Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking
   
   Product identifier:
   
   Product name: Sodium hydroxide
   
   SDS No.: 7174E-3

   Details of the supplier of the safety data sheet
   
   Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.
   
   Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN
   
   Division: Safety Management Dept. of Chemicals
   
   Telephone number: +81-6-6946-8061
   
   FAX: +81-6-6946-1607
   
   e-mail address: kagakuhinanzenkanri@kishida.co.jp

2. Hazards identification
   
   GHS classification and label elements of the product

   Classification of the substance or mixture
   
   HEALTH HAZARDS
   
   Skin corrosion/irritation: Category 1
   
   Serious eye damage/eye irritation: Category 1
   
   Specific target organ toxicity – single exposure: Category 1(respiratory apparatus/system)

   ENVIRONMENT HAZARDS
   
   Hazardous to the aquatic environment (Acute): Category 3
   
   (Note) GHS classification without description: Not classified/Classification not possible

   Label elements

   Signal word: Danger

   HAZARD STATEMENT
   
   Causes severe skin burns and eye damage
   
   Causes serious eye damage
   
   Causes damage to organs after single exposure(respiratory apparatus/system)

   Harmful to aquatic life

   PRECAUTIONARY STATEMENT

   Prevention
   
   Avoid release to the environment.
   
   Do not breathe dust/fume/gas/mist/vapors/spray.
   
   Wash contaminated parts thoroughly after handling.
   
   Wear protective gloves, protective clothing or face protection.
   
   Wear eye protection/face protection.
   
   Do not eat, drink or smoke when using this product.

   Response
   
   IF INHALED: Remove person to fresh air and keep comfortable for breathing.
   
   IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
   
   Wash contaminated clothing before reuse.
   
   IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Disposal
Dispose of contents/container in accordance with local/national regulation.

3. Composition/information on ingredients
Mixture/Substance selection:

<table>
<thead>
<tr>
<th>Substance</th>
<th>Ingredient name: Sodium hydroxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content (%)</td>
<td>96(min)</td>
</tr>
<tr>
<td>Chemical formula</td>
<td>HNaO</td>
</tr>
<tr>
<td>Chemicals No., Japan</td>
<td>1-410</td>
</tr>
<tr>
<td>CAS No.</td>
<td>1310–73–2</td>
</tr>
<tr>
<td>MW</td>
<td>40.00</td>
</tr>
<tr>
<td>ECNO</td>
<td>215–185–5</td>
</tr>
</tbody>
</table>

Note: The figures shown above are not the specifications of the product.

4. First-aid measures
Descriptions of first-aid measures

IF INHALED
Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER or doctor/physician if you feel unwell.

IF ON SKIN (or hair)
Take off immediately all contaminated clothing. Rinse skin with water/shower.
If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

IF SWALLOWED
Rinse mouth. Do NOT induce vomiting.
Call a POISON CENTER or doctor/physician if you feel unwell.

5. Fire-fighting measures
Extinguishing media

Suitable extinguishing media
Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture
Containers may explode when heated.
Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters
Specific fire-fighting measures
Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters
Wear fire/flame resistant/retardant clothing.
Wear protective gloves/protective clothing/eye protection/face protection.
Firefighters should wear self-contained breathing apparatus with full face peace operated positive pressure mode.
6. Accidental release measures
   Personnel precautions, protective equipment and emergency procedures
   Ventilate area until material pick up is complete.
   Wear proper protective equipment.
   Environmental precautions
   Prevent spills from entering sewers, watercourses or low areas.
   Methods and materials for containment and cleaning up
   Sweep up, place in a bag and hold for waste disposal.
   Preventive measures for secondary accident
   Collect spillage.

7. Handling and storage
   Precautions for safe handling
   Preventive measures
   (Exposure Control for handling personnel)
   Do not breathe dust/fume/gas/mist/vapors/spray.
   (Protective measures against fire and explosion)
   Keep away from heat/sparks/open flames/hot surfaces. ~ No smoking.
   (Exhaust/ventilator)
   Exhaust/ventilator should be available.
   (Safety treatments)
   Avoid contact with skin.
   Avoid contact with eyes.
   Safety Measures
   Wear protective gloves, protective clothing or face protection.
   Wear eye protection/face protection.
   When using do not eat, drink or smoke.
   Any incompatibilities
   See “10. Stability and Reactivity”
   Advice on general occupational hygiene
   Wash contaminated parts thoroughly after handling.
   Do not eat, drink or smoke when using this product.
   Wash contaminated clothing before reuse.
   Storage
   Conditions for safe storage
   Keep container tightly closed.
   Store in a cool, dry place. Do not store in direct sunlight.
   Keep under lock and key.
   Container and packaging materials for safe handling
   Polyethylene

8. Exposure controls/personal protection
   Control parameters
   Adopted value
   (Sodium hydroxide)
   ACGIH(1992) STEL: C 2mg/m3 (URT, eye & skin irr)
   OSHA—PEL
   Sodium hydroxide TWA: 2mg/m3
   Exposure controls
   Appropriate engineering controls
   Do not use in areas without adequate ventilation.
Eye wash station should be available.
Washing facilities should be available.

