



MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION

Revision Date : May 2004

Product Name : SODIUM HYDROXIDE, SOLID

Other Names : CAUSTIC SODA ; ANHYDROUS SODIUM HYDROXIDE SODIUM HYDRATE ; WHITE CAUSTIC ; SODA LYE

Uses : NaOH solutions are used to neutralise acids and make sodium salts, eg. in petroleum refining to remove sulphuric and organic acids; to treat cellulose in making viscose rayon and cellophane; in reclaiming rubber to dissolve out the fabric; in making plastics to dissolve casein. NaOH solutions hydrolyse fats and form soaps; they precipitate alkaloids and most metals from water solutions

Organisation	Location	Telephone	Ask For
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia 318D Ti Rakau Drive East Tamaki New Zealand	+61 2 97333000 +64 9 2732777	Technical Officer
Poisons Information Centre	Westmead NSW Australia	131126	
Chemcall	Australia New Zealand	1800-251525 0800-243622	
National Poisons Centre	New Zealand	0800-764766	

2. HAZARD IDENTIFICATION

Hazardous according to criteria of NOHSC/ASCC

Dangerous According to the Australian Code for the Transport of Dangerous Goods

Classified as Dangerous Goods According to NZS 5433:1999

CORROSIVE

Risk Phrases

R35	Causes severe burns.
R41	Risk of serious eye damage.
R37	Irritating to respiratory system.

Safety Phrases

S1/2	Keep locked up and out of the reach of children.
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S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39	Wear suitable gloves and eye/face protection.
S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S22	Do not breathe dust.
S24/25	Avoid contact with skin and eyes.

ERMA New Zealand Approval Code : HSR001547

HSNO Hazard Classification : 6.1D 8.1A 8.2B 8.3A 9.1D 9.3C

This Material Safety Data Sheet may not provide exhaustive guidance for all HSNO Controls assigned to this substance. The ERMA website www.ermanz.govt.nz should be consulted for a full list of triggered controls and cited regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Entity	CAS No.	Proportions (%)
SODIUM HYDROXIDE	[1310-73-2]	> 98.4

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

Do NOT INDUCE VOMITING. Give large quantities of water and milk if available Never give anything by mouth to an unconscious person. Get medical attention immediately.

Eye

Raising one eyelid immediately, washing with flowing water or physiological saline for at least 15 minutes. Seek medical attention.

Skin

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

Inhaled

Remove from contaminated area immediately; avoid becoming casualty. If NOT breathing apply artificial resuscitation. Experienced person may administer oxygen if breathing is difficult. Immediately transport to a hospital or doctor

Advice to Doctor

Perform endoscopy in all cases of suspected sodium hydroxide ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base, electrolytes, and fluid intake are also required.

Additional Information

Aggravated medical conditions caused by exposure

Prolonged contact with dilute solutions or dust has a destructive effect upon tissue. Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

5. FIRE FIGHTING MEASURES

Extinguishing Media

In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions.

Hazards from Combustion Products

Very hygroscopic. Incompatible with oxidizing agents, acids, bases, water, organic halogen compounds, nitromethane, magnesium, tin, zinc, aluminium and sources of ignition. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate. Reacts with certain metals releasing flammable and explosive hydrogen gas. Contact with acids and organic halogen compounds (trichloroethylene may cause violent reactions. Contact with nitromethane causes formation of shock-sensitive salts. Reacts readily with various sugars to produce carbon monoxide.

Special protective precautions and equipment for fire fighters

Fire fighters should wear a self contained breathing apparatus and full protective clothing along with protective equipment.

Flammability Conditions

Product is a non-flammable solid.

Additional Information

Hazchem Code : 2X

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures

Personnel involved in the clean up should wear full protective clothing. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Stop leak if safe to do so. Isolate the danger area. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management. Use corrosion-resistant and spark-proof tools and equipment.

