX V: 24 Liter MAX F: 0.2 L/min ANL 1: High Performance Liquid Chromatography; HPLC-UV REF: (OSHA In-House File) CLASS: Not Validated NOTE: The analytical standards must be weighted out. Do not use a syringe to prepare standards.		

Trimethyl Orthobenzoate

IMIS	T308	CAS	707-07-3
HLTH	See NIH-NLM PubChem (https://pubchem.ncbi.nlm.nih.gov/)		

2,4,4-Trimethyl Pentene

IMIS	2507	CAS	25167-70-8
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SYN Diisobutylene
DOT 2050 128
DESC A clear colorless liquid with a petroleum-like odor.
MW: 112.22 BP: 214.7 F MP: -136.3 F FP: 35 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Trimethyl Phosphite

IMIS **T125** CAS 121-45-9
SYN Methyl phosphite, Trimethoxyphosphine, Trimethyl ester of phosphorous acid
NIOSH RTECS TH1400000 DOT 2329 130
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 10 mg/m3
DESC Colorless liquid with a distinctive, pungent odor.
MW: 124.1 BP: 232 F MP: -108 F VP: 24 mm (77 F) FP: 82 F
INCOM Magnesium perchlorate, water [Note: Reacts (hydrolyzes) with water.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, upper respiratory system; dermatitis; In Animals: teratogenic effects
ORGAN Eyes, skin, respiratory system, reproductive system
SLC1
NOTE: Compound appears to react over time to form another compound after desorption and even on sitting in solution. It may be forming trimethyl phosphate but no conformation of that.

Trimethylsilanol

IMIS **T322** CAS 1066-40-6
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

2,4,7-Trinitro-9-Fluorenone

IMIS **2525** CAS 129-79-3
SYN 2,4,7-Trinitrofluoren-9-one
NIOSH RTECS LL9100000* DOT 0387 112
DESC Pale yellow needles (from acetic acid or benzene) or yellow powder.
MW: 315.2 MP: 348 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Toluene
MAX V: 500 Liters MIN V: 100 Liters MAX F: 3.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: NIOSH 5018 CLASS: Fully Validated by
NIOSH

2,4,6-Trinitrotoluene

IMIS **2530** CAS 118-96-7
SYN 1-Methyl-2,4,6-trinitrobenzene, TNT, Trinitrotoluene, sym-Trinitrotoluene, Trinitrotoluol
NIOSH RTECS XU0175000 DOT 1356 113(wet)
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.5 mg/m3 (Skin)
DESC Colorless to pale-yellow, odorless solid or crushed flakes.
MW: 227.1 BP: 464 F (Explodes) VP: 0.0002 mm (77 F) MP: 176 F
INCOM Strong oxidizers, ammonia, strong alkalis, combustible materials, heat [Note: Rapid

heating will result in detonation.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)

IARC Group 3 - not classifiable as to its carcinogenicity to humans - [2,4,6-Trinitrotoluene]

SYMPT Irritation skin, mucous membrane; liver damage, jaundice; cyanosis; sneezing; cough, sore throat; peripheral neuropathy, muscle pain; kidney damage; cataract; sensitization dermatitis; leukocytosis (increased blood leukocytes); anemia; cardiac irreg

ORGAN Eyes, skin, respiratory system, blood, liver, cardiovascular system, central nervous system, kidneys

SLC1 MEDIA:
 ANL SOLVENT: Acetone
 MAX V: 60 Liters MAX F: 1.0 L/min
 ANL 1: Gas Chromatography; GC-TEA-EAP
 REF: OSHA 44 SAE: 0.13 CLASS: Fully Validated by OSHA
 NOTE: Lab modification of sample tube consists of an 8mm Glass fiber filter disc placed inside tube ahead of first resin bed. Obtain the sampling tube from SLTC. The air sampling pump must be certified by NIOSH and MSHA as safe for use in coal mines.

