



MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	SODIUM HYDROXIDE SOLUTION
Version #	04
Revision date	08-29-2011
CAS #	Mixture
Product Codes	J.T.Baker: 0339, 0897, 3719, 3725, 3727, 3730, 3735 Macron: 7705, 7775, V679
Synonym(s)	Caustic soda solution * Lye solution * Sodium hydrate solution * Sodium Hydroxide Concentrate Solution Standard® * Sodium Hydroxide DILUT-IT® Analytical Concentrates * Sodium hydroxide volumetric solutions
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
Chemtec	800-424-9300

2. Hazards Identification

Emergency overview	DANGER Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.
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. Splashes may cause serious 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

Hazardous components	CAS #	Percent
SODIUM HYDROXIDE	1310-73-2	40 - 60
Non-hazardous components	CAS #	Percent
WATER	7732-18-5	40 - 60

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.

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

Wear appropriate protective equipment and clothing during clean-up. Keep unnecessary personnel away. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

Methods for containment

Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.

Methods for cleaning up

Large Spills: Neutralize spill area and washings with dilute acetic acid. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Dike far ahead of spill for later disposal.

Small Spills: Neutralize spill area and washings with dilute acetic acid. Wipe up with absorbent material (e.g. cloth, fleece). Collect in a non-combustible container for prompt disposal.

Never return spills in original containers for re-use. Clean surface thoroughly to remove residual contamination. Clean up in accordance with all applicable regulations.

J. T. Baker NEUTRACIT®-2 or BuCAIM® caustic neutralizers are recommended for spills of this product.

7. Handling and Storage

Handling

Wear appropriate personal protective equipment. Do not breathe mist 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

Components

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

Occupational exposure limits

U.S. - OSHA

Components

	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: Chemical respirator with acid gas cartridge.

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

Clear.

Color

Colorless.

Odor

Odorless.

Odor threshold

Not available.

Physical state

Liquid.

Form	Liquid.
pH	14
Melting point	53.6 °F (12 °C) (50% Solution)
Freezing point	53.6 °F (12 °C) (50% Solution)
Boiling point	284 °F (140 °C) (50% Solution)
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 pressure	0.2 kPa @ 20°C (50% Solution)
Vapor density	Not available.
Specific gravity	1.529 (50% Solution)
Relative density	Not available.
Solubility (water)	Miscible
Partition coefficient (n-octanol/water)	Not available
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	This product may react with oxidizing agents. Reacts violently with strong acids. Do not mix with other chemicals.
Incompatible materials	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

Product	Test Results
SODIUM HYDROXIDE SOLUTION (Mixture)	EC50 Daphnia: 67.82 mg/l 48.00 hours estimated LC50 Fish: 245 mg/l 96.00 hours estimated

Components

Components	Test Results
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 UN1824
Proper shipping name Sodium hydroxide solution
Hazard class 8
Packing group II

Additional information:

Special provisions B2, IB2, N34, T7, TP2

Basic shipping requirements:

Labels required 8

Additional information:

Packaging exceptions 154
Packaging non bulk 202
Packaging bulk 242
ERG number 154

IATA

Basic shipping requirements:

UN number 1824
Proper shipping name Sodium hydroxide solution
Hazard class 8
Packing group II

Additional information:

ERG code 8L

IMDG**Basic shipping requirements:**

UN number 1824
 Proper shipping name SODIUM HYDROXIDE SOLUTION
 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

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: 1 - Slight

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

Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Mist or vapor extremely irritating to eyes and respiratory tract.

Label Precautions

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling.

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

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