What is an Air Contaminant/ Pollutant?

Fact Sheet

THE UNIVERSE OF AIR CONTAMINANTS

"Air contaminant" and "air pollutant" are terms frequently mentioned in state and federal air quality regulations. State rules consistently use the term air contaminant; whereas, federal rules use the term air pollutant. Since both terms essentially mean the same thing, they will be used interchangeably throughout this fact sheet. Many people do not fully understand what substances are considered air contaminants. The purpose of this fact sheet is to introduce the "Universe of Air Contaminants" and then describe each "family" or subset of air contaminants within that universe.

All matter is found in either a solid, liquid, or gaseous state. This same concept applies to air contaminants. There are solid and liquid air contaminants that are referred to as particulates, and there are many air contaminants in a gaseous state. Together they make up the "Universe of Air Contaminants." Throughout this fact sheet, a simple pie chart will be used to represent the "Universe of Air Contaminants." The pie chart in Figure 1 separates the "Universe of Air Contaminants" into gases and particulates.

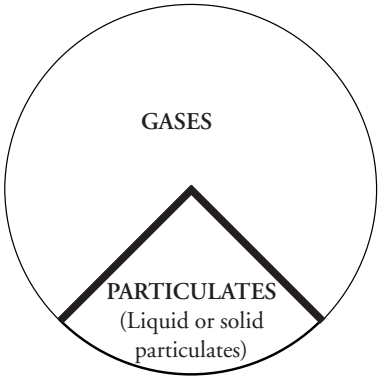

Figure 1
Air Contaminants: Gases and Particulates

THE FAMILIES OF AIR CONTAMINANTS

State and federal air quality regulations, such as New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP), target specific groups of air contaminants. We refer to these defined groups as "families" of air contaminants. There are many families within our "Universe of Air Contaminants" — some are very big; others are quite small. The following is a discussion of the various families of air contaminants that make up the universe of air contaminants.

Criteria Air Pollutants

The first family of air contaminants is the criteria air pollutant family. This is a very well-known family, but it is quite small with only six compounds:

- ✔Carbon monoxide (CO);
- ✔Lead;
- ✔Nitrogen dioxide (NO_2);

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RECYCLED PAPER

- ✔Particulate matter (PM). Particulate matter is finely divided solid particles, liquid droplets, or a combination thereof. Water that is combined with a contaminant, such as acid mist, is considered particulate matter. Uncombined water, such as steam or water vapor, is not particulate matter nor considered an air contaminant. The legal definition of particulate matter is found in Rule 116(c) of the Michigan Administrative Rules for Air Pollution Control. The U.S. Environmental Protection Agency (EPA) has added new fine particulate standards (PM-2.5) to the existing PM-10 standards (see definition of standards below). The numbers 2.5 and 10 refer to the particle size in microns.
- ✔Sulfur dioxide (SO_2); and
- ✔Ozone (ground level ozone or "smog"). Ozone at ground level is "bad" ozone because it is a key component of smog. Ground level ozone should not be confused with the "good" ozone in the upper atmosphere that protects us from the sun's harmful rays.

Criteria air pollutants were the first set of pollutants recognized by EPA as needing standards on a national level. EPA set National Ambient Air Quality Standards for criteria pollutants since they are known to be dangerous to human health and the environment. If the measured concentration of any criteria air pollutant exceeds the National Ambient Air Quality Standard, then that area is designated as nonattainment for that criteria air pollutant. If the measured concentration is below the standard, the region is designated as attainment. Figure 2 highlights the criteria air pollutant family in the "Universe of Air Contaminants."

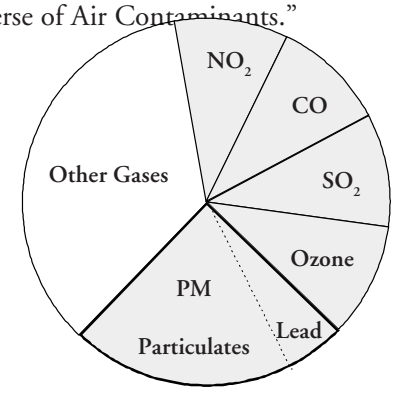

Figure 2
Criteria Air Pollutants

Ozone Precursors

Most facilities do not directly emit ozone. However, they may emit volatile organic compounds (VOCs) and nitrogen oxides (NOx) which contribute to ozone formation. Therefore, VOCs and NOx are called ozone precursors. Figure 3 adds the ozone precursors to the "Universe of Air Contaminants."