Triorthocresyl Phosphate

IMIS **2532** CAS 78-30-8

SYN TCP, TOCP, Tri-o-cresyl ester of phosphoric acid, Tri-o-cresyl phosphate

NIOSH RTECS TD0350000 DOT 2574 151

MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.1 mg/m3 (Skin)

DESC Colorless, odorless liquid.
 MW: 368.4 BP: 770 F (Decomposes) VP: 0.00002 mm (77 F) MP: 52 F
 FP: 437 F

INCOM Oxidizers

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Nervous System Disturbances---Nervous system affects other than narcosis. (HE7)

SYMPT Gastrointestinal disturbance; peripheral neuropathy; cramps in calves, paresthesia in feet or hands; weak feet, wrist drop, paralysis

ORGAN Peripheral nervous system, central nervous system

SLC1 MEDIA:
 ANL SOLVENT: Diethyl Ether
 MAX V: 100 Liters MAX F: 3.0 L/min
 ANL 1: Gas Chromatography; GC-FPD
 REF: NIOSH 5037 CLASS: Partially Validated by NIOSH

BULK Limit the amount of bulk submitted to one gram or one mL.

Triphenylamine

IMIS **2534** CAS 603-34-9

SYN N,N-Diphenylaniline, N,N-Diphenylbenzenamine

NIOSH RTECS YK2680000

MIOSHA FINAL RULE (Table G-1-A):
 TWA 5 mg/m3

DESC Colorless solid.
MW: 245.3 BP: 689 F MP: 261 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation skin
ORGAN Skin
SLC1 MEDIA:
MAX V: 250 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Triphenyl Phosphate

IMIS **2535** CAS 115-86-6
SYN Phenyl phosphate, TPP, Triphenyl ester of phosphoric acid
NIOSH RTECS TC8400000
MIOSH FINAL RULE (Table G-1-A):
TWA 3 mg/m3
DESC Colorless, crystalline powder with a phenol-like odor.
MW: 326.3 BP: 776 F MP: 120 F VP: 1 mm (380 F) FP: 428 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Nervous System Disturbances---Cholinesterase inhibition. (HE6)
SYMPT Minor changes in blood enzymes; In Animals: muscle weak, paralysis
ORGAN Blood, peripheral nervous system
SLC1 MEDIA:
ANL SOLVENT: Anhydrous Ether
MAX V: 400 Liters MIN V: 10 Liters MAX F: 3.0 L/min
ANL 1: Gas Chromatography; GC-FPD
REF: NIOSH 5038 CLASS: Partially Validated by
NIOSH

Tripropylene Glycol Diacrylate

IMIS **T155** CAS 42978-66-5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 10 Liter MAX F: 0.1 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Tris (2-Methyl-1-Aziridinyl)Phosphine Oxide

IMIS **T209** CAS 57-39-6
SYN METEPA; 1,1', 1"-Phosphinylidynetris (2-methyl) aziridine
NIOSH RTECS SZ1925000*
DESC MW: 215.24
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Tris(2-methyl-1-aziridinyl)phosphine oxide]

Trypsin

IMIS **T208** CAS 9002-07-7
SYN Parenzyme; Parenzymol; Tryptar; Trypure

NIOSH RTECS YN5075000*
 DESC Yellow to grayish-yellow powder or crystals. Stable indefinitely in dry form at room temp. Soluble in water; practically insoluble in alcohol or glycerol.
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SLC1 MEDIA:
 MAX V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Immunoradiometric Assay
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Before sampling, contact SLTC CP Branch for instructions.

