

**JUNSEI****Material safety data sheet****SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Catalog Numbers: 95553

Catalog Name: 4 mol/L Sodium hydroxide solution

Company Identification:

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CREATION DATE: August 21, 2012

**SECTION 2 HAZARDS IDENTIFICATION**

## Physical and chemical hazard

Flammable liquids : Out of category

Pyrophoric liquids : Out of category

Self-reactive substances and mixtures

: Out of category

Substances and mixtures which, in contact with water, emit flammable gases

: Out of category

## Human health hazard

Skin corrosion/Irritation : Category 1

Serious eye damage/Eye irritation : Category 1

Skin sensitization : Out of category

Germ cell mutagenicity : Out of category

Specific target organ systemic toxicity(single exposure)

: Category 1 ( Respiratory system )

## Environmental hazard

Hazardous to the aquatic environment-acute hazard

: Out of category

Hazardous to the aquatic environment-chronic hazard

: Out of category

## Pictograms or symbol



Signal word : Danger

Hazard statement : Causes severe skin burns and eye damage

Causes serious eye damage

Causes damage to organs (Respiratory organs)

Cautions

Safety measurements :

- Do not breathe fume/mist/vapours/spray.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Wear protective gloves/protective clothing/eye protection/face protection.

First-aid measures :

- If swallowed : Rinse mouth, Do not induce vomiting.
- If ON SKIN (or hair) : Remove/Take off immediately all contaminated clothing.  
Rinse skin with water/shower.
- Wash contaminated clothing before reuse.
- IF INHALED : Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- IF ON SKIN, IF IN EYES : Immediately call a POISON CENTER or doctor/physician.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

Storage

- Store locked up.

Disposal

- Dispose of contents and containers appropriately in accordance with related regulations.

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### SECTION 3 COMPOSITION, INFORMATION ON INGREDIENTS

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Substance/Mixture : Mixture

Ingredient 1

Component : Sodium hydroxide

Chemical formula : NaOH

Cas number : 1310-73-2

US TSCA inventory :Registered

EC number (EINECS): 215-185-5

JAPAN number (ENCS): 1-410

Content: 16 %

Ingredient 2

Component : Water

Chemical formula : H<sub>2</sub>O

Cas number : 7732-18-5

US TSCA inventory :Registered

EC number (EINECS): 231-791-2

Content: 84 %

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### SECTION 4 FIRST AID MEASURES

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- If inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately Call a POISON CENTER or doctor/physician.
- If on skin : Rinse skin with plenty of /shower for at least 15 minutes while removing contaminated clothing and shoes.
- If in eyes : Rinse cautiously with plenty of water for at least 30 minutes , immediately call a Poison Center or doctor/physician.
- If swallowed : Rinse mouth, Do not induce vomiting.  
Immediately Call a POISON CENTER or doctor/physician.

Potential acute health effects :

Inhalation ; Cough. Sore throat. Burning sensation. Shortness of breath.

Skin ; Redness. Pain. Serious skin burns. Blisters.

Eyes ; Redness. Pain. Blurred vision. Severe burns.

Ingestion ; Abdominal pain. Burns in mouth and throat. Burning sensation in the throat and chest. Nausea. Vomiting. Shock or collapse.

- Important signs and symptoms : The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Inhalation of the aerosol may cause lung oedema. The effects may be delayed. Medical observation is indicated.

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SECTION 5 FIRE FIGHTING MEASURES  
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This product is noncombustible.

Extinguishing media : Water spray, dry chemical powder, alcohol-resistant foam, carbon dioxide.

Prohibited extinguishing media : Straight streams of water.

Particular fire fighting : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

Protection for firefighters : Firefighters should wear protective equipment.  
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SECTION 6 ACCIDENTAL RELEASE MEASURES  
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General Information : Use proper personal protective equipment as indicated in Section 8.

Cautions for environment : Avoid release to the rivers, lakes, ocean, groundwater.

Spills/Leak : Absorb spills with absorbent ( vermiculite, sand , fuller's earth ) and place into a suitable disposal container for later disposal.  
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SECTION 7 HANDLING AND STORAGE  
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Handling: : Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.  
Use only in a chemical fume hood.

Storage: : Store in a tightly closed container.

Store in well-ventilated place.

Keep away from incompatible materials.  
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SECTION 8 EXPOSURE CONTROLS, PERSONAL PROTECTION  
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Engineering Controls : Use adequate ventilation to keep airborne concentrations low.

Exposure Limits (NaOH)

ACGIH (2010) : 2 mg/m<sup>3</sup> (TLV-STEL)

OELs (2011) : 2 mg/m<sup>3</sup>  
Personal protective equipment :  
Eye Protection : Goggles  
Hand Protection : Protective gloves  
Skin and body protection : Wear appropriate protective gloves and clothing to prevent skin exposure.  
Respiratory Protection : Wear respiratory protection.

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## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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Physical State : Liquid  
Appearance : Clear colorless  
Odor : Odorless  
pH : > 14  
Vapor Pressure : No data available.  
Viscosity : No data available.  
Boiling Point : Not available  
Freezing/Melting Point : No data available.  
Autoignition Temperature : No data available.  
Flash Point : No data available.  
Explosion Limits, lower : No data available.  
Explosion Limits, upper : No data available.  
Decomposition Temperature : No data available.  
Solubility in water : miscible  
Specific Gravity/Density : No data available.  
Molecular Formula : HNaO  
Molecular Weight : 40.00

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## SECTION 10 STABILITY AND REACTIVITY

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Chemical Stability : Stable in ordinary handling conditions.  
Conditions to Avoid : No data available.  
Incompatibilities with Other Materials : Strong acids.  
Hazardous Decomposition Products: No data available.  
Hazardous Polymerization : Will not occur.

