

Safety Data Sheet

1. Chemical product and company identification

Product name : SODIUM HYDROXIDE SOLUTION 48%

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, Japan
Name of section : Electronic materials division technical department
Telephone number : +81-3-6214-1080
Facsimile number : +81-3-3241-1043
Mail address : el-info@kanto.co.jp
Reference No : GE00738 1.4
Recommended uses and restrictions : Electronic chemicals

2. Hazards identification

GHS classification

| | | |
|-----------------------|--|---------------------------------|
| Health hazards | Skin corrosion/irritation | Category 1B |
| | Serious eye damage/eye irritation | Category 1 |
| | Specific target organ toxicity (single exposure) | Category 1 (respiratory organs) |
| Environmental hazards | Aquatic acute | Category 3 |

Hazard pictograms



Signal word : Danger

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

Precautionary statements

Prevention : Do not breathe mist/vapors.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Avoid release to the environment.
Wear protective gloves/protective clothing/eye protection/face protection.

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



IF exposed or concerned: Call a POISON CENTER or doctor.
Immediately call a POISON CENTER or doctor.

Storage : Store locked up.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Mixture

| Chemical name | Concentration (%) | Formula | TSCA | EC-No. | CAS RN |
|------------------|-------------------|---------|--------|-----------|-----------|
| Sodium hydroxide | 48 | NaOH | Listed | 215-185-5 | 1310-73-2 |

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water, get medical treatment as soon as possible.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. Get medical treatment.

First-aid measures after ingestion : Rinse mouth with water. Give the victim one or two glasses of water or milk. Do not induce vomiting. Get medical treatment as soon as possible.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

Most Important Symptoms/Effects

Symptoms/effects : 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

Suitable extinguishing media : This product is noncombustible.

Unsuitable extinguishing media : None

Firefighting instructions : 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.

Personal protection (Emergency response) : Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate



people downwind. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : 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.

Methods and Equipment for Containment and Cleaning up

For containment : Collect the spillage as much as possible to switable empty container. Neutralize residue with dilute acid and then flush with copious of water.

7. Handling and storage

Handling

Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor.
Precautions for safe handling : Use with an enclosed system or a local exhaust ventilation.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.
Material used in packaging/containers : Polyethylene, fluorine resin.

8. Exposure controls / Personal protection equipment

| Sodium hydroxide | |
|------------------|---------------------|
| ACGIH Ceiling | 2 mg/m ³ |

Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

Protective equipment

Respiratory protection : If necessary, wear dust mask
Hand protection : Impervious protective gloves
Eye protection : Safety goggles
Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Liquid
Color : Colorless.
Odor : Odorless
pH : 14 (1mol/L, 25°C)
Melting point : ≈ 8 ° C
Freezing point : No data available
Boiling point : 138 ° C
Flash point : Non flammable.
Auto-ignition temperature : Non flammable.
Decomposition temperature : No data available
Flammability : Non flammable.

| | |
|---|---------------------|
| Vapor pressure | : 0.43 hPa (20°C) |
| Relative density | : 1.5 (15°C) |
| Density | : No data available |
| Relative gas density | : No data available |
| Solubility | : Water: Miscible. |
| Partition coefficient n-octanol/water (log Pow) | : No data available |
| Explosive limits (vol %) | : No data available |
| Viscosity, kinematic: | : No data available |
| Particle characteristics | : No data available |

10. Stability and reactivity

| | |
|------------------------------------|---|
| Reactivity | : Hydroxides precipitate from aqueous solutions of many metal salts. Fats are saponified to produce the fatty acids sodium and glycerin. |
| Chemical stability | : Stable under normal conditions. It absorbs moisture and carbon dioxide in the air to produce sodium carbonate. |
| Possibility of hazardous reactions | : Generate heat vigorously when contact with acids. The chemical corrodes aluminium, tin, zinc, chromium, and their alloys, releasing combustible hydrogen gas. |
| Conditions to avoid | : Light, heat. |
| Incompatible materials | : Acids, metals. |
| Hazardous decomposition products | : Sodium oxide, hydrogen. |

11. Toxicological information

| | |
|-------------------------------|---|
| Acute toxicity (oral) | : Classification not possible Sodium hydroxide : 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. |
| Acute toxicity (dermal) | : Classification not possible |
| Acute toxicity (inhalation) | : No classification (gas) Classification not possible (vapor) Classification not possible (dust, mist) |
| Skin corrosion/irritation | : Causes severe skin burns Sodium hydroxide : In a pig test using application of 2N (8%), 4N (16%) and 6N (24%) solutions on the abdominal region, gross blisters developed within 15 minutes of application and the 8 and 16% solutions produced severe necrosis in all epidermal layers. The 24% concentration produced numerous and severe blisters with necrosis extending deeper into the subcutaneous tissue. Additionally, there is a report that severe necrosis occurred after application of a 5% solution to the skin of rabbits for 4-hour. Based on these data, the substance was classified into category 1B. As relevant information, the pH is 12 (0.05%). For humans, 0.5 - 4% solutions were irritating to the skin, and in skin irritation tests with a 0.5% solution, 55% and 61% of the volunteers showed positive skin irritation reactions. |
| Serious eye damage/irritation | : Causes serious eye damage Sodium hydroxide : Based on a report that the corrosive concentration for rabbit eyes was 1.2% or higher than 2%, and a pH of 12 (0.05%), it was classified into category 1. |
| Respiratory sensitization | : Classification not possible |

| | |
|------------------------|--|
| Skin sensitization | : No classification Sodium hydroxide : 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. |
| Germ cell mutagenicity | : No classification Sodium hydroxide : In vivo mouse bone marrow micronuclei test is negative, and in vitro mutagenicity test (Ames test) is also negative. |
| Carcinogenicity | : Classification not possible |
| Reproductive toxicity | : Classification not possible |
| STOT-single exposure | : Causes damage to organs (respiratory organs) Sodium hydroxide : 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). |
| STOT-repeated exposure | : Classification not possible |
| Aspiration hazard | : Classification not possible |

12. Ecological information

Ecotoxicity

| | |
|-----------------|--|
| Aquatic acute | : Harmful to aquatic life Crustacean LC50m=83mg/L |
| Aquatic chronic | : No classification Classified into "No classification" since the toxicity is mitigated in environmental water by buffer action though it is considered to be a factor of toxicity that water solution becomes a strong base. |

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal considerations

| | |
|------------------------------|---|
| Ecological waste information | : Neutralization method : Dissolve in water and flush in a drain after neutralizing with diluted acids. Or consult approved disposal companies. |
| Contaminated container and | : In case of disposal of empty bottles, dispose bottles after |



packaging

removing the content thoroughly.

14. Transport information

International Regulations

Transport by sea (IMDG)

UN-No. (IMDG) : 1824
 Proper Shipping Name (IMDG) : SODIUM HYDROXIDE SOLUTION
 Packing group (IMDG) : II
 Transport hazard class(es) : 8

(IMDG)

Air transport (IATA)

UN-No. (IATA) : 1824
 Proper Shipping Name (IATA) : Sodium hydroxide solution
 Packing group (IATA) : II
 Transport hazard class(es) : 8

(IATA)

Marine pollutant : Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category : Y
 MFAG-No : 154

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Handbook of dangerous and hazardous chemicals, Japan Industrial Safety & Health Association. (2000-2001) .
 Handbook of Dangerous Substances Springer-Verlag Tokyo (1991) .
 Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .
 Handbook of Poisonous and Deleterious substances, revised and enlarged edition, Yakumu Kohosa (2000) .
 NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

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.