Tylenol

IMIS **A628** CAS 103-90-2
 SYN 4'-Hydroxy Acetanilide; p-Acetamidophenol; p-Acetaminophenol; Acetaminophen; Acetaminofen; Panadol; Valgesic; Acetagesic
 NIOSH RTECS AE4200000*
 DESC Odorless white crystalline solid.
 MW: 151.16 MP: 336 to 342 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Acetaminophen (see Paracetamol)]

Undecane

IMIS **U106** CAS 1120-21-4
 SYN Hendecane; n-Undecane
 NIOSH RTECS YQ1525000 DOT 2330 128
 DESC A colorless liquid.
 MW: 156.32 BP: 384.6 F MP: -14.1 F FP: 149 F
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Uranium, Metal & Insoluble Compounds (as U)

IMIS **2560** CAS 7440-61-1
 SYN Uranium I, Uranium metal
 NIOSH RTECS YR3490000 DOT 2979 162(metal pyrophoric)
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 0.2 mg/m³
 STEL 0.6 mg/m³
 DESC Metal: Silver-white, malleable, ductile, lustrous solid. [Note: Weakly radioactive.]
 MW: 238.0 BP: 6895 F MP: 2097 F VP: 0 mm
 INCOM Carbon dioxide, carbon tetrachloride, nitric acid, fluorine [Note: Complete coverage of uranium metal scrap with oil is essential for prevention of fire.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 1 - carcinogenic to humans - [Uranium, mixture of isotopes (see Radionuclides, alpha-particle-emitting, internally deposited)]
 SYMPT Dermatitis; kidney damage; blood changes; ; In Animals: lung, lymph node damage; Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon). [potential occupational carcinogen]
 ORGAN Skin, kidneys, bone marrow, lymphatic system [lung cancer]
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min (TWA)
 MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: (OSHA In-House File) CLASS: Not Validated

NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period.

Uranium, Soluble Compounds (as U)

IMIS **2561** CAS 7440-61-1
SYN Hexavalent Uranium
NIOSH RTECS YR3590000
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.05 mg/m³
DESC Solid. Appearance and odor vary depending upon the specific soluble uranium compound.
INCOM Uranyl nitrate: combustibles Uranium hexafluoride: water
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 1 - carcinogenic to humans - [Uranium, mixture of isotopes (see Radionuclides, alpha-particle-emitting, internally deposited)]
SYMPT Lacrimation (discharge of tears), conjunctivitis; short breath, cough, chest rales; nausea, vomiting; skin burns; red blood cell, casts in urine; proteinuria; high blood urea nitrogen; Potential for cancer is a result of alpha-emitting properties & radioactive decay products (e.g., radon). [potential occupational carcinogen]
ORGAN Respiratory system, blood, liver, kidneys, lymphatic system, skin, bone marrow
SLC1
MEDIA:
ANL SOLVENT: Deionized Water
MAX V: 960 Liters MIN V: 200 Liters MAX F: 2.0 L/min
ANL 1: Differential Pulse Cathodic Stripping Polarography; DPCSP
REF: (OSHA In-House File) SAE: 0.10 CLASS: Partially Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Soluble means electrolyte soluble.
SLC2
MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: (OSHA In-House File) CLASS: Not Validated
NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be collected up to an 8-hour period. Soluble means water-soluble.

Urea

IMIS **U105** CAS 57-13-6
DESC Solid odorless white crystals or pellets.
MW: 60.07 BP: Decomposes MP: 275 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

n-Valeraldehyde

IMIS **V108** CAS 110-62-3
SYN Amyl aldehyde, Pentanal, Valeral, Valeraldehyde, Valeric aldehyde
NIOSH RTECS YV3600000 DOT 2058 129
MIOSHA FINAL RULE (Table G-1-A):
TWA 50 ppm, 175 mg/m³
DESC Colorless liquid with a strong, acrid, pungent odor.
MW: 86.2 BP: 217 F MP: -133 F VP: 26 mm FP: 54 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT Irritation eyes, skin, nose, throat
ORGAN Eyes, skin, respiratory system

SLC1 MEDIA:
ANL SOLVENT: Acetonitrile
MAX V: 3 Liters MAX F: 0.05 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 85 SAE: 0.12 CLASS: Fully Validated by OSHA
NOTE: Sample open-face. Keep samples in the dark after sampling.

