

Safety Data Sheet

1. Product and company identification

Product name : Sodium hydroxide
 Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
 Name of section : Reagent division, pharma chemical department
 Telephone number : +81-3-6241-1093
 Facsimile number : +81-3-3241-1054
 Mail address : pharma-info@gms.kanto.co.jp
 SDS No. : 38160
 Recommended use of chemical and restrictions on use : Japanese Pharmacopoei (manufacturing purpose)

2. Summary of danger and Hazard

GHS classification

Physical and chemical hazard

Flammable solids : Out of category
 Pyrophoric solids : Out of category
 Self-heating 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

Environmental hazard

Hazardous to the aquatic environment-acute hazard : Category 3
 Hazardous to the aquatic environment-chronic hazard : Out of category

Pictogram or symbol



Signal word : Danger

Hazard statement : Causes severe skin burns and eye damage
Causes serious eye damage
Causes damage to organs (respiratory organs)
Harmful to aquatic life

Cautions

Safety measurements : Do not breathe dust, mist, and vapor.
Avoid release to the environment.
Do not eat, drink or smoke when using this product.
Wear appropriate protective gloves, glasses, clothing, face shield, or mask.
Wash protective equipment thoroughly after use.
Wash hands thoroughly after handling.

First-aid measures : If inhaled : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical treatment if you feel unwell.

If swallowed: Rinse mouth, do not induce vomiting. Immediately get medical treatment.

If in eyes : Rinse cautiously with water for several minutes. Get medical treatment.

If on skin : Remove contaminated clothing and the substance. Immediately get medical treatment.

If exposed, get medical treatment.

Storage : Store locked up.

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

3. Composition/Information on ingredients

Substance/Mixture : Substance

Chemical name or commercial name : Sodium hydroxide

Ingredients and composition : Sodium hydroxide min. 95.0%

Chemical formula : NaOH

CAS No. : 1310-73-2

TSCA Inventory : Registered

EINECS No. : 2151855

Dangerous and hazardous ingredients : Sodium hydroxide

4. First aid measures

Inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

Skin contact : Wash the affected areas under running water.

Eye contact : Wash the affected areas under running water for at least 15 minutes. Get medical treatment.

Ingestion : Give the victim water or milk with egg white, and get medical attention. Never induce vomiting. Stomach wall may break open.

Anticipated acute and delayed symptoms

: Inhalation brings on burning sensation of throat, throat pain, cough, breathlessness, and these symptoms may delay. Skin contact causes redness, pain, severe skin burns, and blisters. Eye contact causes redness, pain, and blurred vision.

5. Fire fighting measures

Extinguishing media : This product is noncombustible.

Prohibited extinguishing media

: None

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.

6. Accidental release measures

Cautions for personnel : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Cautions for environment : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.

Removal measure : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

7. Cautions of handling and storage

Handling

Engineering measures : If necessary, wear proper protective equipment to avoid contact with skin or inhalation of dust.

Wash hands, a face, and gargle after handling.

Storage

Adequate storage condition

: Store the bottle tightly closed at room temperature because the substance has hygroscopic property.

Safety adequate container materials

: Polyethylene, polypropylene, fluorocarbon polymers

8. Exposure control/Personal protection

Engineering measures : Install a local ventilation system in case of dusty condition.

Control parameters

ACGIH(2015) : 2mg/m³(TLV-STEL)

Protective equipment

Respiration protective equipment

: Dust mask

Hands protective equipment

: Impervious protective gloves
 Eyes protective equipment
 : Safety goggles
 Skin and body protective equipment
 : Protective clothing, protective boots

9. Physical and chemical properties

Appearance : Pellet
 Color : White
 Odor : Odorless
 pH : 12 (0.05%), 13 (0.5%), 14 (5%)
 Boiling point : 1388°C
 Melting point : 318°C
 Density : 2.1g/cm³ (20°C)
 Solubility
 Solubility in solvents : Water : 55%(20°C)
 Organic solvents : Soluble in ethanol, glycerol, methanol.

