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MATERIAL SAFETY DATA SHEET

CAUSTIC SODA SOLID

Section 1: Product Identification

Chemical : Sodium Hydroxide

Chemical Formula : NaOH

Company Identification : Tradeasia International Pte Limited

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Section 2 : Composition and Information on Ingredients

Ingredient	CAS No.	Percent	Hazardous
Sodium Hydroxide	1310-73-2	95-100%	Yes

Section 3 : Hazards Identification

Emergency Overview

POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED. CAUSES BURNS TO ANY AREA OF CONTACT. REACTS WITH WATER, ACIDS AND OTHER MATERIALS.

SAF-T-DATA(tm) Ratings (Provided here for your convenience)

Health Rating: 4 - Extreme (Poison)

Flammability Rating: 0 - None

Reactivity Rating: 2 - Moderate

Contact Rating: 4 - Extreme (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES

Storage Color Code: White Stripe (Store Separately)

Potential Health Effects

Inhalation:

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.

Ingestion:

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.

Skin Contact:

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

Eye Contact:

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

Chronic Exposure:

Prolonged contact with dilute solutions or dust has a destructive effect upon tissue.

Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

Section 4 : First Aid Measures

Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Ingestion:

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

Skin Contact:

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.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:

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 balance, electrolytes, and fluid intake are also required.

Section 5 : Fire Fighting Measures

Fire:

Not considered to be a fire hazard. Hot or molten material can react violently with water. Can react with certain metals, such as aluminum, to generate flammable hydrogen gas.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire. Adding water to caustic solution generates large amounts of heat.

Special Information:

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Section 6 : Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

Section 7 : Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Always add the caustic to water while stirring; never the reverse. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product. Do not store with aluminum or magnesium. Do not mix with acids or organic materials.

Section 8 : Exposure Controls/Personal Protection

Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):

2 mg/m3 Ceiling

- ACGIH Threshold Limit Value (TLV):

2 mg/m3 Ceiling

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. 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. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Section 9 : Physical and Chemical Properties

Appearance	: Solid
Odor	: Odorless.
Solubility	: 111 g/100 g of water.
Specific Gravity	: 2.13
pH	: 14 (5% aq soln.)
% Volatiles by volume @ 21C (70F)	: 0
Boiling Point	: 1390C (2534F)
Melting Point	: 318C (604F)
Vapor Density (Air=1)	: > 1.0
Vapor Pressure (mm Hg)	: Negligible.
Evaporation Rate (BuAc=1)	: No information found.

Section 10 : Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Very hygroscopic. Can slowly pick up moisture from air and react with carbon dioxide from air to form sodium carbonate.

Hazardous Decomposition Products:

Sodium oxide. Decomposition by reaction with certain metals releases flammable and explosive hydrogen gas.

Hazardous Polymerization: Will not occur.

Incompatibilities:

Sodium hydroxide in contact with acids and organic halogen compounds, especially trichloroethylene,

may causes violent reactions. Contact with nitromethane and other similar nitro compounds causes formation of shock-sensitive salts. Contact with metals such as aluminum, magnesium, tin, and zinc cause formation of flammable hydrogen gas. Sodium hydroxide, even in fairly dilute solution, reacts readily with various sugars to produce carbon monoxide. Precautions should be taken including monitoring the tank atmosphere for carbon monoxide to ensure safety of personnel before vessel entry.

Conditions to Avoid: Moisture, dusting and incompatibles.

Section 11 : Toxicological Information

Irritation data: skin, rabbit: 500 mg/24H severe; eye rabbit: 50 ug/24H severe; investigated as a mutagen.

--------\Cancer Lists\----------

	---NTP Carcinogen---		
Ingredient	Known	Anticipated	IARC Category
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Sodium Hydroxide (1310-73-2)	No	No	None

Section 12 : Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

Section 13: Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

Section 14 : Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID

Hazard Class: 8

UN/NA: UN1823

Packing Group: II

Information reported for product/size: 300LB

International (Water, I.M.O.)

Proper Shipping Name: SODIUM HYDROXIDE, SOLID

Hazard Class: 8

UN/NA: UN1823

Packing Group: II

Information reported for product/size: 300LB

Section 15: Regulatory Information

--------\Chemical Inventory Status - Part 1\----------

Ingredient	TSCA	EC	Japan	Australia
Sodium Hydroxide (1310-73-2)	Yes	Yes	Yes	Yes

--------\Chemical Inventory Status - Part 2\----------

Ingredient	--Canada-- Korea	DSL	NDSL	Phil.
Sodium Hydroxide (1310-73-2)	Yes	Yes	No	Yes

--------\Federal, State & International Regulations - Part 1\----------

Ingredient	-SARA 302- RQ	TPQ	------SARA 313------ List	Chemical Catg.

Sodium Hydroxide (1310-73-2)	No	No	No	No

--------\Federal, State & International Regulations - Part 2\----------

Ingredient	CERCLA	-RCRA- 261.33	-TSCA- 8(d)
Sodium Hydroxide (1310-73-2)	1000	No	No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: No Pressure: No
Reactivity: Yes (Pure / Solid)

Australian Hazchem Code: 2R
Poison Schedule: S6
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

Section 16 : Other Information

References: Not available.
Other Special Considerations: Not available.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Tradeasia International Pte. Ltd. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Tradeasia International Pte.Ltd. Has been advised of the possibility of such damages.