Valeric Acid

IMIS **V118** CAS 109-52-4
SYN Pentanoic Acid; Propylacetic Acid; Valerianic Acid; Butanecarboxylic Acid
NIOSH RTECS YV6100000* DOT 3265 153
DESC A colorless liquid with a penetrating unpleasant odor.
MW: 102.13 BP: 365 F MP: -30.1 F FP: 192 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Vinyl Alcohol

IMIS **V106** CAS 557-75-5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Vinyl Bromide

IMIS **2577** CAS 593-60-2
SYN Bromoethene, Bromoethylene, Monobromoethylene
NIOSH RTECS KU8400000 DOT 1085 116P(inhibited)
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 ppm, 20 mg/m3
DESC Colorless gas or liquid (below 60°F) with a pleasant odor. [Note: Shipped as a liquefied compressed gas with 0.1% phenol added to prevent polymerization.]
MW: 107.0 BP: 60 F MP: -219 F VP: 1.4 atm
INCOM Strong oxidizers (e.g., perchlorates, peroxides, chlorates, permanganates & nitrates.)
[Note: May polymerize in sunlight.]
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen, mutagen (except Code HE1 chemicals). (HE2)
NTP Suspect Human Carcinogen - [Vinyl Bromide (see Vinyl Halides [Selected])]
IARC Group 2A - probably carcinogenic to humans - [Vinyl bromide]
SYMPT Irritation eyes, skin; dizziness, confusion, incoordination, narcosis, nausea, vomiting; liquid: frostbite; [potential occupational carcinogen]
ORGAN Eyes, skin, central nervous system, liver [in animals: liver & lymph node tumors]
SLC1 MEDIA:
ANL SOLVENT: Carbon Disulfide
MAX V: 5 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: OSHA 8 SAE: 0.14 CLASS: Fully Validated by OSHA
NOTE: Refrigerate samples until analysis and analyze as soon as possible.
SAM2 MIRAN 1A: MIN. Det. Con. 0.9 ppm at 10.9 µm

Vinyl Cyclohexene Dioxide

IMIS **2581** CAS 106-87-6
SYN 1-Epoxyethyl-3,4-epoxy-cyclohexane, 4-Vinylcyclohexene diepoxide, 4-Vinyl-1-cyclohexene dioxide

NIOSH RTECS RN8640000 DOT 2810 153
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 10 ppm, 60 mg/m3 (Skin)
 DESC Colorless liquid.
 MW: 140.2 BP: 441 F MP: -164 F VP: 0.1 mm FP: (oc) 230 F
 INCOM Alcohols, amines, water [Note: Slowly hydrolyzes in water.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Anemias. (HE12)
 Chronic (Cumulative) Toxicity---Known or Suspected animal or human carcinogen,
 mutagen (except Code HE1 chemicals). (HE2)
 NTP Suspect Human Carcinogen - [4-Vinyl-1-cyclohexene Diepoxide]
 IARC Group 2B - possibly carcinogenic to humans - [4-Vinylcyclohexene diepoxide]
 SYMPT In Animals: irritation eyes, skin, respiratory system; testicular atrophy; leukopenia
 (reduced blood leukocytes), necrosis thymus; skin sensitization; [potential
 occupational carcinogen]
 ORGAN Eyes, skin, respiratory system, blood, thymus, reproductive system [in animals: skin
 tumors]
 SLC1 MEDIA:
 ANL SOLVENT: Carbon Disulfide
 MAX V: 10 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: (OSHA In-House File) CLASS: Partially Validated

Vinyl Fluoride

IMIS **TBD** CAS 75-02-5
 SYN Fluoroethene, Fluoroethylene, Monofluoroethylene, Vinyl fluoride monomer
 NIOSH RTECS YZ7351000 DOT 1860 116p(inhibited)
 DESC Colorless gas with a faint, ethereal odor. [Note: Shipped as a liquefied compressed
 gas.]
 MW: 46.1 BP: -98 F MP: -257 F VP: 25.2 atm
 INCOM None reported [Note: Inhibited with 0.2% terpenes to prevent polymerization.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 SYMPT Headache, dizziness, confusion, incoordination, narcosis, nausea, vomiting; liquid:
 frostbite
 ORGAN Central nervous system

