

1. Product and Company Identification

Material name	Sodium Hydroxide, 32% Solution, Membrane Grade
Version #	05
Issue date	17-December-2013
Revision date	17-December-2013
Supersedes date	01-March-2011
CAS #	1310-73-2
Product code	NaOH
MSDS Number	0003
Product use	Neutralization of acids, pH control, gas scrubbing, catalyst. Used in manufacture of pulp and paper, petroleum and natural gas, soap and detergents, and cellulose. Also used in water treatment, food processing, mining, and metal processing.
Manufacturer/Supplier	Canexus Corporation 100 Amherst Ave North Vancouver, British Columbia V7H 1S4 CA www.canexus.ca Contact Person: Manager Responsible Care 1-800-699-6924 (604) 929-3441
Emergency	(604) 929-3441

2. Hazards Identification

Physical state	Liquid.
Appearance	Clear to opaque white liquid.
Emergency overview	DANGER Corrosive. Causes skin, eye and digestive tract burns. May be fatal if swallowed. Irritating to respiratory system. Prolonged exposure may cause chronic effects. May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas.
OSHA regulatory status	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes skin burns. Direct contact can cause severe burns with deep ulceration, permanent scarring, and baldness. It can penetrate to deeper layers of the skin with corrosion continuing until material is removed. With dilute solution, the sensation of irritation can be delayed for hours.
Inhalation	Sodium hydroxide does not readily form a vapor so inhalation is only likely to occur if aerosol is formed. Severe irritation of the respiratory tract, and possible permanent damage and pulmonary edema may result from aerosol exposure. Symptoms of edema may be delayed for up to 48 hours.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tracts. Symptoms include severe pain, vomiting, diarrhea, collapse and possible death. Small amounts of caustic which enter the lungs during ingestion or vomiting can cause serious lung injury and death.
Target organs	Eyes. Respiratory system. Skin. Lungs.
Chronic effects	Prolonged skin contact may defat the skin and produce dermatitis.
Signs and symptoms	May cause damage to mucous membranes in nose, throat, lungs and bronchial system. Causes permanent skin damage (scarring). Permanent eye damage including blindness could result. Symptoms may be delayed.
Potential environmental effects	Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the environment. The environmental hazard of the product is considered to be limited.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Sodium hydroxide	1310-73-2	32

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact

Immediately flush contaminated eye(s) with lukewarm, gently running water for at least 30 minutes while holding the eyelid(s) open. Take care not to rinse contaminated water into non-affected eye. Neutral saline solution may be used for flushing if available. DO NOT INTERRUPT FLUSHING. Get medical attention immediately.

Skin contact

Under running water, remove contaminated clothing and rinse skin thoroughly with lukewarm, gently running water for at least 15 minutes. DO NOT INTERRUPT FLUSHING. Get medical attention immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Get medical attention immediately.

Ingestion

DO NOT INDUCE VOMITING. Rinse mouth thoroughly with water and give large amounts of water to people not unconscious. If milk is available, administer AFTER the water. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Obtain medical attention and take along these instructions.

Notes to physician

Treat symptomatically.

General advice

Get medical attention immediately! Chemical burns must be treated by a physician. In case of shortness of breath, give oxygen. If the heart has stopped, trained personnel should begin cardiopulmonary resuscitation immediately. 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 non-combustible. Contact with certain metals liberates flammable gas.

Extinguishing media

Suitable extinguishing media

Use water fog, alcohol-resistant foam, dry chemical or carbon dioxide (CO₂) to extinguish flames. Avoid using a direct stream of water.

Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

Protection of firefighters

Specific hazards arising from the chemical

Fire may produce irritating, corrosive and/or toxic gases.

Protective equipment and precautions for firefighters

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions

Evacuate area. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. In case of fire and/or explosion do not breathe fumes. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

Specific methods

In the event of fire and/or explosion do not breathe fumes. Use water spray to cool unopened containers.

