

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
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Reference No : GE00738 1.0

2. Hazards identification

GHS classification

Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity (single exposure)	Category 1 (respiratory system)
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 system)
Harmful to aquatic life

Precautionary statements

Prevention : Do not breathe dust/fume/gas/mist/vapours/spray.
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.
- 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.

5. Fire fighting measures

- Suitable extinguishing media : This product is noncombustible.
- Unsuitable extinguishing media : No data available
- 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 : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.

7. Handling and storage**Handling**

Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor.

Storage

Storage conditions : Do not store with acid substances.
Store in a dark place and tightly closed with room temperature.

8. Exposure controls / Personal protection equipment

Sodium hydroxide	
ACGIH	TWA -, STEL C 2 mg/m3

Appropriate engineering controls : Install a local ventilation system in case of vapor, fume or mist condition.

Protective equipment

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
Melting point : $\approx 12^{\circ}\text{C}$
Freezing point : No data available
Boiling point : $\approx 140^{\circ}\text{C}$
Flash point : Non flammable.
Auto-ignition temperature : Non flammable.
Decomposition temperature : No data available
Flammability (solid, gas) : Non flammable.
Vapor pressure : No data available
Relative density : No data available
Specific gravity / density : 1.507 g/cm^3 (20°C)
Relative gas density : No data available
Solubility : Water; Miscible. Organic solvents ; Soluble in ethanol.
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	: Reacts with acids and generates heat. The chemical corrodes aluminium, tin, zinc, chromium, and their alloys, releasing explosive hydrogen gas.
Chemical stability	: Absorbs carbon dioxide in air.
Possibility of hazardous reactions	: No data available
Conditions to avoid	: Light, heat.
Incompatible materials	: Acids, aluminium, tin, zinc etc.
Hazardous decomposition products	: No data available

11. Toxicological information

Acute toxicity (oral)	: Classification not possible (as 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 Based on the descriptions that at 0.5% or more of concentration, aqueous solution of sodium hydroxide 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, the product was classified into category 1.

pH	14
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Serious eye damage/irritation	: Causes serious eye damage Based on a report that the corrosive concentration of sodium hydroxide for rabbit eyes was 1.2%-2% or higher, the product was classified into category 1.
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pH	14
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Respiratory sensitization	: Classification not possible
Skin sensitization	: No classification Male volunteers were exposed on their backs to concentrations of 0.063 - 1.0% of sodium hydroxide. 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	: Classification not possible As for sodium hydroxide, there are negative data on in vivo micronucleus test in mouse bone-marrow and negative data on in vitro mutagenicity test (Ames test).
Carcinogenicity	: Classification not possible
Reproductive toxicity	: Classification not possible

STOT-single exposure : Causes damage to organs (respiratory system)
As for 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, the product was classified into category 1(respiratory system).

STOT-repeated exposure : Classification not possible

Aspiration hazard : Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute : Harmful to aquatic life
Aquatic chronic : No classification

Persistence and degradability

Persistence and degradability	No data available
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Bioaccumulative potential

Bioaccumulative potential	No data available
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Mobility in soil

Mobility in soil	No data available
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Hazardous to the ozone layer

Ozone : Classification not possible
Other adverse effects : No additional information available

13. Disposal considerations

Ecology - waste materials : Dilute the chemical with a large amount of water and neutralize with dilute acid, then flush in a drain. Or entrust approved waste disposal companies with the disposal.
Comply with applicable laws and regulations when draining wastewater.

Contaminated container and packaging : In case of disposal of empty bottles, dispose bottles after 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) (IMDG) : 8

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
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 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.