Individual protection measures
Respiratory protection
Wear respiratory protection.
Hand protection
Wear protective gloves.
Eye protection
Wear eye/face protection.

9. Physical and Chemical Properties
Information on basic physical and chemical properties
Physical state: Granulation
Color: White
Odor: None
pH data is not available.
Boiling point or initial boiling point: 1388°C
Boiling range data is not available.
Melting point/Freezing point: 318°C
Decomposition temperature data is not available.
Flammability (gases, liquids and solids) data is not available.
Flash point data is not available.
Auto-ignition temperature data is not available.
Lower and upper explosion limit/flammability limit data is not available.
Vapor pressure data is not available.
Relative vapor density (Air=1) data is not available.
Density and/or relative density: 2.1g/cm³
Kinematic viscosity data is not available.
Solubility:
Solubility in water: very good (109 g/100 ml, 20 °C)
n-Octanol/water partition coefficient data is not available.
No Particle characteristics data is not available.

10. Stability and Reactivity
Reactivity
Not available.
Chemical stability
Deliquescent material.
Possibility of hazardous reactions
The solution in water is a strong base. It reacts violently with acid and is corrosive to
metals such as aluminium, tin, lead and zinc. This produces a combustible/explosive gas
(hydrogen). Reacts with ammonium salts. This produces ammonia. This generates fire hazard.
Contact with moisture and water generates heat. (ICSC 0360)
Conditions to avoid
Contact with incompatible materials.
Contact with fire source.
Incompatible materials
Acids, Metals, Ammonium salts
Hazardous decomposition products
Hydrogen, Ammonia
11. Toxicological Information
Information on toxicological effects
Acute toxicity data is not available.
Irritant properties
  Skin corrosion/irritation
    [GHS Cat. Japan, base data]
    (Sodium hydroxide)
    pig/rabbit severe necrosis (ACGIH 7th, 2001 et al)
  Serious eye damage/irritation
    [GHS Cat. Japan, base data]
    (Sodium hydroxide)
    rabbit corrosive (SIDS, 2009)
Allergenic and sensitizing effects data is not available.
Mutagenic effects data is not available.
Carcinogenic effects data is not available.
Reproductive toxicity data is not available.
STOT
  STOT—single exposure
    [cat.1]
    [GHS Cat. Japan, base data]
    (Sodium hydroxide)
    respiratory apparatus/system (PATTY 5th, 2001)
  STOT—repeated exposure data is not available.
Aspiration hazard data is not available.

12. Ecological Information
Ecotoxicity
Aquatic toxicity
  Harmful to aquatic life
Aquatic acute toxicity component(s) data
  [GHS Cat. Japan, base data]
  (Sodium hydroxide)
  Crustacea (Ceriodaphnia reticulata) LC50=40.4mg/L/48hr (SIDS, 2004)
Water solubility
  (Sodium hydroxide)
  109 g/100 ml (20℃) (ICSC, 2010)
Persistence and degradability data is not available.
Bioaccumulative potential data is not available.
Mobility in soil data is not available.
Other adverse effects
  Ozone depleting chemical data is not available.

13. Disposal considerations
Description of waste residues and information on their safe handling and methods of disposal,
including the disposal of any contaminated packaging
Waste treatment methods
  Avoid release to the environment (~ if this is not the intended use).
  Dispose of contents/container in accordance with local/national regulation.
14. Transport Information

UN No.: 1823
Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Class or division: 8
Packing group: II

IMDG Code (International Maritime Dangerous Goods Regulations)
UN No.: 1823
Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Class or division: 8

IATA Dangerous Goods Regulations
UN No.: 1823
Proper Shipping Name: SODIUM HYDROXIDE, SOLID
Class or division: 8
Hazard labels: Corrosive
Packing group: II

Environmental hazards
MARPOL Annex III – Prevention of pollution by harmful substances
Marine pollutants (yes/no): no

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
US major regulations
Chemicals listed in TSCA Inventory
Sodium hydroxide
Other regulatory information
Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling
Skin Corr. 1: H314 Causes severe skin burns and eye damage
Eye Dam. 1: H318 Causes serious eye damage
STOT SE 1: H370 Causes damage to organs after single exposure
Aquatic Acute 3: H402 Harmful to aquatic life

Reference Book
Globally Harmonized System of classification and labelling of chemicals, (6th ed., 2015), UN
Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th ed. 2017 UN
IMDG Code, 2018 Edition (Incorporating Amendment 39–18)
IATA Dangerous Goods Regulations (60th Edition) 2019
Classification, labelling and packaging of substances and mixtures (table 3-1 ECNO6182012)
2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)
2019 TLVs and BEIs. (ACGIH)
http://monographs.iarc.fr/ENG/Classification/index.php
Supplier’s data/information

General Disclaimer
This data sheet was created based on the information we currently have and may be revised
according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2018).