



MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Liquid Caustic Soda, 50%
Product ID: 0014
SYNONYMS: Liquid Caustic Soda; Sodium Hydroxide; NaOH
ISSUE DATE: 08/11/2005
EDITION NO.: 21

PPG Industries, Inc.
One PPG Place, Pittsburgh, PA 15272, USA
24-hour Emergency Telephone Number: 1-412-434-4515
For Product Information (8am-5pm Eastern time):
1-800-243-6774 (C/A)

PREPARER: Product Safety, Chemicals

2. COMPOSITION/INFORMATION ON INGREDIENTS

<u>Material/CAS Number:</u>	<u>Percent</u>
Sodium Hydroxide 1310-73-2	49-51
Water 7732-18-5	Balance
Sodium Chloride 7647-14-5	0-2

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! Corrosive - Causes severe burns to eyes and skin. May cause irreversible eye damage. Severely irritating to the respiratory tract and mucous membranes. Harmful or fatal if inhaled. Harmful or fatal if swallowed.

Environmental Hazard -- This product is toxic to fish. Keep out of lakes, streams, ponds, or other waters.

Precautions: Do not get in eyes, on skin, or on clothing. Corrosive to skin. Even a small amount in the eye can cause blindness. Avoid breathing dusts or mists from solutions. Use only with adequate ventilation. Ventilation must be sufficient to limit employee exposure to this product below

permissible exposure limits. Do not swallow. When making solutions or diluting, only add caustic soda slowly to surface of cold water while stirring. Do not add to warm or hot water, a violent eruption or explosive reaction can result. Avoid contact with organic materials and concentrated acids - may cause violent reactions. Caustic soda reacts with magnesium, aluminum, zinc (galvanized), tin, chromium, brass and bronze, generating hydrogen which is explosive. Caustic soda may react with various sugars to generate carbon monoxide. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed vessels and can cause death. Wash thoroughly after handling. Remove and wash contaminated clothing before reuse. Do not eat, drink or smoke in work area. Liquid caustic soda is shipped hot (100-180 F). Avoid skin contact -- can cause thermal burns.

4. FIRST AID MEASURES

INHALATION: Remove from area to fresh air. If symptomatic, contact a poison control center, emergency room or physician for treatment information.

EYE/SKIN CONTACT: **EYE:** Remove contact lens and pour a gentle stream of warm water through the affected eye for at least 15 minutes. Contact a poison control center, emergency room or physician right away as further treatment will be necessary. **SKIN:** Run a gentle stream of water over the affected area for 15 minutes. A mild soap may be used if available. Contact a poison control center, emergency room or physician right away as further treatment will be necessary.

INGESTION: Gently wipe or rinse the inside of the mouth with water. Sips of water may be given if person is fully conscious. Never give anything by mouth to an unconscious or convulsing person. Do Not induce vomiting. Contact a poison control center, emergency room or physician right away as further treatment will be necessary.

5. FIRE-FIGHTING MEASURES

FLASH POINT: None

EXTINGUISHING MEDIA: Not applicable.

SPECIAL FIREFIGHTING PROCEDURES: Contact with some metals (particularly magnesium, aluminum and galvanized zinc) can rapidly generate hydrogen, which is explosive. Emits toxic fumes under fire conditions. Fire-fighters must wear NIOSH approved pressure demand, self-contained breathing apparatus and full protective clothing when fighting chemical fires.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Only trained personnel equipped with NIOSH approved, full facepiece combination dust/mist respirators should be permitted in area. For dry material, use appropriate methods, shovels, brooms, and vacuums to clean up the spill. If mixed with water, or likely to become mixed with water or any liquid, dike area to contain spill. Reclaim if possible. Or, dilute spill with large amounts of water then neutralize with dilute acid. Use vacuum truck to pick up neutralized material for proper disposal. Properly neutralized liquid residues (pH 6 to 9) may be disposed of in waste water treatment facilities

which allow the discharge of neutral salt solutions. After all visible traces have been removed, flush area with large amounts of water.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN DURING HANDLING AND STORAGE:

Wear appropriate personal protective equipment when handling this product. Never touch eyes or face with hands or gloves that may be contaminated with this product. When making solutions or diluting, only add caustic soda slowly to surface of cold water while stirring. Do not add to warm or hot water, a violent eruption or explosive reaction can result. Avoid contact with organic materials and concentrated acids - may cause violent reactions. Caustic soda reacts with magnesium, aluminum, zinc (galvanized), tin, chromium, brass and bronze, generating hydrogen which is explosive. Caustic soda may react with various sugars to generate carbon monoxide. Hazardous carbon monoxide gas can form upon contact with food and beverage products in enclosed vessels and can cause death. Follow appropriate tank entry procedures (see ANSI Z177.1 - 1977). Do not enter a storage tank or container (truck or rail) that has contained this product, even if it appears empty. Liquid caustic soda is shipped hot (100-180 °F). Avoid skin contact -- can cause thermal burns.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:

8-hour Time Weighted Average (TWA); 15-minute Short-Term Exposure Limit (STEL)

OSHA: The OSHA exposure limit(s) for Sodium Hydroxide: 2 mg/m³ Ceiling.

ACGIH: The ACGIH exposure limit(s) for Sodium Hydroxide: 2 mg/m³ Ceiling.

ONTARIO: The Ontario Exposure limit(s) for Sodium Hydroxide: 2 mg/m³CEV

RESPIRATORY PROTECTION: Where ventilation is inadequate, use a regulatory compliant full facepiece air purifying respirator with the appropriate chemical cartridges or positive-pressure, air-supplied respirator. Carefully read and follow the respirator manufacturer's instructions and information.

VENTILATION: Use local exhaust sufficient to maintain dust/mist levels below permissible exposure limits.

EYE AND FACE PROTECTION: Close fitting chemical safety goggles with faceshield.

PROTECTIVE GLOVES: Nitrile. Neoprene. Natural rubber.

OTHER PROTECTIVE EQUIPMENT: Boots, aprons, or chemical suits should be used when necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: 287 °F (142°C)

Vapor Density (Air=1):	NA
Specific Gravity (Water=1):	1.530 @ 60/60°F
pH:	Strongly basic
FREEZING/MELTING POINT:	41-51°F (5-11°C)
SOLUBILITY (wt.% in water):	347g/100g water @ 100°C
Bulk Density (kg/M3):	12.76 lbs/gal @ 60°F
VOLUME % VOLATILE:	50
VAPOR PRESSURE:	1 mm Hg @ 1362°F (739°C) for sodium hydroxide - solid.
Evaporation Rate:	NA
HEAT OF SOLUTION:	Exothermic
Physical State:	Liquid.
Odor:	Odorless
COLOR:	Water white to slightly turbid

10. STABILITY AND REACTIVITY

Stability: Stable.

HAZARDOUS POLYMERIZATION: Will not occur.

INCOMPATIBILITY (CONDITIONS/MATERIALS TO AVOID):

Contact with organic materials and concentrated acids may cause violent reactions. Contact with magnesium, aluminum, galvanized zinc, tin, chromium, brass and bronze generates explosive hydrogen. Reactions with various food sugars may form carbon monoxide.

HAZARDOUS THERMAL DECOMPOSITION/COMBUSTION PRODUCTS:

Oxides of sodium.

11. TOXICOLOGICAL INFORMATION

ACUTE INHALATION LC50:	Corrosive
SKIN IRRITATION:	Corrosive.
EYE IRRITATION:	Corrosive.
ACUTE ORAL LD50:	0.24 g/kg (rat) High toxicity. Corrosive.

CARCINOGENICITY STATUS: This product is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, ACGIH, or OSHA.

MEDICAL CONDITIONS AGGRAVATED: None known.