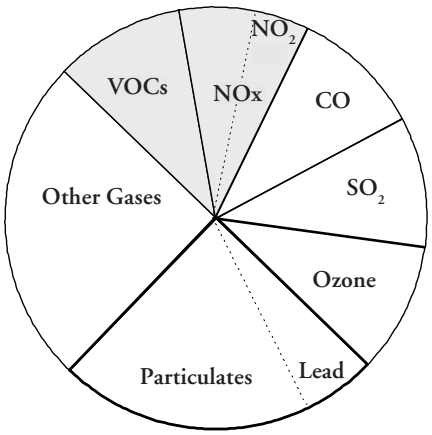

Figure 3
Ozone Precursors

A VOC is any compound that contains carbon and participates in atmospheric photochemical (smog-forming) reactions. Many compounds are VOCs, and there is no definitive list. However, Table 1 lists compounds that are not considered VOCs according to Rule 122(f) of the Michigan Administrative Rules for Air Pollution Control. See page 8, "Where To Go For Additional Assistance," for information on how to obtain a copy of Rule 122(f).

Class I And II Air Pollutants

Title VI of the Clean Air Act Amendments of 1990 requires the phaseout of chlorofluorocarbons (CFCs) that deplete the ozone layer in the upper atmosphere (this is the "good" ozone that protects us from the sun's harmful rays). These ozone-depleting substances are divided into two classes, Class I and Class II air pollutants. Table 2 contains a list of these ozone-depleting pollutants.

Table 1 - Compounds Not Considered VOCs

Carbon monoxide	Chloropentafluoroethane (CFC-115)	1,1,1,3,3,3-hexafluoropropane (HFC-236fa)
Carbon dioxide	1,1-dichloro-1-fluoroethane (HCFC-141b)	1,1,2,2,3-pentafluoropropane (HFC-245ca)
Carbonic acid	1 chloro-1,1-difluoroethane (HCFC-142b)	1,1,2,3,3-pentafluoropropane (HFC-245ea)
Metallic carbides or carbonates	Chlorodifluoromethane (HCFC-22)	1,1,1,2,3-pentafluoropropane (HFC-245eb)
Boron carbide	1,1,1-trifluoro-2,2-dichloroethane (HCFC-123)	1,1,1,3,3-pentafluoropropane (HFC-245fa)
Silicon carbide		1,1,1,2,3,3-hexafluoropropane (HFC-236ea)
Ammonium carbonate	2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	1,1,1,3,3-pentafluorobutane (HFC365mfc)
Ammonium bicarbonate		Chlorofluoromethane (HCFC-31)
Methane	Trifluoromethane (HFC-23)	1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a)
Ethane	Pentafluoroethane (HFC-125)	1-chlor-1-fluoroethane (HCFC-151a)
Methyl chloroform*	1,1,2,2-tetrafluoroethane (HFC-134)	1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxybutane
Acetone	1,1,1,2-tetrafluoroethane (HFC-134a)	2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane
Cyclic, branched, or linear completely methylated siloxanes	1,1,1-trifluoroethane (HFC-143a)	
	1,1-difluoroethane (HFC-152a)	1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane
Parachlorobenzotrifluoride	3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca)	2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane
Perchloroethylene		
Trichlorofluoromethane (CFC-11)	1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb)	Methyl acetate*
Dichlorodifluoromethane (CFC-12)		Perfluorocarbon compounds*
1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113)	1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee)	Methylene chloride*
1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC-114)	Difluoromethane (HFC-32)	Other compounds in materials other than surface coatings that have a vapor pressure ≤ 0.1 mm Hg at the temperature at which they are used.
	Ethyl fluoride (HFC-161)	

*Refer to Rule 122(f) for more information about this compound.

