SAFETY DATA SHEET

OxyChem®

Responsible Care® Good Chemistry at Work

CAUSTIC SODA LIQUID (ALL GRADES)

MSDS No.: M32415 **Rev. Date:** 31-May-2009 **Rev. Num.:** 05

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Company Identification:	Occidental Chemical Corporation 5005 LBJ Freeway P.O. Box 809050 Dallas, Texas 75380-9050
24 Hour Emergency Telephone Number:	1-800-733-3665 or 1-972-404-3228 (U.S.); 32.3.575.55.55 (Europe); 1800-033-111 (Australia)
To Request an MSDS:	MSDS@oxy.com or 1-972-404-3245
Customer Service:	1-800-752-5151 or 1-972-404-3700
Trade Name:	Caustic Soda Diaphragm Grade 10%, 15%, 18%, 20%, 25%, 30%, 35%, 40%, 50%, Caustic Soda Rayon Grade 18%, 20%, 25%, 30%, 50%, 50% Caustic Soda Rayon Grade OS, Caustic Soda Membrane 6%, 18%, 20%, 25%, 30%, 48%, 50%, 50% Caustic Soda Membrane OS, 50% Caustic Soda Diaphragm OS, Caustic Soda Low Salt 50%, 25% Caustic Soda Purified, 50% Caustic Soda Purified, 50% Caustic Soda Purified OS, Caustic Soda Liquid 70/30, Membrane Blended, 50% Caustic Soda Membrane (Northeast), 50% Caustic Soda Diaphragm (West Coast), 50% Blended Rayon Grade Blended, Membrane Cell Liquor
Synonyms:	Sodium hydroxide solution, Liquid Caustic, Lye Solution, Caustic, Lye, Soda Lye
Product Use:	Metal finishing, Cleaner, Process chemical, Petroleum industry

2. HAZARDS IDENTIFICATION

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EMERGENCY OVERVIEW:

Color:	Colorless to slightly colored
Physical State:	Liquid
Appearance:	Clear to opaque
Odor:	Odorless
Signal Word:	DANGER

2. HAZARDS IDENTIFICATION

MAJOR HEALTH HAZARDS: CORROSIVE. CAUSES BURNS TO THE RESPIRATORY TRACT, SKIN, EYES AND GASTROINTESTINAL TRACT. CAUSES PERMANENT EYE DAMAGE.
PHYSICAL HAZARDS: CORROSIVE. Mixing with water, acid or incompatible materials may cause splattering and release of heat.
ECOLOGICAL HAZARDS: Keep out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters. This material has exhibited moderate toxicity to aquatic organisms.
PRECAUTIONARY STATEMENTS: Avoid contact with skin, eyes and clothing. Avoid breathing vapor or mist. Keep container tightly closed. Wash thoroughly after handling. Use only with adequate ventilation.
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POTENTIAL HEALTH EFFECTS:

Inhalation: May cause irritation (possibly severe), chemical burns, and pulmonary edema.

Skin contact: May cause irritation (possibly severe) and chemical burns.

Eye contact: May cause irritation (possibly severe), chemical burns, eye damage, and blindness.

Ingestion: May cause irritation (possibly severe), chemical burns, nausea, and vomiting.

TARGET ORGAN(S): Respiratory System, Skin, Eye

Medical Conditions Aggravated by Exposure: Asthma, Respiratory disorders

See Section 11: TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percentage	CAS Number
Water	48.5 - 94.5	7732-18-5
Sodium Hydroxide	5.5 - 51.5	1310-73-2
Sodium Chloride	1 - 5	7647-14-5

4. FIRST AID MEASURES

INHALATION: If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

SKIN CONTACT: Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing before reuse. Discard contaminated leather goods. GET MEDICAL ATTENTION IMMEDIATELY.

4. FIRST AID MEASURES

EYE CONTACT: Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

INGESTION: Never give anything by mouth to an unconscious or convulsive person. If swallowed, do not induce vomiting. Give large amounts of water. If vomiting occurs spontaneously, keep airway clear. Give more water when vomiting stops. GET MEDICAL ATTENTION IMMEDIATELY.

Notes to Physician: The absence of visible signs or symptoms of burns does NOT reliably exclude the presence of actual tissue damage. Probable mucosal damage may contraindicate the use of gastric lavage.

5. FIRE-FIGHTING MEASURES

Fire Hazard: Negligible fire hazard

Extinguishing Media: Use extinguishing agents appropriate for surrounding fire.

Fire Fighting: Move container from fire area if it can be done without risk. Cool containers with water. Avoid contact with skin.