Methods and materials for containment and clean up

Contain and sweep/shovel up spills with dust binding material or use an industrial vacuum cleaner. Transfer to a dry, suitable, labelled container and hold for safe disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Ensure an eye bath and safety shower are available and ready for use. Observe good personal hygiene practices and recommended procedures. Wash thoroughly after handling. Take precautionary measures against static discharges by bonding and grounding equipment.

Conditions for safe storage, including any incompatibles

Store in a cool, dry, well-ventilated area. Keep containers tightly closed when not in use. Inspect regularly for deficiencies such as damage or leaks. Protect against physical damage. Store away from incompatible materials including oxidizing agents, acids, water, bases, organic halogen compounds, nitromethane, magnesium, tin, zinc, aluminium and sources of ignition. Protect from direct sunlight, moisture and static discharges. Hygroscopic. Store at ambient temperature. This product has a UN classification of 1823 and a Dangerous Goods Class 8 (corrosive) according to The Australian Code for the Transport of Dangerous Goods by Road and Rail.

Container Type

Packaging must comply with requirements of Hazardous Substances (Packaging) Regulations 2001. Store in original packaging as approved by manufacturer. Suitable: Mild steel drums, polyethylene bags. Unsuitable: Aluminium, tin, zinc and alloys (brasses), chrome.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards

Worksafe recommends - TWA 2 mg/m³ peak limitation

Biological Limit Values

No information available on biological limits for this product.

Engineering Controls

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Protection

RESPIRATOR: Wear an NIOSH approved respirator where ventilation is inadequate. EYES: Safety glasses with side shields (EN166) or face shield as needed. HANDS: Chemical resistant gloves (EN374) CLOTHING: Corrosion-resistant coveralls, apron and safety footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	white flakes, pellets or sticks
Formula	NaOH
Odour	odourless
Vapour Pressure	Not Applicable
Vapour Density	Not Applicable
Boiling Point	1390'C deg C
Melting Point	318'C deg C
Solubility in water	111g/100g H ₂ O g/l (25 deg C)
Specific Gravity	2.13 (Water = 1)
Flash Point	 N/A
pH	13-14 (0.5% soln)
Flammability Limits (as percentage volume in air)	
Lower Explosion Limit	Not Applicable

Upper Explosion Limit	Not Applicable
Ignition Temperature	Not Applicable
Specific Heat Value	Not Applicable
Particle Size	Not Applicable
Volatile Organic Compounds (VOC) content	Not Applicable
Evaporation Rate	Not Applicable
Viscosity	Not Applicable
Percent Volatile	No Data
Octanol/Water partition coefficient	Not Applicable
Saturated Vapour Concentration	Not Applicable
Additional Characteristics	Not Applicable
Flame Propagation/Burning Rate of Solid Materials	Not Applicable
Properties of materials that may initiate or contribute to fire intensity	Not Applicable
Potential for Dust Explosion	Not Applicable
Reactions that Release Flammable Gases	Reacts with metals to generate flammable hydrogen gas.
Fast or Intensely Burning Characteristics	Not Applicable
Non-flammables that could contribute unusual hazards to a fire	Not Applicable
Release of invisible flammable vapours and gases	No Data
Decomposition Temperature	No Data

Additional Information

Solubility: Soluble in water, alcohol and glycerin. Insoluble in acetone.

10. STABILITY AND REACTIVITY

Chemical Stability : Product is stable under directed conditions of use, storage and temperature.

Conditions to avoid : Avoid excessive heat, dusty conditions, direct sunlight, moisture, static discharges and high temperatures.

Incompatible Materials : Incompatible with oxidizing agents, acids, water, metals, organic halogen compounds, nitromethane, aluminium, tin, zinc and sources of ignition.

Hazardous Decomposition Products : Product may emit sodium oxide, carbon monoxide and flammable hydrogen gas.

Hazardous Reactions : Hazardous polymerization will not occur. Contact with acids and organic halogen compounds (trichloroethylene) may cause a violent reaction. Contact with nitromethane and other nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminium, magnesium, tin and zinc generate flammable hydrogen gas. Product reacts readily with various sugars to produce carbon monoxide.

