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Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/ UNDERTAKING

Material Name	: Caustic Soda 50 % (Membrane)
Uses	: Use in chemical industry as industrial cleaner or within alumina production.
Supplier	: Sahara & Ma'aden petrochemicals company (SAMAPCO) PO Box 11166, Jubail Industrial City Kingdom of Saudi Arabia, 31961
Telephone	: +966 3 3567777
Fax	: +966 3 3589900
Emergency Telephone Number	: +966 3 3567779

2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	: Sodium hydroxide Lye solution
CAS No.	: 1310-73-2

Hazardous Components

Chemical Name	CAS	EINECS	Symbol(s)	R-phrase(s)	Conc.
Sodium Hydroxide	1310-73-2	215-185-5	C	R35	>= 50.00 %
Water	7732-18-5	231-791-2			>= 50.00 %

Additional Information: Refer to chapter 16 for full text of EC R-phrases.

3. HAZARDS IDENTIFICATION

Health Hazards

Causes severe burns. Severely irritating to the respiratory tract causing chemical burns which may result in permanent damage to the nose, throat and lungs. Causes digestive tract burns.

Signs and Symptoms

Swallowing of corrosive chemicals may cause immediate pain and burning in the mouth, throat, and stomach followed by vomiting and diarrhea. Burns and tearing of the esophagus and stomach are possible. Corrosive to eyes. Contact can cause severe eye damage including chemical burns, pain, clouding of the eye surface, inflammation of the eye, and may result in permanent loss of vision. Corrosive to skin. Contact with the skin can cause chemical burns, redness, swelling, and tissue damage.

Aggravated Medical Condition

Pre-existing medical conditions of the following organ(s) or organ system(s) may be aggravated by exposure to this material: Respiratory system. Eyes. Skin.

Safety Hazards

Highly reactive. At high temperatures, fuming may occur, giving off a strong, corrosive gas. Do not enter without wearing protective equipment suitable for the situation.

Environmental Hazards

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No specific hazards under normal use conditions.

4. FIRST AID MEASURES

Inhalation

Remove to fresh air. If rapid recovery does not occur, transport to nearest medical facility for additional treatment.

Skin Contact

DO NOT DELAY. Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. Cover the burn area loosely with a sterile dressing, if available. If persistent irritation occurs, obtain medical attention.

Eye Contact

DO NOT DELAY. Immediately flush eyes with large amounts of water for at least 30 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

Ingestion

DO NOT DELAY. Do not induce vomiting. If victim is alert, rinse mouth and drink 1/2 to 1 glass of water to help dilute the material. Do not give liquids to a drowsy, convulsing, or unconscious person. Transport to nearest medical facility for additional treatment.

Advice to Physician

Treat symptomatically. Esophagos copy is recommended after ingestion to detect potential lesions in the esophagus.

5. FIRE FIGHTING MEASURES

Specific Hazards

Reacts violently with water.

Extinguishing Media

Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.

Unsuitable Extinguishing Media

Do not use water in a jet.

Protective Equipment for Firefighters

Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective measures

Avoid contact with skin and eyes. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth, or other appropriate barriers. Prevent from spreading or entering into waterways, sewers, basements or confined areas. Use appropriate containment to avoid environmental contamination.

Clean Up Methods

Neutralize contaminated area as appropriate for acid or base spill. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Prevent from spreading by making a barrier with sand,

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earth or other containment material. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

7. HANDLING AND STORAGE

General Precautions

Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Avoid contact with skin, eyes, and clothing.

Storage: Ambient.

Recommended Materials: Nickel alloys. Steel. Fiberglass acceptable if temperatures are not elevated.

Unsuitable Materials: Aluminum, Zinc, Tin.

Additional Information:

Ensure that all local regulations regarding handling and storage facilities are followed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m ³	Notation
Sodium Hydroxide	ACGIH	Ceiling		2 mg/m ³	

Exposure Controls

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers. Eye washes and showers for emergency use. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated. Wash hands before eating, drinking, smoking and using the toilet.

Personal Protective Equipment

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection

If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g., airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. Where air filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/inorganic gases and vapours meeting EN141 & 143. Where respiratory protective equipment is required, use a full face mask.

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Hand Protection

Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Manufacturer recommends the use of: Butyl rubber. Natural rubber. Neoprene rubber. Nitrile rubber. PVC. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye Protection: Mono goggles (EN166)

Protective Clothing

Use protective clothing which is chemical resistant to this material. Safety shoes and boots should also be chemical resistant. Where risk of splashing or in spillage clean up, use chemical resistant one-piece overall with integral hood and chemical resistant gloves. Otherwise use chemical resistant apron and gauntlets.