Sensitivity to Mechanical Impact: Not sensitive

Sensitivity to Static Discharge: Not sensitive

Flash point: Not flammable

6. ACCIDENTAL RELEASE MEASURES

Occupational Release:
Wear appropriate personal protective equipment recommended in Section 8 of the SDS. Completely contain spilled material with dikes, sandbags, etc. Shovel dry material into suitable container. Liquid material may be removed with a vacuum truck. Remaining material may be diluted with water and neutralized with dilute acid, then absorbed and collected. Flush spill area with water, if appropriate. Keep product and flush water out of water supplies and sewers. This material is alkaline and may raise the pH of surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

7. HANDLING AND STORAGE

Storage Conditions: Store and handle in accordance with all current regulations and standards. Keep container tightly closed and properly labeled. Do not store in aluminum container or use aluminum fittings or transfer lines, as flammable hydrogen gas may be generated. Keep separated from incompatible substances (see Section 10 of SDS).

7. HANDLING AND STORAGE

Handling Procedures: Avoid breathing vapor or mist. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. When mixing, slowly add to water to minimize heat generation and spattering.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Regulatory Exposure limit(s):

Component	Argentina OELs	Brazil OELs	Chile OELs	Mexico OELS
Sodium Hydroxide 1310-73-2	2 mg/m^3 (Ceiling)	-----	2 mg/m^3 (Ceiling)	2 mg/m^3 (Peak)

Component	Austrailia OELs	China OELs	New Zealand OELs	Taiwan OELs	Turkey OELs	Korea OELs
Sodium Hydroxide 1310-73-2	2 mg/m^3 (Peak)	2 mg/m^3 (MAC)	2 mg/m^3 (Ceiling)	2 mg/m^3 [TWA] 4 mg/m^3 [STEL]	-----	2 mg/m^3 (Ceiling)

Component	Phillippines OELs	Japan OELs	OSHA Final PEL STEL	OSHA Final PEL TWA	OSHA Final PEL Ceiling
Sodium Hydroxide 1310-73-2	2 mg/m^3 (TWA)	2 mg/m^3 (Ceiling)	-----	2 mg/m^3	-----

OEL: Occupational Exposure Level; OSHA: United States Occupational Safety and Health Administration; PEL: Permissible Exposure Level; TWA: Time Weighted Average; STEL: Short Term Exposure Level

Non-Regulatory Exposure Limit(s):

Component	CAS Number	ACGIH TWA	ACGIH STEL	ACGIH Ceiling
Sodium Hydroxide	1310-73-2	-----	-----	2 mg/m³

- The American Conference of Governmental Industrial Hygienists (ACGIH) is a voluntary organization of professional industrial hygiene personnel in government or educational institutions in the United States. The ACGIH develops and publishes recommended occupational exposure limits each year called Threshold Limit Values (TLVs) for hundreds of chemicals, physical agents, and biological exposure indices.

ENGINEERING CONTROLS:
Provide local exhaust ventilation where dust or mist may be generated. Ensure compliance with applicable exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:
Eye Protection: Wear chemical safety goggles with a faceshield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Skin and Body Protection: Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Contaminated clothing should be removed, then discarded or laundered.

Hand Protection: Wear appropriate chemical resistant gloves

Protective Material Types: Natural rubber, Neoprene, Nitrile

Component	Immediately Dangerous to Life/ Health (IDLH)
Sodium Hydroxide	10 mg/m^3 IDLH

Respiratory Protection: An approved respirator with high efficiency particulate air filters / cartridges may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. If eye irritation occurs, a full face style mask should be used. A respiratory protection program that meets applicable regulatory requirements must be followed whenever workplace conditions warrant use of a respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Clear to opaque
Color:	Colorless to slightly colored
Odor:	Odorless
Flash point:	Not flammable
Boiling Point/Range:	230 - 29°F (110 - 144°C)
Freezing Point/Range:	-26 to 59°F (-32 to 15 °C)
Vapor Pressure:	13 - 135 mmHg @ 60°C
Specific Gravity (water=1):	1.11 – 1.53 @ 15.6 °C
Water Solubility:	100%
pH:	14.0 (7.5% solution)
Volatility:	No data available
Evaporation Rate (ether=1):	No data available
Partition Coefficient (n-octanol/water):	No data available

10. STABILITY AND REACTIVITY

Reactivity/ Stability:	Stable at normal temperatures and pressures.
Conditions to Avoid:	Mixing with water, acid, or incompatible materials may cause splattering and release of large amounts of heat. Will react with some metals forming flammable hydrogen gas. Carbon monoxide gas may form upon contact with reducing sugars, food and beverage products in enclosed spaces.
Incompatibilities/ Materials to Avoid:	Acids, Halogenated compounds, Prolonged contact with aluminum, brass, bronze, copper, lead, tin, zinc or other alkali sensitive metals or alloys
Hazardous Decomposition Products:	Sodium oxides
Hazardous Polymerization:	Will not occur