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## SECTION 11 TOXICOLOGICAL INFORMATION

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Acute toxicity:  
Oral : Not possible to classify because of no data.  
Dermal : Not possible to classify because of no data.  
Gas : Not applicable (GHS definition).  
Vapours : Not possible to classify because of no data.  
Skin corrosion/Irritation: Classified into category 1 by applying the additivity approach to GHS classification results of sodium hydroxide.  
GHS classification results of sodium hydroxide: Classified into category 1 based on the statement of " An in vivo test was conducted with Yorkshire weanling pigs using applications of 2N (8%), 4N (16%) and 6N (24%) NaOH on the lower abdominal region.

Gross blisters developed within 15 minutes of application and 8 and 16% NaOH produced severe necrosis in all epidermal layers. A concentration of 24% produced numerous and severe blisters with necrosis extending deeper into the subcutaneous tissue (EURAR V73(2007)).

Furthermore, three New Zealand White rabbits were exposed to a concentration of 0.36% NaOH, No skin irritation/corrosion was observed at that concentration. Therefore, an additional study was performed with one animal exposed to the highest concentration (5%). This concentration showed to be corrosive at all observation time points (1, 24, 48, 72 and 144 hours after removal of exposure chamber) (EURAR V73(2007)). "

Serious eye damage/eye irritation: Classified into category 1 by applying the additivity approach to GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: Classified into category1 based on the statement of " Corrosive was caused at 1.2% or more to a rabbit eye (EURAR V73(2007)). "

Respiratory sensitization: Not possible to classify because of no data.

Skin sensitization: Classified into out of category based on the GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: Classified into out of category based on the statement of " Male volunteers were exposed on the back to sodium hydroxide concentrations of 0.063 1.0% (induction). After 7 days the volunteers were challenged to a concentration of 0.125%. The irritant response correlated well with the concentration of NaOH, but an increased response was not observed when the previously patch tested sites were rechallenged. Based on this study sodium hydroxide has no skin sensitisation potential. Furthermore NaOH has been used widely and for a long time and no human cases of skin sensitisation have been reported and therefore NaOH is not considered to be a skin sensitiser. "

Mutagenicity: Classified into out of category based on the GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: Classified into out of category based on the statement of " A mouse bone marrow micronucleus test revealed no significant increase of nuclei. In chromosome aberration test of mouse oocytes, no evidence of non-disjunction was found (EURAR V73(2007)). "

Carcinogenic effects: Not possible to classify because of insufficient data.

Effects on the reproductive system: Not possible to classify because of no data.

Specific target organ systemic toxicity single exposure.

: Classified into category 1 (respiratory system) by applying the cut-off value to GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: Classified into category 1(respiratory system) based on the statement of "The inhalation exposure to the particles or the mist will cause such damages as burns to the nose and bronchial tube and result even in lung edemas (PATTY (5th, 2001))."

Specific target organ systemic toxicity repeated exposure

: Not possible to classify because of no data.

Aspiration hazard : Not possible to classify because of no data.

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## SECTION 12 ECOLOGICAL INFORMATION

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Ecotoxicity:

Hazardous to the aquatic environment (acute) : Classified into out of category by applying the cut-off value to GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: It was classified into Category 3 from 48-hour  $LC_{50}=40\text{mg/L}$  of Crustacea (Ceriodaphnia) (SIDS, 2002).

Hazardous to the aquatic environment (chronic) : Classified into out of category based on the GHS classification results of sodium hydroxide.

GHS classification results of sodium hydroxide: Classified into out of category based on the statement of " Toxicological effects of NaOH for the aquatic environment will be mitigated by the buffer capacity of the aquatic ecosystem. "

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#### SECTION 13 DISPOSAL CONSIDERATIONS

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Dispose of in a manner consistent with federal, state, and local regulations.

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#### SECTION 14 TRANSPORT INFORMATION

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IATA Shipping Name: Sodium hydroxide solution  
Hazard Class: 8 (Corrosive substances)  
UN Number: 1824

Packing Group:

IMO Shipping Name: SODIUM HYDROXIDE SOLUTION  
Hazard Class: 8 (Corrosive substances)  
UN Number: 1824

Packing Group:

RID/ADR Shipping Name: Sodium hydroxide solution  
Hazard Class: 8 (Corrosive substances)  
UN Number: 1824

Packing Group:

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#### SECTION 15 REGULATORY INFORMATION

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Fire Service Act : Not regulated

Poisonous and Deleterious Substances Control Act

: Article 2 (2) Deleterious Substances, Attached Table 2-94

Industrial Safety and Health Act

: Article 18-2, Attached Table 9-319 of Cabinet order

Ordinance for Enforcement of the Civil Aeronautics Act

: Article 194 (viii) Corrosive substance

Regulations for the carriage and storage of dangerous goods in ship

: Article 2 Corrosive substances

Substance Registration (NaOH) :

Australia (AICS) : Registration

Canada(DSL) : Registration

Korea number (ECL) : KE-31487

China(IECSC) : Registration

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#### SECTION 16 OTHER INFORMATION

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## REFERENCES:

- The Merck Index 14 edition, Monographs No. 08627
- Chemical Risk Information Platform (CHRIP)
- Information about the status of the implementation of GHS in Japan (ID= 21B3010)
- European Union Risk Report Vol.73 (2007)
- International Chemical Safety Cards (ICSC) No. 0360

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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