



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name SODIUM HYDROXIDE
Version # 02
Revision date 08-29-2011
CAS # 1310-73-2
Product Codes J.T.Baker: 3718, 3721, 3722, 3723, 3724, 3728, 3734, 3736, 5045, 5565
Macron: 7001, 7680, 7708, 7772
Synonym(s) Soda lye * Sodium hydroxide, solid
Manufacturer Avantor Performance Materials, Inc.
Address 3477 Corporate Parkway
Suite #200
Center Valley, PA 18034
US
Customer Service 855-282-6867
24 Hour Emergency 908-859-2151
Chemtrec 800-424-9300

2. Hazards Identification

Emergency overview DANGER
Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Dust or vapor extremely irritating to the eyes and respiratory tract. Material reacts with water.

OSHA regulatory status This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects
Routes of exposure Ingestion. Inhalation. Skin contact. Eye contact.
Eyes Corrosive. Causes severe eye burns. Dust or splashes from the mixture may cause permanent eye damage.
Skin Corrosive. Causes severe skin burns.
Inhalation Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.
Ingestion Corrosive. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

Target organs Eyes. Skin. Lungs. Respiratory system.

Chronic effects Corrosive. Prolonged contact causes serious tissue damage. Sodium hydroxide: Repeated inhalation exposure to high concentrations of sodium hydroxide may lead to ulceration of the nasal passages.

Potential environmental effects Harmful to aquatic organisms. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

3. Composition / Information on Ingredients

Components	CAS #	Percent
SODIUM HYDROXIDE	1310-73-2	90 - 100

4. First Aid Measures

First aid procedures
Eye contact Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Skin contact	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
Inhalation	Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.
Notes to physician	Keep victim under observation. Treat symptomatically.
General advice	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	The product is not flammable. No unusual fire or explosion hazards noted.
Extinguishing media	
Suitable extinguishing media	Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media	The product reacts with water and will generate heat.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.
Special protective equipment for fire-fighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.
Specific methods	In the event of fire and/or explosion do not breathe fumes.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods for containment	Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.
Methods for cleaning up	Avoid dust formation.
	Large Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.
	Small Spills: Sweep up and place in a clearly labeled container for chemical waste. Clean surface thoroughly to remove residual contamination.
	Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Neutralize spill area and washings with dilute acetic acid. Collect in a non-combustible container for prompt disposal.

7. Handling and Storage

Handling	Wear appropriate personal protective equipment. Do not breathe dust or vapor. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. Considerable heat is generated when water or acid is added, therefore when making solutions always add the caustic to the water or acid with constant stirring. See Section 8 of the MSDS for Personal Protective Equipment.
Storage	Do not store in metal containers. Keep tightly closed in a dry, cool and well-ventilated place.

8. Exposure Controls / Personal Protection

ACGIH Material	Type	Value
SODIUM HYDROXIDE (1310-73-2)	TWA	2.0000 mg/m3

Occupational exposure limits

U.S. - OSHA

Material	Type	Value
SODIUM HYDROXIDE (1310-73-2)	PEL	2.0000 mg/m3

Engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: High-efficiency particulate respirator with full facepiece.
General hygiene considerations	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
General	Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Pellets. Flakes.
Color	White.
Odor	Odorless.
Odor threshold	Not available.
Physical state	Solid.
Form	Solid.
pH	13 (0.5% Solution)
Melting point	613.4 °F (323 °C)
Freezing point	613.4 °F (323 °C)
Boiling point	2530.4 °F (1388 °C)
Flash point	Not available.
Evaporation rate	Not available.
Flammability limits in air, upper, % by volume	Not available.

Flammability limits in air, lower, % by volume	Not available.
Vapor density	Not available.
Specific gravity	2.13
Relative density	Not available.
Solubility (water)	1110 g/l
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Molecular weight	40 g/mol
Molecular formula	H-Na-O

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid	Avoid dust formation. This product may react with oxidizing agents. Reacts violently with strong acids. Heat. Moisture. Do not mix with other chemicals.
Incompatible materials	Moisture. Flammable liquid. Oxidizing agents. Acids. Maleic anhydride. Halogens. Nitromethane. Contact with most metals produces highly flammable hydrogen gas.
Hazardous decomposition products	Sodium oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization	Not a skin sensitizer.
Acute effects	Strongly corrosive. May cause deep tissue damage. Vapors are corrosive. After some hours, injured persons may develop serious shortness of breath and lung edema.
Local effects	Causes severe burns.
Chronic effects	Corrosive. Prolonged contact causes serious tissue damage. Sodium hydroxide: Repeated inhalation exposure to high concentrations of sodium hydroxide may lead to ulceration of the nasal passages.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin corrosion/irritation	Corrosive to skin and eyes.
Epidemiology	No epidemiological data is available for this product.
Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Neurological effects	No data available for this product.
Reproductive effects	Contains no ingredient listed as toxic to reproduction
Teratogenicity	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.
Symptoms and target organs	Corrosive effects.
Further information	Danger of very serious irreversible effects. Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data	Test Results
Product	
SODIUM HYDROXIDE (1310-73-2)	EC50 Water flea (Ceriodaphnia dubia): 34.59 mg/l 48.00 hours LC50 Western mosquitofish (Gambusia affinis): 125 mg/l 96.00 hours