Vinylidene Fluoride

IMIS **V105** CAS 75-38-7
 SYN 1,1-Difluoroethene, Difluoro-1,1-ethylene, 1,1-Difluoroethylene, Halocarbon 1132A,
 VDF, Vinylidene difluoride
 NIOSH RTECS KW0560000 DOT 1959 116P
 DESC Colorless gas with a faint, ethereal odor. [Note: Shipped as a liquefied compressed
 gas.]
 MW: 64.0 BP: -122 F MP: -227 F VP: 35.2 atm
 INCOM Oxidizers, aluminum chloride [Note: Violent reaction with hydrogen chloride when
 heated under pressure.]
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Vinylidene fluoride]
 SYMPT Dizziness, headache, nausea; liquid: frostbite
 ORGAN Central nervous system

n-Vinyl-2-Pyrrolidone

IMIS **V107** CAS 88-12-0
SYN 1-ethenyl-2-pyrrolidinone; vinylpyrrolidinone; 1-vinyl-2-pyrrolidinone; vinylbutyrolactam
NIOSH RTECS UY6107000*
DESC White powder.
MW: 111.144 BP: 194 F MP: 57 F VP: 0.09 mm FP: 199.4 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [N-Vinyl-2-pyrrolidone]
SLC1 MEDIA:
ANL SOLVENT: (95/5) Methylene Chloride/Methanol
MAX V: 10 Liters MAX F: 0.2 L/min
ANL 1: Gas Chromatography; GC-FID
REF: (OSHA In-House File) CLASS: Partially Validated

Vydate

IMIS **2585** CAS 23135-22-0
SYN 2-(Dimethylamino)-N- [[[methylamino] carbonyl] oxy]-2-oxoethanoimidothioic acid methyl ester; Oxamyl; Thioxamyl
NIOSH RTECS RP2300000* DOT 2991 131
DESC White, crystalline solid, with slight sulfurous odor.
MW: 219.29
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 60 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sampling tubes from SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

Warfarin

IMIS **2586** CAS 81-81-2
SYN 3-(α -Acetonyl)-benzyl-4-hydroxycoumarin, 4-Hydroxy-3-(3-oxo-1-phenyl butyl)-2H-1-benzopyran-2-one, WARF
NIOSH RTECS GN4550000 DOT 3027 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 0.1 mg/m³
DESC Colorless, odorless, crystalline powder. [Note: Rodenticide.]
MW: 308.3 BP: Decomposes MP: 322 F VP: 0.09 mm (71 F)
INCOM Strong oxidizers
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous, respiratory, hematologic or reproductive. (HE3)
Reproductive Hazards---Teratogenesis or other reproductive impairment. (HE5)
SYMPT Hematuria (blood in the urine), back pain; hematoma arms, legs; epistaxis (nosebleed), bleeding lips, mucous membrane hemorrhage; abdominal pain, vomiting, fecal blood; petechial rash; abnormal hematologic indices
ORGAN Blood, cardiovascular system
SLC1 MEDIA:
ANL SOLVENT: Methanol
MAX V: 1000 Liters MIN V: 200 Liters MAX F: 4.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV

Wemcide CW 104

IMIS **W106** CAS 137-41-7
SYN Mixture of Disodium Cyanodithiocarbamate and Potassium N-Methyldithiocarbamate
DOT 2588 151
DESC A concentrated aqueous solution. Clear orange liquid with a pungent rotten-egg odor.
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
MAX V: 720 Liters MAX F: 2.0 L/min
ANL 1: Colorimetric
REF: (OSHA In-House File) CLASS: Not Validated
BULK Limit the amount of bulk submitted to one gram or one mL.