10. Stability and reactivity

Stability : The chemical has hygroscopic property, and absorbs carbon dioxide in air.
 Reactivity : Generate heat vigorously when contact with acids.
 The chemical corrodes aluminium, tin, zinc, chromium, and their alloys, releasing explosive hydrogen gas.
 Incompatible conditions : Light, heat
 Incompatible materials : Acids, metals
 Hazardous decomposition products
 : Sodium oxide and hydrogen are generated by ignition.

11. Toxicological information

Acute toxicity : Oral : Not possible to classify because of insufficient data.
 Dermal : Not possible to classify because of insufficient data.
 Inhalation(vapor) : Not possible to classify because of insufficient data.
 Inhalation(dust, mist) : Not possible to classify because of insufficient data.
 Since acute toxicity data is only rabbit oral LD50=325mg/kg, and there is no data in rodents, the classification on acute oral toxicity is not possible.
 Skin corrosion/irritation : Causes severe skin burns and eye damage(category 1)
 Based on the descriptions that at 0.5% or more of concentration, it was irritating to human skin and caused severe corrosion, and that at 8% or more of concentration, it caused corrosion on pig skin and at 5% of concentration for 4 hours, it caused severe necrosis on rabbit skin, it was classified into category 1.
 Serious eye damage/eye irritation
 : Causes serious eye damage(category 1)

Based on a report that the corrosive concentration for rabbit eyes was 1.2%-2% or higher, it was classified into category 1.

Respiratory sensitization or Skin sensitization

: Respiratory sensitization : Not possible to classify because of insufficient data.

Skin sensitization : Out of category

Male volunteers were exposed on their backs to concentrations of 0.063 – 1.0% of the substance. After 7 days the volunteers were challenged to a concentration of 0.125%. The irritant response correlated well with the concentration, but an increased response was not observed when the previously patch tested sites were rechallenged. Based on these results, sodium hydroxide has no skin sensitization potential.

Mutagenicity : Not possible to classify because of insufficient data.

There are negative data on in vivo micronucleus test in mouse bone-marrow and negative data on in vitro mutagenicity test (Ames test)

Carcinogenic effects : Not possible to classify because of insufficient data

Effects on the reproductive system

: Not possible to classify because of insufficient data.

Specific target organ systemic toxicity single exposure

: Cause damage to organs (respiratory organs) (category 1)

Based on the description that acute inhalation exposure of dust or mist causes mucous membrane irritation followed by cough and breathing difficulty, and more intensive exposure may cause pulmonary edema or shock, it was classified into category 1(respiratory organs).

Specific target organ systemic toxicity repeated exposure

: Not possible to classify because of insufficient data.

Aspiration hazard

: Not possible to classify because of insufficient data.

12. Ecological information

Ecotoxicity

Fish toxicity : Harmful to aquatic life(category 3)

Chronic aquatic toxicity : Out of category

Crustacea (Cenodaphnia quadrangular) LC50=40.4mg/L/48H

Persistence and degradability

: Not available

Bioaccumulative potential : Not available

13. Disposal consideration

Residual disposal : Dissolve in water and flush in a drain after neutralizing with diluted acids. Or consult approved disposal companies.

Containers : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.

14. Transport information

UN class : Class 8(Corrosive substances) P. G. II

UN number : 1823

Marine regulation information

UN No. : 1823

Proper shipping name : SODIUM HYDROXIDE, SOLID

Class : 8
Sub risk : -
Packing group : II
Marine pollutant : Not applicable

Aviation regulation information

UN No. : 1823
Proper shipping name : Sodium hydroxide, solid
Class : 8
Sub risk : -
Packing group : II

16. Other information

References

Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001)
Handbook of Dangerous Substances Springer-Verlag Tokyo(1991)
Handbook of 16817 Chemical Products, The Chemical Daily Co. (2017)
Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa(2000)

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet (SDS) is prepared based on JIS Z7253, and it has the same required elements on the Material Safety Data Sheet (MSDS) which is prepared based on JIS Z7250:2010.