6. Accidental Release Measures

Personal precautions

Isolate area. Keep unnecessary personnel away. For personal protection, see Section 8 of the MSDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

Methods for cleaning up

Absorb spill with vermiculite or other inert material, then place in a container for chemical waste for proper disposal. Neutralization with sodium bicarbonate is recommended. This material and its container must be disposed of as hazardous waste.

Other information

Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Do not get in eyes, on skin, or on clothing. Do not breathe mist or vapor. Use only with adequate ventilation. Keep container closed. Wash thoroughly after handling. Use Personal Protective Equipment recommended in section 8 of the MSDS.

Storage

Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inliner. Storage area should be clearly identified, well-illuminated, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. Keep out of direct sunlight. Do not allow material to freeze. Keep container closed. Store away from incompatible materials (see Section 10 of the MSDS).

May be corrosive to aluminum, stainless steel, Carbon steel, copper, bronze, etc. Drums may need to be vented when received and then at least weekly to relieve internal pressure by trained personnel.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	TWA	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	PEL	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	Ceiling	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	Ceiling	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	Ceiling	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	Ceiling	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Mexico. Occupational Exposure Limit Values

Material	Type	Value
Sodium Hydroxide, 32% Solution, Membrane Grade (CAS 1310-73-2)	Ceiling	2 mg/m3
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

Engineering controls

Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Eye wash facilities and emergency shower must be available when handling this product.

Personal protective equipment**Eye / face protection**

Wear approved chemical safety goggles. A full face shield may be necessary. Contact lenses are not recommended.

Skin protection

Full chemical resistant protective clothing should be used whenever splashing is anticipated. Wear resistant clothing and boots. Wear chemical resistant gloves, avoid leather and wool. Some operations may require the use of a chemical resistant full body encapsulating suit. An eyewash station and safety shower should be made available in the immediate working area.

Respiratory protection

A NIOSH/MSHA approved air-purifying respirator with the appropriate chemical cartridges or a positive pressure, air-supplied respirator may be used to reduce exposure. Use self-contained breathing apparatus for entry into confined space or other poorly ventilated areas or for large spill clean-up sites. Advice should be sought from respiratory protection specialists.

General hygiene considerations

When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Remove and isolate contaminated clothing and shoes. Handle in accordance with good industrial hygiene and safety practice. Launder contaminated clothing before reuse.

9. Physical & Chemical Properties

Appearance	Clear to opaque white liquid.
Physical state	Liquid.
Form	Liquid.
Color	Clear to white.
Odor	None.
Odor threshold	Not available.
pH	Not available. 14
Vapor pressure	2 kPa @ (20 °C)
Vapor density	Not available.
Boiling point	Not available. 246.2 °F (119 °C)
Melting point/Freezing point	42.8 °F (6 °C) (Approximate)
Solubility (water)	Completely soluble, 100 %
Specific gravity	Not available.
Flash point	The product itself does not burn
Flammability limits in air, upper, % by volume	Not available.

Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
VOC	No data available
Partition coefficient (n-octanol/water)	essentially zero
Other data	
Decomposition temperature	Sodium hydroxide decomp to sodium oxide and water.
Density	1.35 g/cm ³ (15°C)

10. Chemical Stability & Reactivity Information

Chemical stability	Stable at normal conditions. Rapidly absorbs carbon dioxide from the air forming sodium carbonate.
Conditions to avoid	Corrosive to metals. Contact with certain metals liberates hydrogen gas which can cause a flash fire. The product reacts with water and will generate heat. Keep away from heat, sparks, and flame.
Incompatible materials	Acids. Organic material. Aluminum. Phosphorus. Zinc. Tin.
Hazardous decomposition products	No hazardous decomposition products are known.
Possibility of hazardous reactions	Sodium hydroxide does not polymerize itself. Reacts vigorously and violently with many organic and inorganic chemicals such as strong acids, nitroaromatic, nitroparaffin and organohalogen compounds, glycols, and organic peroxides. Produces flammable and explosive hydrogen gas when reacted with sodium tetrahydroborate or metals such as aluminum, tin, or zinc. Can produce toxic carbon monoxide on contact with sugars. Corrosive to aluminum, tin, zinc, copper, brass and bronze. Corrosive to steel above 40 degrees Celsius. Not corrosive to nickel. Slowly attacks glass at room temperature.