m-Xylene-alpha,alpha'-Diamine

IMIS **2592** CAS 1477-55-0
SYN 1,3-bis(Aminomethyl)benzene, 1,3-Benzenedimethanamine, MXDA, m-Phenylenebis(methylamine), m-Xylylenediamine
NIOSH RTECS PF8970000 DOT 3267 153
MIOSHA FINAL RULE (Table G-1-A):
CEIL 0.1 mg/m3 (Skin)
DESC Colorless liquid.
MW: 136.2 BP: 477 F MP: 58 F VP: 0.03 mm (77 F) FP: 243 F
INCOM None Reported
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SYMPT In Animals: irritation eyes, skin; liver, kidney, lung damage
ORGAN Eyes, skin, respiratory system, liver, kidneys
SLC1 MEDIA:
ANL SOLVENT: 50 mM of 1-heptanesulfonic Acid and 50 mM of NaH₂PO₄·H₂O in (75/25), Water/Acetonitrile adjusted to pH 3.0 with Phosphoric Acid
MAX V: 15 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: OSHA 105 SAE: 0.08 CLASS: Fully Validated by OSHA
NOTE: Sampled closed-face.

Xylenol

IMIS **X101** CAS 1300-71-6
DOT 2261 153
DESC White crystalline solid.
MW: 122.18 BP: 397 to 437 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)

Xylidine, All Isomers (Dimethylaminobenzene)

IMIS **2600** CAS 1300-73-8; 95-68-1; 95-78-3
SYN Aminodimethylbenzene, Aminoxylene, Dimethylaminobenzene, Dimethylaniline [Xylidene], 2,4-Dimethylaniline, Xylidine isomers [Note: Dimethylaniline is also used as a synonym for N,N-Dimethylaniline.] 2,4-Xylidine (95-68-1); 2,5-Xylidine (95-78-3)
NIOSH RTECS ZE8575000 DOT 1711 151
MIOSHA FINAL RULE (Table G-1-A):
TWA 2 ppm, 10 mg/m3 (Skin)

DESC Pale-yellow to brown liquid with a weak, aromatic, amine-like odor.
 MW: 121.2 BP: 415 to 439 F MP: -33 F VP: <1 mm FP: 206 F [2,3-]
 INCOM Strong oxidizers, hypochlorite salts
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Hematologic (Blood) Disturbances---Methemoglobinemia. (HE13)
 Acute Toxicity---Short-term high risk effects. (HE4)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [2,4-Xylidine]
 Group 3 - not classifiable as to its carcinogenicity to humans - [2,5-Xylidine]
 SYMPT Anoxia, cyanosis, methemoglobinemia; lung, liver, kidney damage
 ORGAN Respiratory system, blood, liver, kidneys, cardiovascular system
 SLC1 MEDIA:
 ANL SOLVENT: 95% Ethanol
 MAX V: 20 Liters MIN V: 3 Liters MAX F: 0.2 L/min
 ANL 1: Gas Chromatography; GC-FID
 REF: NIOSH 2002 SAE: 0.09 CLASS: Fully Validated by
 NIOSH
 SAM2 MIRAN 1A: MIN. Det. Con. 0.2 ppm at 7.2 µm

Yttrium

IMIS **2602** CAS 7440-65-5
 SYN Yttrium metal
 NIOSH RTECS ZG2980000 DOT 3178 133
 MIOSHA FINAL RULE (Table G-1-A):
 TWA 1 mg/m3
 DESC Dark-gray to black, odorless solid.
 MW: 88.9 BP: 5301 F MP: 2732 F
 INCOM Oxidizers
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
 SYMPT Irritation eyes; In Animals: pulmonary irritation; eye injury; possible liver damage
 ORGAN Eyes, respiratory system, liver
 SLC1 MEDIA:
 MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min
 ANL 1: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
 REF: (OSHA In-House File) CLASS: Not Validated
 NOTE: Submit as a separate sample. If the filter is not overloaded, samples may be
 collected up to an 8-hour period.