Ecotoxicity	Harmful to aquatic life. The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
Environmental effects	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Persistence and degradability	Expected to be readily biodegradable.
Partition coefficient (n-octanol/water)	Not available

13. Disposal Considerations

Waste codes	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN1823
Proper shipping name	Sodium hydroxide, solid
Hazard class	8
Packing group	II

Additional information:

Special provisions IB8, IP2, IP4, T3, TP33

Basic shipping requirements:

Labels required	8
Additional information:	
Packaging exceptions	154
Packaging non bulk	212
Packaging bulk	240
Reportable quantity	1000
ERG number	154

IATA

Basic shipping requirements:

UN number	1823
Proper shipping name	Sodium hydroxide, solid
Hazard class	8
Packing group	II

Additional information:

ERG code 8L

IMDG

Basic shipping requirements:

UN number	1823
Proper shipping name	SODIUM HYDROXIDE, SOLID
Hazard class	8
Packing group	II



DOT



IATA



IMDG

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA (Superfund) reportable quantity
SODIUM HYDROXIDE: 1000.0000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 311 hazardous chemical Yes

Clean Water Act (CWA) Hazardous substance

Food and Drug Administration (FDA) Total food additive
Direct food additive
GRAS food additive

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - Pennsylvania RTK - Hazardous Substances: Listed substance
SODIUM HYDROXIDE (CAS 1310-73-2) Listed.

Saf-T-Data Health: 2 - Moderate (Poison)
Flammability: 0 - None
Reactivity: 2 - Moderate
Contact: 4 - Extreme (Corrosive)
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: WS - White Stripe (Store Separately)

16. Labeling Info

Label Hazard Warning	DANGER
Label Precautions	Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Dust or vapor extremely irritating to the eyes and respiratory tract. Material reacts with water. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling. DO NOT allow water to come into contact with this material.
Label First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

17. Other Information

NFPA ratings	Health: 3 Flammability: 0 Instability: 1
Disclaimer	THE INFORMATION PRESENTED IN THIS MATERIAL SAFETY DATA SHEET (MSDS/SDS) WAS PREPARED BY TECHNICAL PERSONNEL BASED ON DATA THAT THEY BELIEVE IN THEIR GOOD FAITH JUDGMENT IS ACCURATE. HOWEVER, THE INFORMATION PROVIDED HEREIN IS PROVIDED "AS IS," AND AVANTOR PERFORMANCE MATERIALS MAKES AND GIVES NO REPRESENTATIONS OR WARRANTIES WHATSOEVER, AND EXPRESSLY DISCLAIMS ALL WARRANTIES REGARDING SUCH INFORMATION AND THE PRODUCT TO WHICH IT RELATES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF ACCURACY, COMPLETENESS, MERCHANTABILITY, NON-INFRINGEMENT, PERFORMANCE, SAFETY, SUITABILITY, STABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTIES ARISING FROM COURSE OF DEALING, COURSE OF PERFORMANCE, OR USAGE OF TRADE. THIS MSDS/SDS IS INTENDED ONLY AS A GUIDE TO THE APPROPRIATE PRECAUTIONARY HANDLING OF THE MATERIAL BY A PROPERLY TRAINED PERSON USING THIS PRODUCT, AND IS NOT INTENDED TO BE COMPREHENSIVE AS TO THE MANNER AND CONDITIONS OF USE, HANDLING, STORAGE, OR DISPOSAL OF THE PRODUCT. INDIVIDUALS RECEIVING THIS MSDS/SDS MUST ALWAYS EXERCISE THEIR OWN INDEPENDENT JUDGMENT IN DETERMINING THE APPROPRIATENESS OF SUCH ISSUES. ACCORDINGLY, AVANTOR PERFORMANCE MATERIALS ASSUMES NO LIABILITY WHATSOEVER FOR THE USE OF OR RELIANCE UPON THIS INFORMATION. NO SUGGESTIONS FOR USE ARE INTENDED AS, AND NOTHING HEREIN SHALL BE CONSTRUED AS, A RECOMMENDATION TO INFRINGE ANY EXISTING PATENTS OR TO VIOLATE ANY FEDERAL, STATE, LOCAL, OR FOREIGN LAWS. AVANTOR PERFORMANCE MATERIALS REMINDS YOU THAT IT IS YOUR LEGAL DUTY TO MAKE ALL INFORMATION IN THIS MSDS/SDS AVAILABLE TO YOUR EMPLOYEES.
Issue date	08-29-2011