**MATERIAL SAFETY DATA SHEET**

**Hazardous according to criteria of Worksafe Australia**

**Date of Issue : Jan 2002**

## 1. IDENTIFICATION

### General

Product Name : SODIUM HYDROXIDE, SOLID

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

UN No. : 1823

Dangerous Goods Class : 8

Subsidiary Risk : None Allocated

Hazchem Code : 2X

Pack Group : II

EPG : 37

Poisons Schedule : 6

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

### 1.1 Physical Description / Properties

Appearance : White delquescent solid, can be in the form of flakes, pellets or sticks.

Formula : NaOH

Boiling Point : 1390 deg C

Melting Point : 318 deg C

Vapour Pressure : N/A

Specific Gravity : 2.13 (water = 1)

Flash Point : N/A

pH : 14 (100 g/L water)

Solubility in water : Solub g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

**1.2 Other Properties**

Solubility in water = soluble with evolution of heat. Also soluble in alcohols and glycerol. Bulk density = 1.175 g/ml

**1.3 Ingredients**

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

## 2. HEALTH HAZARD INFORMATION

### 2.1 Health Effects - Acute

**Swallowed**

Ingestion of caustic soda will severely damage the mucous membranes of the throat and deeper tissue. Do not induce vomiting. If the patient is conscious, wash out mouth with water and give 200 - 300 ml of water to drink. Lethal dose for man is approximately 5 grams.

**Eye**

Contact with eyes for more than a few seconds will destroy the tissues resulting in loss of eye or impaired vision due to scaring.

**Skin**

Contact with skin for more than a few seconds will destroy the skin causing a serious chemical burn that will take a long time to heal, and may even leave a permanent scar.

**Inhaled**

Inhalation of dusts may cause pulmonary congestion with subsequent compromission of respiratory functionality followed by loss of consciousness. Extremely irritative to respiratory tract (including mucous membranes, throat and lungs). Slightly toxic.

### 2.2 Health Effects - Chronic

Prolonged and reiterated inhalations of the dusts may cause chronic disturbance of the respiratory routes. May cause dermatitis.

### 2.3 First Aid

**Swallowed**

Contact a Doctor or the Poisons Information Centre immediately. Give patient 1 - 3 cups of water. DO NOT induce vomiting. Immediately transport to a hospital or doctor.

**Eye**

Flood eyes with clean water for 15 minutes - retract eyelids often Immediately transport to a hospital or doctor

**Skin**

Remove all contaminated clothing including footwear. Wash affected areas thoroughly with mild soap and water. Seek medical advice.

**Inhaled**

Remove from contaminated area immeidately; 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

**First Aid Facilities**

Ensure an eye bath and safety shower are available and ready for use.

**2.5 Advice to Doctor**

Wash skin until soapiness feeling disappears. Treat symptomatically based on judgement of doctor and individual reactions of patient.

**2.6 Toxicity Data**

No information available.

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**3. PRECAUTIONS FOR USE**

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### 3.1 Exposure Standards

Worksafe recommends - TWA 2 mg/m3 peak limitation

### 3.2 Engineering Controls

Provide general exhaust ventilation in order to maintain exposure levels below standards.

### 3.3 Personal Protection

Respiratory protection - wear suitable respiratory protective equipment if exposure to levels above the occupational exposure limit is likely. Eye protection - wear close fitting goggles or full face shield. Skin protection - wear suitable rubber or PVC gloves and acid proof overalls for operations in which there is a risk of splashes. Do not eat, drink or smoke in storage areas or during handling. Wash hands and face thoroughly after handling and before work breaks, eating, drinking, smoking and using the toilet facilities.

### 3.4 Flammability

Material is non-flammable

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## SAFE HANDLING INFORMATION

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### 4.1 Storage / Transport

For caustic soda bags; keep the palleted caustic bags at all times under full airtight conditions in a cool and dry warehouse, to ensure the product remains stable. If outdoor storage is unavoidable, cover the shrink wrapped pallets with black polyethylene or tarpaulin to protect from moisture and sunlight. Avoid direct exposure to air in order to prevent absoprtion of moisture and carbon dioxide. Avoid direct exposure to sunlight in order to prevent ultra violet degradation of polyethylene. Prevent rupture and other damages of packages containing caustic prills. For caustic soda drums; keep the drums upright, preferably indoor, to avoid corrosion of metal by surface water. Ensure the drum lids remain tightly closed during storage. If stored outdorr, protect drums by covering with waterproof sheeting. Keep the stock alway dry. Moist atmosphere can lead to product contamination. Turnover from the stock should be on the basis of first in - first out. Causitc soda is highly corrosive and a strong irritant, therefore workers should wear full protective clothing at all times, particularly goggles and gloves, while handling caustic soda.

### 4.2 Packaging / Labelling

UN No. 1823

Class 8

Sub Risk None Allocated

Hazchem Code 2X

Pack Group II

EPG No. 37

Shipping Name SODIUM HYDROXIDE, SOLID

Hazard CORROSIVE

**Risk Phrases**

R35 Causes severe burns.

R41 Risk of serious damage to eyes.

**Safety Phrases**

S1/2 Keep locked up and out of the reach of children.

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 whenever possible).

### 4.3 Spills and Disposal

#### Spills

Clean up personnel should wear full protective clothing. Prevent product from entering water courses, drains or sewers. Spillages or uncontrolled discharges must be immediately alerted to the appropriate authorities.

Absorb with sand or soil, scoop up and place in suitable containers for later treatment/disposal.

#### Disposal

Use very dilute acid for neutralisation. Dispose of in accordance with Local, State and Federal regulations at an approved waste disposal facility. Neutralise aqueous solutions by diluting with very diluted hydrochloric acid. Drain effluent with plenty of water, keeping pH under control. Beware of heat and splashes caused by water reactions (dissolution heat) or neutralisation.

### 4.4 FIRE AND EXPLOSION HAZARD

#### Fire / Explosion

Product is non-combustible. Can react with some metals generating hydrogen gas with its associated hazards. Reaction with moisture may generate sufficient heat to ignite combustible material. Avoid contact with incompatible materials such as strong oxidising agents and strong acids, organic materials, aluminium, tin, zinc, leat and alloys of these metals producing flammable hydrogen gas. May start fires in contact with fuels.

#### Extinguishing Media

Evacuate area - move upwind of fire. Summon Fire Brigade immediately, DIAL 000 DO NOT USE WATER. Use extinguishing media appropriate to surrounding fire conditions. Remove containers not involved in the fire from the vicinity. Fire- fighters should wear full protective clothing including self-contained breathing apparatus.

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## 5 OTHER INFORMATION

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#### Other Information

Solutions react with air to form sodium carbonate. Hazardous to living organisms in high concentrations. Corrosive and alkaline. Environmental fate and distribution - high tonnage material used in partially contained systems. Solid with low volatility. The substance is soluble in water. The substance does not bioaccumulate. Persistence and degradation - sodium hydroxide degrades readily by reaction with the natural carbon dioxide in the air. Toxicity - concentrations greater than 10 ppm, especially in fresh water, or a pH value equal to or greater than 10.5 may be fatal to fish and other aquatic organisms. Can cause damage to aquatic plants. Can cause damage to vegetation. Effect on effluent treatment - concentrations to render effluent alkaline may cause damage to effluent treatment organisms.

**5.1 Contact Points**

| Organisation | Location | Telephone | Ask For |
|---|---|---|---|
| Redox Chemicals Pty Ltd | Wetherill Park NSW | 02-97255155 | Technical Officer |
| Poisons Information Centre | Westmead | 131129 | |
| | | 1800-251525 | |
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