Table 2 - Title VI Ozone Depleting Substances

CLASS I SUBSTANCES		CLASS II SUBSTANCES			
Group I:					
chlorofluorocarbon-11	(CFC-11)	hydrochlorofluorocarbon-21	(HCFC-21)	hydrochlorofluorocarbon-241	(HCFC-241)
chlorofluorocarbon-12	(CFC-12)	hydrochlorofluorocarbon-22	(HCFC-22)	hydrochlorofluorocarbon-242	(HCFC-242)
chlorofluorocarbon-113	(CFC-113)	hydrochlorofluorocarbon-31	(HCFC-31)	hydrochlorofluorocarbon-243	(HCFC-243)
chlorofluorocarbon-114	(CFC-114)	hydrochlorofluorocarbon-121	(HCFC-121)	hydrochlorofluorocarbon-244	(HCFC-244)
chlorofluorocarbon-115	(CFC-115)	hydrochlorofluorocarbon-122	(HCFC-122)	hydrochlorofluorocarbon-251	(HCFC-251)
Group II:		hydrochlorofluorocarbon-123	(HCFC-123)	hydrochlorofluorocarbon-252	(HCFC-252)
halon-1211		hydrochlorofluorocarbon-124	(HCFC-124)	hydrochlorofluorocarbon-253	(HCFC-253)
halon-1301		hydrochlorofluorocarbon-131	(HCFC-131)	hydrochlorofluorocarbon-261	(HCFC-261)
halon-2402		hydrochlorofluorocarbon-132	(HCFC-132)	hydrochlorofluorocarbon-262	(HCFC-262)
Group III:		hydrochlorofluorocarbon-133	(HCFC-133)	hydrochlorofluorocarbon-271	(HCFC-271)
chlorofluorocarbon-13	(CFC-13)	hydrochlorofluorocarbon-141	(HCFC-141)		
chlorofluorocarbon-111	(CFC-111)	hydrochlorofluorocarbon-142	(HCFC-142)		
chlorofluorocarbon-112	(CFC-112)	hydrochlorofluorocarbon-221	(HCFC-221)		
chlorofluorocarbon-211	(CFC-211)	hydrochlorofluorocarbon-222	(HCFC-222)		
chlorofluorocarbon-212	(CFC-212)	hydrochlorofluorocarbon-223	(HCFC-223)		
chlorofluorocarbon-213	(CFC-213)	hydrochlorofluorocarbon-224	(HCFC-224)		
chlorofluorocarbon-214	(CFC-214)	hydrochlorofluorocarbon-225	(HCFC-225)		
chlorofluorocarbon-215	(CFC-215)	hydrochlorofluorocarbon-226	(HCFC-226)		
chlorofluorocarbon-216	(CFC-216)	hydrochlorofluorocarbon-231	(HCFC-231)		
chlorofluorocarbon-217	(CFC-217)	hydrochlorofluorocarbon-232	(HCFC-232)		
Group IV:		hydrochlorofluorocarbon-233	(HCFC-233)		
carbon tetrachloride		hydrochlorofluorocarbon-234	(HCFC-234)		
Group V:		hydrochlorofluorocarbon-235	(HCFC-235)		
methyl chloroform					

Hazardous Air Pollutants

Hazardous air pollutants (HAPs) are another family of air contaminants. These air pollutants may cause serious illnesses and environmental damage. The Clean Air Act Amendments of 1990 list 189 compounds considered to be hazardous air pollutants. EPA can add new chemicals to the list as necessary. Table 3 lists the compounds currently regulated as HAPs (one compound, caprolactam, has been removed from the list, so there are 188 HAPs). Most hazardous air pollutants are also regulated as volatile organic compounds or particulate matter. Figure 4 highlights HAPs in the "Universe of Air Contaminants."