EFFECTS OF OVEREXPOSURE:

ACUTE:

Eye/Skin: Causes severe burns to the eyes. Small quantities can result in permanent damage and/or loss of vision. For skin contact, corrosive action causes burns and frequently deep ulcerations with subsequent scarring. Prolonged contact destroys tissue. Dust or mist from solutions can cause

irritant dermatitis.

Ingestion: Ingestion either in solid or liquid form can cause very serious damage to the mucous membranes or other tissues with which contact is made, and may be fatal.

Inhalation: Inhalation of dusts or mists can cause damage to the upper respiratory tract and to the lung tissue depending on severity of exposure. Effects can range from mild irritation of mucous membranes, severe pneumonitis and destruction of lung tissues.

CHRONIC: The effects of long-term, low level exposures to this product have not been determined. Safe handling of this material on a long-term basis should emphasize the prevention of all contact with this material to avoid any effects from repetitive acute exposures.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

240 ug/l (Bluegill) 96-hour TLM LC50. Highly toxic to aquatic life.

ENVIRONMENTAL FATE:

No data at this time.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD:

Waste material must be disposed of in accordance with federal, state, provincial, and local environmental control regulations. Empty containers should be recycled or disposed of through an approved waste management facility. PPG recommends disposal of dry residues in an approved hazardous waste management facility or by neutralizing and disposing of according to local or permitted regulations.

14. TRANSPORT INFORMATION

Proper Shipping Name: Sodium Hydroxide, Solution
Hazard Class: 8 (Corrosive)
UN Number: UN1824
Packing Group: II
USA-RQ, Hazardous Substance and Quantity: 1000 lbs./454 kg (sodium hydroxide 1310-73-2)
Marine Pollutant: None
Additional Information: USA Shipments Only - Hazardous Substances are regulated in the USA when shipped above their Reportable Quantity (RQ).

Liquid caustic soda is shipped hot (100-180°F).

15. REGULATORY INFORMATION

USA TSCA: All components of this product are listed on the TSCA Inventory.

EU EINECS: All components in this product are listed on EINECS or meet the polymer definition.

CANADA DOMESTIC SUBSTANCES LIST (DSL): This product and/or all of its components are

listed on the Canadian DSL.

AUSTRALIA AICS: All components of this product are listed on AICS.

KOREA ECL: All components in this product are listed on the Korean Existing Chemicals Inventory (KECI).

JAPAN MITI (ENCS): All components in this product are listed on the Japanese Existing and New Chemical Substances (ENCS) chemical inventory.

PHILIPPINES PICCS: All of the components in this product are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS).

CHINA IECSC: All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC) or otherwise exempt.

SARA TITLE III:

SARA (311, 312) Hazard Class:

Acute Health Hazard. Reactive Hazard.

SARA (313) Chemicals:

Not listed.

SARA Extremely Hazardous Substance:

Not listed.

CERCLA Hazardous Substance:

The following materials are listed as CERCLA Hazardous Substances in Table 302.4 of 40 CFR Part 302: Sodium Hydroxide (1310-73-2) RQ = 1000 lbs./454 kg.

CANADA REGULATIONS (WHMIS): Class E - Corrosive Material.

16. OTHER INFORMATION

Other Information:

NSF/ANSI Drinking Water Treatment Chemicals - Health Effects Listing - PPG sodium hydroxide/caustic soda is certified for maximum use at 200 mg/l under NSF/ANSI Standard 60.

In case of emergency in Canada, contact PPG Canada, Inc., B.P.2010, Beauharnois, Quebec J6N 3C3, 450-429-3552, or Canutec 613-996-6666.

The following has been revised since the last issue of this MSDS:

Date. Edition. Section 1 has been updated. Section 2 has been updated. Section 3 has been updated. Section 5 has been updated. Section 8 has been updated. Section 9 has been updated. Section 10 has been updated. Section 11 has been updated. Section 12 has been updated. Section 14 has been updated. Section 15 has been updated. Section 16 has been updated.

Previous revision date: 7/15/2002

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NA = Not Available