11. TOXICOLOGICAL INFORMATION

Toxicity Data

Eye Irritation Rabbit 24hr: 50ug Skin Irritation Rabbit 24hr: 500mg Investigated as a mutagen.

Health Effects - Acute

Swallowed

Corrosive! Swallowing may cause severe burns of mouth, throat, and stomach. Severe scarring of tissue and death may result. Symptoms may include bleeding, vomiting, diarrhea, fall in blood pressure. Damage may appear days after exposure.

Eye

Corrosive. Causes irritation of eyes, and with greater exposures it can cause burns that may result in permanent impairment of vision, even blindness.

Skin

Corrosive. Contact with skin can cause irritation or severe burns and scarring with greater exposures.

Inhaled

Severe irritant. Effects from inhalation of dust or mist vary from mild irritation to serious damage of the upper respiratory tract, depending on severity of exposure. Symptoms may include sneezing, sore throat or runny nose. Severe pneumonitis may occur.

12. ECOLOGICAL INFORMATION

Ecotoxicity : No Data

Persistence and degradability : No information available on persistence/degradability for this product.

Mobility : No information available on mobility for this product.

Additional information

Environmental fate (exposure) : Avoid contaminating waterways, drains and sewers.

Bioaccumulative potential : No information available on bioaccumulation for this product.

13. DISPOSAL CONSIDERATIONS

Disposal

Use very dilute acid for neutralization. Neutralize aqueous solutions by diluting with very diluted hydrochloric acid. Drain effluent with plenty of water, keeping pH under control. Take caution of heat and splashes caused by water reactions (dissolution heat) or neutralization.

Special Precautions for land fill or incineration

The waste code classification is to be carried out according to the European Waste Catalogue (EWC) specifically for each branch of industry and each type of process.

14. TRANSPORT INFORMATION

UN No.	1823
Shipping Name	SODIUM HYDROXIDE, SOLID
Dangerous Goods Class	8
Subsidiary Risk	None Allocated
Pack Group	II
Precaution for User	CORROSIVE
Hazchem Code	2X



15. REGULATORY INFORMATION

Poisons Schedule	6
EPG	37
AICS Name	SODIUM HYDROXIDE (Na(OH))
NZ Toxic Substance	3
Additional information	No Data

16. OTHER INFORMATION

Additional information

Legend to abbreviations and acronyms:

<	less than
>	greater than
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstracts Service (Registry Number)
CO2	Carbon Dioxide
COD	Chemical Oxygen Demand
ERMA	Environmental Risk Management Authority
HSNO	Hazardous Substance and New Organism
IDLH	Immediately Dangerous to Life and Health
LC50	LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.
LD50	LD stands for "Lethal Dose". LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals
Misc	miscible
N/A	Not Applicable
NIOSH	National Institute for Occupational Safety and Health
NOHSC	National Occupational Health and Safety Commission
OECD	Organization for Economic Co-operation and Development

PEL	Permissible Exposure Limit
RCP	Reciprocal Calculation Procedure
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average
UN	United Nations (number)
cm ²	square centimetres
deg C ('C)	degrees Celsius
g	gram
g/cm ³	grams per cubic centimetre
g/l	grams per litre
immiscible	liquids are insoluble in each other
kg	kilogram
kg/m ³	kilograms per cubic metre
ltr	Litre
m ³	cubic metre
mPa.s	milli Pascal per second
mbar	millibar
mg	milligram
mg/24H	milligrams per 24 hours
mg/kg	milligrams per kilogram
mg/m ³	milligrams per cubic metre
miscible	liquids form one homogeneous liquid phase regardless of the amount of either component present
mm	millimetre
ppb	parts per billion
ppm	parts per million
ppm/2h	parts per million per 2 hours
ppm/6h	parts per millionper 6 hours
tne	tonne
ug/24H	micrograms per 24 hours
wt	weight

Literature references:

No Data

Sources for data:

No Data



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