Table 3 - Hazardous Air Pollutants (HAPs)

CAS No.	Chemical
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis (2-ethylhexyl) phthalate (DEHP)
542881	Bis (chloromethyl) ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixtures)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
21697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3-Dimethyl benzidine
79447	Dimethyl carbarmoyl chloride
68122	Dimethyl formamide
57147	1,1 Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dintro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydin (1-Chloro-2,3-epozypropane)
106887	1,2-Epozybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane
106934	Ethylene dibromide) (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen flouride (hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methozychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
78933	Methyl ethyl ketone (2-Butanone)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis (2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methlene diphenyl diisocyanate (MDI)
101779	4,4'-methylenedianiline
91203	Naphtalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polycholrinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixtures)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
	COMPOUNDS
	Antimony compounds
	Arsenic compounds (inorganic including arsine)
	Beryllium compounds
	Cadmium compounds
	Chromium compounds
	Cobalt compounds
	Coke oven emissions
	Cyanide compounds
	Fine mineral fibers
	Glycol ethers
	Lead compounds
	Manganese compounds
	Mercury compounds
	Nickel compounds
	Polycyclic organic matter
	Radionuclides (including radon)
	Selenium compounds

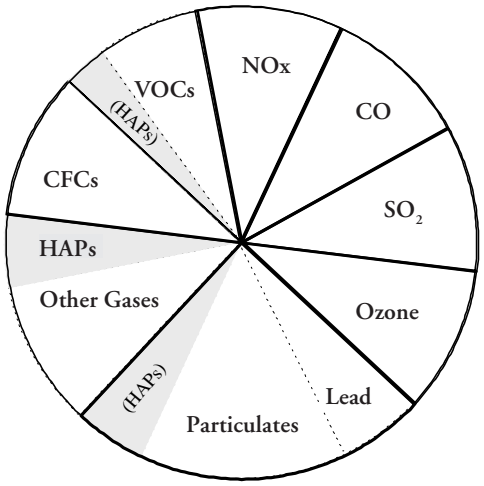

Figure 4
Hazardous Air Pollutants (HAPs)

Toxic Air Contaminants

In addition to HAPs regulated at the federal level, Michigan has a program to control toxic air contaminants from new or modified sources. According to Rule 120(f) of the Michigan Administrative Rules for Air Pollution Control, any substance which is or may become harmful to public health or the environment can be regulated as a toxic air contaminant except for 40 substances which have been specifically excluded. These excluded substances are regulated elsewhere or are considered relatively non-toxic (see Table 4).

Table 4 - Substances Not Considered Toxic Air Contaminants

Acetylene	Cellulose	Iron oxide	Perlite
Aluminum metal dust	Coal dust	Lead	Portland cement
Aluminum oxide (nonfibrous forms)	Crystalline silica emissions*	Liquified petroleum gas (l.p.g.)	Propane
Ammonium sulfate		Methane	Silicon
Argon	Emery	Neon	Starch
Calcium carbonate	Ethane	Nitrogen	Sucrose
Calcium hydroxide	Graphite (synthetic)	Nitrogen oxides	Sulfur dioxide
Calcium oxide	Grain dust	Nuisance particulates	Vegetable oil mist
Calcium silicate	Helium	Oxygen	Water vapor
Calcium sulfate	Hydrogen	Ozone	Zinc metal dust
Carbon dioxide			
Carbon monoxide			

*Crystalline silica emissions from any of the following processes:

- •Extraction and processing of all metallic or non-metallic minerals
- •Sand production, processing, and drying
- •Asphalt production
- •Concrete production
- •Glass and fiberglass manufacturing
- •Foundries
- •Foundry residual recovery activities
- •Any other process if the crystalline silica emissions are less than 10% of the total PM-10 emissions.

NESHAP Air Pollutants

The following air pollutants from certain sources are regulated by National Emission Standards for Hazardous Air Pollutants (NESHAP) that were promulgated prior to the Clean Air Act Amendments of 1990:

- Arsenic
- Asbestos
- Beryllium
- Benzene
- Mercury
- Radionuclides
- Vinyl chloride

NSPS Air Pollutants

In addition to criteria air pollutants, New Source Performance Standards (NSPS) regulate the following air pollutants from certain sources:

- Cadmium
- Dioxin/furan
- Fluorides
- Hydrogen chloride
- Hydrogen sulfide
- Mercury
- Nonmethane organic compounds
- Reduced sulfur compounds
- Sulfuric acid mist
- Total organic compounds
- Total particulate matter
- Total reduced sulfur

Section 112(r) Air Pollutants

Section 112(r) of the 1990 Clean Air Act Amendments requires risk management planning and accidental release prevention. Table 5 lists the 77 toxic chemicals and 63 flammable chemicals that are regulated under Section 112(r).