11. TOXICOLOGICAL INFORMATION

TOXICITY DATA:

Component	LD50 Oral	LC50 Inhalation	LD50 Dermal
Sodium Hydroxide	-----	-----	1350 mg/kg (Rabbit)

ACUTE TOXICITY:
The severity of the tissue damage is a function of its concentration, the length of tissue contact time, and local tissue conditions. After exposure, there may be a time delay before irritation and other effects occur. This material is a strong irritant and is corrosive to the skin, eyes, and mucous membranes. This material may cause severe burns and permanent damage to any tissue with which it comes into contact. Inhalation will cause severe irritation, possible burns with pulmonary edema, which may lead to pneumonitis. Skin contact with this material may cause severe irritation and corrosion of tissue. Repeated exposure may cause dermatitis. Eye contact can cause severe irritation, corrosion with possible corneal damage and blindness. Ingestion may cause irritation, corrosion/ulceration, nausea, and vomiting.

CARCINOGENICITY: This product is not classified as a carcinogen by NTP, IARC or OSHA.

12. ECOLOGICAL INFORMATION

ECOTOXICITY DATA:

- **Aquatic Toxicity:**
  This material has exhibited moderate toxicity to aquatic organisms
  Data provided are for sodium hydroxide

- **Freshwater Fish Toxicity:**
  LC50 brook trout: 25 ppm/ 24 hr
  LC50 king salmon: 48 ppm

- **Invertebrate Toxicity:**
  LC50 Daphnia magna: 100 ppm
  LC50 shrimp: 33 - 100 ppm/48 hr
  LC50 cockle: 330 - 1000 ppm/48 hr

FATE AND TRANSPORT:

BIODEGRADATION: This material is inorganic and not subject to biodegradation.

PERSISTENCE: This material is alkaline and may raise the pH of surface waters with low buffering capacity. This material is believed to exist in the disassociated state in the environment.

BIOCONCENTRATION: This material is not expected to bioconcentrate in organisms.

ADDITIONAL ECOLOGICAL INFORMATION:
This material has exhibited slight toxicity to terrestrial organisms.

13. DISPOSAL CONSIDERATIONS

Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations. May be subject to disposal regulations: U.S. EPA 40 CFR 261. Hazardous Waste Number(s): D002.

14. TRANSPORT INFORMATION

U.S.DOT 49 CFR 172.101:

PROPER SHIPPING NAME: Sodium Hydroxide Solution
UN NUMBER: UN1824
HAZARD CLASS/ DIVISION: 8
PACKING GROUP: II
LABELING REQUIREMENTS: 8
DOT RQ (lbs): RQ 1000 lbs. (Sodium Hydroxide)

CANADIAN TRANSPORTATION OF DANGEROUS GOODS:

UN NUMBER: UN1824
CLASS OR DIVISION: 8
PACKING/RISK GROUP: II

15. REGULATORY INFORMATION

International Inventory Status:

Australian Chemical Inventory:

Component	AICS:
Sodium Hydroxide	Listed
Sodium Chloride	Listed

Canadian Chemical Inventory:

Component	DSL	NDSL
Sodium Hydroxide	Listed	Not Listed
Sodium Chloride	Listed	Not Listed

China Chemical Inventory:

Component	IECS
Sodium Hydroxide	Listed
Sodium Chloride	Listed

European Union Chemical Inventory:

Component	EU - NLPL	ELINCS	EINECS:
Sodium Hydroxide	Not Listed	Not Listed	Listed [215-185-5]
Sodium Chloride	Not Listed	Not Listed	Listed [231-598-3]

Japan Chemical Inventory:

Component	ENCS
Sodium Hydroxide	Listed [1-410; 2-1972]
Sodium Chloride	Listed [1-236]

Korean Chemical Inventory:

Component	KECL
Sodium Hydroxide	Listed [KE-31487]
Sodium Chloride	Listed [KE-31387]

New Zealand Chemical Inventory:

Component	NZIOC
Sodium Hydroxide	Listed
Sodium Chloride	Listed

Philippines - Priority Chemical List:

Component	PICCS:
Sodium Hydroxide	Listed
Sodium Chloride	Listed

U.S. INVENTORY STATUS: Toxic Substance Control Act (TSCA):

Component	TSCA	TSCA 12(b)	TSCA-Section 5
Sodium Hydroxide	Listed	Not Listed	Not Listed
Sodium Chloride	Listed	Not Listed	Not Listed

16. OTHER INFORMATION

Prepared by: OxyChem Corporate HESS - Health Risk Management

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End of Safety Data Sheet