11. Toxicological Information

Sensitization	Not classified.
Acute effects	Corrosive.
Local effects	Causes burns.
Chronic effects	Causes burn of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema. Symptoms of pulmonary edema may be delayed. Chronic skin contact with low concentrations may cause dermatitis.
Carcinogenicity	Not classified.
Epidemiology	Not available.
Mutagenicity	Not classified.
Reproductive effects	Not classified.
Teratogenicity	Not classified.
Symptoms and target organs	Causes severe skin burns and eye damage. May cause damage to mucous membranes in nose, throat, lungs and bronchial system. Symptoms include coughing, choking and wheezing.
Further information	No data available.

12. Ecological Information

Ecotoxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. Because of the high pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.
Environmental effects	The product may cause risk of hazardous effects to the environment.
Persistence and degradability	No data available.
Bioaccumulation / Accumulation	The product is not expected to bioaccumulate.
Partition coefficient	No data available.
Mobility in environmental media	The product is water soluble and may spread in water systems.

13. Disposal Considerations

Waste codes	D002: Corrosive waste
Disposal instructions	Dispose of this material and its container at hazardous or special waste collection point. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Dispose in accordance with all local, provincial, state and federal regulations.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied.

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
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1824
UN proper shipping name	Sodium hydroxide solution
Transport hazard class(es)	8
Packing group	II
ERG code	8L

IMDG

UN number	UN1824
UN proper shipping name	SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)	8
Packing group	II
EmS	F-A, S-B

TDG

UN number	UN1824
Proper shipping name	SODIUM HYDROXIDE SOLUTION
Hazard class	8
Packing group	II

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

Sodium hydroxide: 1000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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Section 302 extremely hazardous substance (40 CFR 355, Appendix A) No

SARA 311/312 Yes
Hazardous chemical

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15) Not controlled

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

Canadian regulations This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Canadian Environmental Protection Act (CEPA): All components of this material are on the Domestic Substances List (DSL)

WHMIS status Controlled

WHMIS classification D2B - Other Toxic Effects-TOXIC
E - Corrosive

WHMIS labeling



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 this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

State regulations This product has been certified to NSF/ANSI 60 (certificate number 07871-01) for a Maximum Use Level (MUL) of 100 mg/L.

US - California Hazardous Substances (Director's): Listed substance

Sodium hydroxide (CAS 1310-73-2) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US - New Jersey RTK - Substances: Listed substance

Sodium hydroxide (CAS 1310-73-2) Listed.

US. Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2) Listed.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2) Listed.

Mexico regulations This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

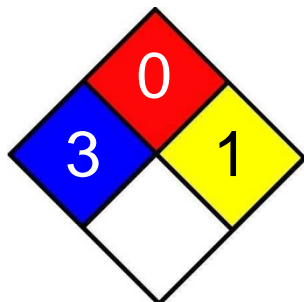
Further information

Health Rating: 3 - Severe (Poison)

HMIS® ratings

Health: 3*
Flammability: 0
Physical hazard: 1

NFPA Ratings



Disclaimer

The information contained herein was obtained from current and reliable sources. However, the data is provided without any warranty, expressed or implied, regarding its correctness or accuracy. Since the conditions for use, handling, storage and disposal of this product are beyond the manufacturer's control, it is the user's responsibility both to determine safe conditions for use of this product and to assume liability for loss, injury, damage or expense arising from the product's improper use. No warranty, expressed or implied, regarding the product described herein shall be created by or inferred from any statement or omission in this SDS. Various government agencies may have specific regulations concerning the transportation, handling, storage, use or disposal of this product which may not be reflected in this SDS. The user should review these regulations to ensure full compliance.

This MSDS contains revisions in the following section(s):

MSDS supersedes March 1, 2011 (version 4.0).
MSDS updated to the CPH MSDS NA template.