Zearalenone

IMIS **2606** CAS 17924-92-4
 SYN 3,4,5,6,9,10-Hexahydro-14, 16-dihydroxy-3-methyl-1H-2benzoxacyclotetradecin-1,
 7(8H)-dione; Compound F-2; FES
 DOT 3261 154
 DESC White microcrystals or white powder.
 MW: 318.4
 HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
 IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Fusarium
 graminearum, F. culmorum, and F. crookwellense, toxins derived from (zearalenone,
 deoxynivalenol, nivalenol, and fusarenone X)]

Zectran

IMIS **Z128** CAS 315-18-4

SYN N-Methyl 4-dimethylamino-3, 5-xylyl Carbamate; Mexacarbate; Zextran; Zactran
DOT 2757 151
DESC Odorless white crystalline solid dissolved in a liquid carrier.
MW: 222.29 MP: 185 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Zectran]
WIPE MEDIA: Glass Fiber Filter (37 mm)
BULK Limit the amount of bulk submitted to one gram or one mL.

Zinc Dibutyldithiocarbamate

IMIS **Z129** CAS 136-23-2
SYN Bis (Dibutyldithiocarbamate) Zinc; Butyl Ziram; Zinc N, N-dibutyldithiocarbamate
NIOSH RTECS ZH0175000*
DESC MW: 476.19
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 MEDIA:
ANL SOLVENT: Chloroform
MAX V: 180 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Not Validated

Zinc Protoporphyrin

IMIS **Z124** CAS 15442-64-5
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
SLC1 Blood analysis using direct reading instrument - Hematofluorometer

Ziram

IMIS **Z126** CAS 137-30-4
SYN Zinc dimethyldithiocarbamate
NIOSH RTECS ZH0525000* DOT 2771 151
DESC Odorless white powder.
MW: 305.81 MP: 482 F FP: 200 F
HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
IARC Group 3 - not classifiable as to its carcinogenicity to humans - [Ziram]
SLC1 MEDIA:
ANL SOLVENT: Chloroform
MAX V: 180 Liters MAX F: 1.0 L/min
ANL 1: High Performance Liquid Chromatography; HPLC-UV
REF: (OSHA In-House File) CLASS: Partially Validated
NOTE: Obtain sample tubes from SLTC.
BULK Limit the amount of bulk submitted to one gram or one mL.

Zirconium Compounds (as Zr)

IMIS **2620** CAS 7440-67-7
SYN Zirconium
NIOSH RTECS ZH7070000
MIOSHA FINAL RULE (Table G-1-A):
TWA 5 mg/m3
STEL 10 mg/m3
DESC Metal: Soft, malleable, ductile, solid or gray to gold, amorphous powder.
MW: 91.2 BP: 6471 F MP: 3375 F
INCOM Potassium nitrate, oxidizers [Note: Fine powder may be stored completely immersed

in water.]

HLTH See NIH-NLM PubChem (<https://pubchem.ncbi.nlm.nih.gov/>)
Respiratory Effects Other Than Irritation---Cumulative lung damage. (HE10)
Chronic (Cumulative) Toxicity---Long-term organ toxicity other than nervous,
respiratory, hematologic or reproductive. (HE3)

SYMPT Skin, lung granulomas; In Animals: irritation skin, mucous membrane; X-ray evidence
of retention in lungs

ORGAN Skin, respiratory system

SLC1 MEDIA:
MAX V: 960 Liters MIN V: 480 Liters MAX F: 2.0 L/min (TWA)
MAX V: 30 Liters MAX F: 2.0 L/min (STEL)
ANL 1: Gravimetric
REF: OHL2004S015 SAE: 0.10 CLASS: Validated In-House
ANL 2: Inductively Coupled Argon Plasma-Mass Spectrometry; ICP-MS
REF: OSHA ID-121 CLASS: Fully Validated by OSHA
NOTE: Submit as a separate sample. If the gross weight sample yields a
concentration below the standard for the air contaminant, do not submit the sample
to SLTC for analysis. [OSHA ID-121; AP 6].