Odors

Michigan's definition of air contaminant includes odors. An odorous compound may be regulated under Michigan Rule 901 but not be a regulated air contaminant at the federal level or defined as a toxic air contaminant. The Air Quality Division has a reference table for odorous compounds. For a copy of this table, see the "Where To Go For Additional Assistance" section of this fact sheet on page 8.

Regulated Air Contaminants as Defined in the Renewable Operating Permit Program

The Renewable Operating Permit Program is required by Title V of the 1990 Clean Air Act Amendments. This program is intended to simplify a facility's requirements by consolidating all state and federal air quality requirements into one document. Facilities that exceed major source emission thresholds are subject to the Renewable Operating Permit Program.

Regulated air contaminants, as defined in the Renewable Operating Permit Program, is a very large family made up of many different families of air contaminants. Those families are the following: criteria air pollutants, ozone precursors, HAPs, NESHAP air pollutants, NSPS air pollutants, and Class I and Class II air pollutants. In fact, all of the families discussed in this fact sheet are contained within the definition of regulated air contaminants, except for toxic air contaminants and Section 112(r) air pollutants.

Facilities subject to the Renewable Operating Permit Program must pay an annual fee which is based partly on their emission of air pollutants. Fee-subject air pollutants include particulate matter (expressed as PM-10), nitrogen oxides, sulfur dioxide, volatile organic compounds, ozone, lead, and any air pollutant regulated under Section 111 (Standards of Performance for New Stationary Sources) or Section 112 (Hazardous Air Pollutants) of the Clean Air Act. Carbon monoxide is not a fee-subject air pollutant.

Table 5. Chemicals Regulated Under Section 112(r) of the Clean Air Act

TOXIC CHEMICALS	
CAS No.	Chemical
107-02-8	Acrolein
107-13-1	Acrylonitrile
814-68-6	Acrylyl chloride
107-18-6	Allyl alcohol
107-11-9	Allylamine
7664-41-7	Ammonia (anhydrous)
7664-41-7	Ammonia (conc 20% or greater)
7784-34-1	Arsenous trichloride
7784-42-1	Arsine
10294-34-5	Boron trichloride
7637-07-2	Boron trifluoride
353-42-4	Boron trifluoride compound with methyl ether (1:1)
7726-95-6	Bromine
75-15-0	Carbon disulfide
7782-50-5	Chlorine
10049-04-4	Chlorine dioxide
67-66-3	Chloroform
542-88-1	Chloromethyl ether
107-30-2	Chloromethyl methyl ether
4170-30-3	Crotonaldehyde
123-73-9	Crotonaldehyde, (E)-
506-77-4	Cyanogen chloride
108-91-8	Cyclohexylamine
19287-45-7	Diborane
75-78-5	Dimethyldichlorosilane
57-14-7	1,1-Dimethylhydrazine
106-89-8	Epichlorohydrin
107-15-3	Ethylenediamine
151-56-4	Ethyleneimine
75-21-8	Ethylene oxide
7782-41-4	Fluorine
50-00-0	Formaldehyde (solution)
110-00-9	Furan
302-01-2	Hydrazine
7647-01-0	Hydrochloric acid (conc 37% or greater)
74-90-8	Hydrocyanic acid
7647-01-0	Hydrogen chloride (anhydrous)
7664-39-3	Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater)
7783-07-5	Hydrogen selenide
7783-06-4	Hydrogen sulfide
13463-40-6	Iron, pentacarbonyl-
78-82-0	Isobutyronitrile
108-23-6	Isopropyl chloroformate
126-98-7	Methacrylonitrile
74-87-3	Methyl chloride
79-22-1	Methyl chloroformate
60-34-4	Methyl hydrazine
624-83-9	Methyl isocyanate
74-93-1	Methyl mercaptan
556-64-9	Methyl thiocyanate
75-79-6	Methyltrichlorosilane
13463-39-3	Nickel carbonyl
7697-37-2	Nitric acid (conc 80% or greater)
10102-43-9	Nitric oxide
8014-95-7	Oleum (Fuming Sulfuric acid)
79-21-0	Peracetic acid
594-42-3	Perchloromethylmercaptan
75-44-5	Phosgene
7803-51-2	Phosphine
10025-87-3	Phosphorus oxychloride
7719-12-2	Phosphorus trichloride
110-89-4	Piperidine
107-12-0	Propionitrile
109-61-5	Propyl chloroformate
75-55-8	Propyleneimine
75-56-9	Propylene oxide
7446-09-5	Sulfur dioxide
7783-60-0	Sulfur tetrafluoride
7446-11-9	Sulfur trioxide
75-74-1	Tetramethyllead
509-14-8	Tetranitromethane
7550-45-0	Titanium tetrachloride
584-84-9	Toluene 2,4-diisocyanate
91-08-7	Toluene 2,6-diisocyanate
26471-62-5	Toluene diisocyanate (unspecified isomer)
75-77-4	Trimethylchlorosilane
108-05-4	Vinyl acetate monomer