Environmental Exposure Controls

Adequate ventilation to control airborne concentrations. Eye washes and showers for emergency use. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Water white to slightly turbid Liquid.

Odor: Odorless

pH: 14 at 20 °C / 68 °F

Boiling point: 140 °C / 284 °F

Melting / freezing point: Data not available.

Flash point: Not applicable.

Explosion / Flammability: Not applicable limits in air

Vapor pressure: 0.02 hPa **Specific gravity:** Data not available.

Density: 1.53 g/cm³ at 15 °C / 59 °F

Water solubility: Completely Soluble

Solubility in other solvents: Data not available.

n-octanol/water partition: Data not available coefficient (log Pow)

Vapor density (air=1): 1.5 at 20 °C / 68 °F

Molecular weight: 40 g/mol.

10. STABILITY AND REACTIVITY

Stability

Stable under normal conditions of use.

Conditions to Avoid

Exposure to water vapor.

Materials to Avoid

Aluminum. tin. Zinc. Oxidizing agents. Strong acids. Water vapor. Hydrogen may be evolved by the corrosive effect of the material on certain metals.

Hazardous Decomposition Products

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Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	: Information given is based on product testing.
Acute Oral Toxicity	: Causes digestive tract burns.
Acute Dermal Toxicity	: Data not available.
Acute Inhalation Toxicity	: Data not available.
Skin Irritation	: Causes severe burns.
Eye Irritation	: Causes severe burns.
Respiratory Irritation	: Causes severe burns.
Sensitization	: Not applicable.
Repeated Dose Toxicity	: Data not available.
Mutagenicity	: Not considered a mutagenic hazard.
Carcinogenicity	: Not classified as a carcinogen.
Reproductive and Developmental Toxicity	: Data not available.

12. ECOLOGICAL INFORMATION

Acute Toxicity

Fish: Expected to have low toxicity: $10 < LC/EC/IC50 \leq 100$ mg/l

Aquatic Invertebrates: Expected to have low toxicity: $10 < LC/EC/IC50 \leq 100$ mg/l

Algae: Data not available.

Persistence/degradability: Not applicable.

Bioaccumulation: Not expected to bio accumulate significantly.

Other Adverse Effects: Does not cause oxygen depletion in sewage plants. Can be neutralized. Harmful effects may occur in aquatic environment, if pH 9 is exceeded.

13. DISPOSAL CONSIDERATIONS

Material Disposal:

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Recover or recycle if possible.

Do not dispose into the environment, in drains or in water courses. Waste product should not be allowed to contaminate soil or water.

Container Disposal:

Drain container thoroughly. Send to drum recoverer or metal reclaimer. Comply with any local recovery or waste disposal regulations.

Local Legislation:

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Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Land (as per ADR classification): Regulated

Class: 8
Packing group: II
Hazard identification no.: 80 UN No.: 1824
Danger label (primary risk): 8
Proper shipping name: SODIUM HYDROXIDE SOLUTION

IMDG

Identification number UN 1824
Proper shipping name SODIUM HYDROXIDE SOLUTION Class / Division 8
Packing group II Marine pollutant: No

IATA (Country variations may apply)

UN No.: 1824
Proper shipping name: Sodium hydroxide solution Class / Division: 8
Packing group: II

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

EC Symbols : C Corrosive.
EC Risk Phrases : R35 Causes severe burns.
EC Safety Phrases : S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
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.

AICS : Listed.
DSL : Listed.
INV (CN) : Listed.
ENCS (JP) : Listed. (1)-410
TSCA : Listed.
EINECS : Listed. 215-185-5
KECI (KR) : Listed. 97-1-136
KECI (KR) : Listed.
KE-31487 PICCS (PH) : Listed.
ISHL (JP) : Listed. (1)-410
NZ CLSC : Listed.
NZIOC : Listed.
ENCS (JP) : Listed.

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(2)-1972 ISHL (JP)	: Listed. (2)-1972
CH INV	: Listed. G-4491
CH INV	: Listed. G-2591
CH INV	: Listed. G-4492

16. OTHER INFORMATION

Additional Information

This material safety data sheet refers to the regulatory requirements for the EU and does not contain any country specific legislation. The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product. For further information, contact your local Shell company or agent.

R-phrases(s)

R35 Causes severe burns.

Uses and Restrictions: For industrial use only.

MSDS Distribution

The information in this document should be made available to all who may handle the product

Disclaimer

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