FLAMMABLE CHEMICALS	
CAS No.	Chemical
75-07-0	Acetaldehyde
74-86-2	Acetylene
598-73-2	Bromotrifluorethylene
106-99-0	1,3-Butadiene
106-97-8	Butane
106-98-9	1-Butene
107-01-7	2-Butene
25167-67-3	Butene
590-18-1	2-Butene-cis
624-64-6	2-Butene-trans
463-58-1	Carbon oxysulfide
7791-21-1	Chlorine monoxide
557-98-2	2-Chloropropylene
590-21-6	1-Chloropropylene
460-19-5	Cyanogen
75-19-4	Cyclopropane
4109-96-0	Dichlorosilane
75-37-6	Difluoroethane
124-40-3	Dimethylamine
463-82-1	2,2-Dimethylpropane
74-84-0	Ethane
107-00-6	Ethyl acetylene
75-04-7	Ethylamine
75-00-3	Ethyl chloride
74-85-1	Ethylene
60-29-7	Ethyl ether
75-08-1	Ethyl mercaptan
109-95-5	Ethyl nitrite
1333-74-0	Hydrogen
75-28-5	Isobutane
78-78-4	Isopentane
78-79-5	Isoprene
75-31-0	Isopropylamine
75-29-6	Isopropyl chloride
74-82-8	Methane
74-89-5	Methylamine
563-45-1	3-Methyl-1-butene
563-46-2	2-Methyl-1-butene
115-10-6	Methyl ether
107-31-3	Methyl formate
115-11-7	2-Methylpropene
504-60-9	1,3-Pentadiene
109-66-0	Pentane
109-67-1	1-Pentene
646-04-8	2-Pentene, (E)-
627-20-3	2-Pentene, (Z)-
463-49-0	Propadiene
74-98-6	Propane
115-07-1	Propylene
74-99-7	Propyne
7803-62-5	Silane
116-14-3	Tetrafluoroethylene
75-76-3	Tetramethylsilane
10025-78-2	Trichlorosilane
79-38-9	Trifluorochloroethylene
75-50-3	Trimethylamine
689-97-4	Vinyl acetylene
75-01-4	Vinyl chloride
109-92-2	Vinyl ethyl ether
75-02-5	Vinyl fluoride
75-35-4	Vinylidene chloride
75-38-7	Vinylidene fluoride
107-25-5	Vinyl methyl ether

Air Contaminants Belonging to Multiple Families

Many air contaminants belong to multiple families and are, therefore, regulated under many different state and federal air regulatory programs. For example, xylene is considered a VOC, HAP, toxic air contaminant, and a regulated air contaminant.

WHERE TO GO FOR ADDITIONAL ASSISTANCE

For more information on air contaminants, including obtaining copies of rules and other publications previously mentioned, contact:

Clean Air Assistance Program
Environmental Science and Services Division
Michigan Department of Environmental Quality
P.O. Box 30457
Lansing, MI 48909-7957
800-662-9278