



CAUSTIC SODA 50% (All Grades)

Material Safety Data Sheet

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HASA CAUSTIC SODA 50% (All Grades)
Material Safety Data Sheet MSDS No. 112

IDENTIFICATION OF PRODUCT

Product Name:	Caustic Soda 50% (All Grades)
Product Synonym(s) Common Chemical Names:	Sodium Hydroxide Solution. See Miscellaneous Selection for all grades covered by this MSDS.
Chemical Names of Ingredients [>1.0% by weight]:	See Below.
Chemical Family:	Alkali
Chemical Formula:	NaOH
Chemical Name:	Sodium Hydroxide
Product Use:	Neutralizing agent; Degreasing agent

COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Registry Number	Typical Wt. %	OSHA
Sodium Hydroxide	1310-73-2	50%	Y
Water	7732-18-5	50%	N

The substance (s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Communications Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are all on the TSCA inventory list.

HAZARDS IDENTIFICATION

Emergency Overview:	Water white, clear to slightly turbid liquid. Essentially odorless.
DANGER!	CAUSES EYE, SKIN AND RESPIRATORY TRACT BURNS. MAY CAUSE BLINDNESS. CAUSE SEVERE DIGESTIVE TRACT BURNS. EVEN DILUTE SOLUTIONS MAY CAUSE BURNS.

Potential Health Effects:

Skin contact and inhalation are expected to be the primary routes of occupational exposure to this material. This material is a strong alkali that can be destructive to tissue producing severe burns, possibly with deep ulceration and scarring, on contact with body tissues. Concentrations as low as 2-3 % can cause injury. Contact with the eyes can rapidly cause severe irritation or permanent injury, possibly with loss of sight. Solutions of this material may not produce an immediate sensation upon skin contact, delaying awareness of the fact that contact has occurred. Dermatitis (inflammation of the skin) and superficial skin damage can result from repeated or prolonged contact with very dilute solutions. High levels of dust or mists may be corrosive to mucous membranes producing eye or lung injury and chemical pneumonia. Lower concentrations may produce irritation of eyes, nose or upper respiratory tract with coughing, sore throat and shortness of breath. Prolonged exposure may result in ulceration of the nasal passages.

While swallowing of this material is unlikely in the industrial setting, if swallowed, this material may cause severe injury, characterized by pain in the mouth and stomach, vomiting, and breathing difficulties. Due to the potential for this material to produce severe respiratory tract irritation, workers with lung disease or diminished respiratory capacity should have limited exposure to this material.

FIRST AID MEASURES

IF CONTACTED:	IN CASE OF CONTACT, immediately flush with plenty of water for at least 30 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Destroy contaminated shoes.
IF SWALLOWED:	IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
IF INHALED:	IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NA	
Flash Point	NA	Flash Point Method
Flammable Limits – Upper	NA	
Lower	NA	

Extinguishing Media:

Use dry chemical. Do not use water to cool containers exposed to fire.

Fire Fighting Instructions:

Fire fighters and other who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Exposition Hazards:

Contact with metal can form hydrogen gas. Hydrogen is extremely flammable and can form explosive mixtures with air. Closed containers may explode when heated or contents contaminated with water.

ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak:

Stop the leak, if possible. Ventilate the space involved. Contain, vacuum up, place in non-sparking container for disposal. Prevent waterway contamination. Construct a dike to prevent spreading. Collect run-off and transfer to drums or tanks for later disposal. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

HANDLING AND STORAGE	
Handling:	Do not get in eyes, or skin or on clothing. Do not breathe mist. Keep container closed. Use only with adequate ventilation. Do not taste or swallow. Wash thoroughly after handling. To avoid rapid temperature rise, violent spattering, or explosive eruptions always add caustic to water when mixing. Never add water to a caustic when mixing. Heat water to 80-100 F before adding product. Add small amounts of product slowly and evenly over single addition, Water should not exceed 160° F during addition.
Storage:	Do NOT store near strong acids.

EXPOSURE CONTROLS/ PERSONAL PROTECTION	
Engineering Controls:	Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). Dilution ventilation acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems. Monitor carbon monoxide and oxygen levels in tank and enclosed spaces.
Eye/ Face Protection:	Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye-flushing equipment immediately available.
Skin Protection:	Natural rubber or Polyvinyl chloride gloves should be worn when handling this material. Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing promptly and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash skin thoroughly after handling.
Respiratory Protection:	Avoid breathing vapor or mist. Use NIOSH approved respiratory protection equipment appropriate to the material and/ or its components when airborne exposure limits are exceeded (see below). Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full-face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR & 1910.134
Other Protective Equipment:	Rubber boots, Rubber suit or Apron, Chemical resistant protective clothing.

Airborne Exposure Guidelines for Ingredients:	
Exposure Limit	Value
Sodium Hydroxide	
ACGIH STEL	2 mg/m3
OSHA TWA PEL	2 mg/m3
- Only those components with exposure limits are printed in this section. - Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitative exposure. Measures to prevent significant cutaneous absorption may be required.	

PHYSICAL AND CHEMICAL PROPERTIES			
Appearance:	Water white, clear to slightly turbid liquid.	Melting Point:	NA
Odor:	Essentially odorless	Freezing Point:	-12° C (54° F)
pH:	NE	Boiling Point:	142° C (288° F)
Specific Gravity:	1.525 @ 20° C (Avg.)	Solubility in Water:	Complete
Vapor Pressure:	1.6 @ 20 C0	Percent Volatile:	50
Vapor Density:	NA	Molecular Weight:	40.01 (Dry Basis)

STABILITY AND REACTIVITY

Stability:	This material is chemically stable under normal and anticipated storage and handling conditions.
Incompatibility:	Contact with water releases heat, which can result in violent boiling and spattering. Avoid strong acids, metals and organic material such as chlorinated hydrocarbons.
Hazardous Decomposition Products:	Explosive hydrogen gas can be liberated on contact with metals, such as zinc, tin or aluminum. Hydrogen gas can result in explosive hazards in confined spaces.

TOXICOLOGICAL INFORMATION

<p>Data on this material and/or a similar material are summarized below.</p> <p>Sodium Hydroxide Single exposure (acute) studies indicate that this material is slightly toxic to rabbits if absorbed through skin (LD 50 1,350 mg/Kg for dry material), and corrosive to rabbit eyes and skin. Many publications in the scientific literature confirm the severely irritating properties of acute and short-term exposure to this material in humans and animals and discuss toxic effects (such as a death, eye damage or changes in lung morphology), which are probably related to the corrosive properties of this compound.</p> <p>Inhalation of unmeasured concentrations 30 minutes per day for 2.5 months resulted in lung damage in rats. A rodent drinking water study at 1% (duration unknown) was reported to result in "nervous symptoms" and growth retardation. Growth was unaffected in this same study at 0.5 %, but no conceptions occurred. No tumors were seen in any longer term animal studies. This material produced no generic charges in standard tests using bacterial cells.</p> <p>No significant increases in mortality in relation to duration or intensity of exposures were reported in an epidemiologic study of a small group of workers exposed to caustic dusts for 30 years or more. Massive ingestion of this material has been implicated as causing esophageal cancer. Squamous cell carcinomas of the esophagus occurred approximately 12-42 years later in individuals who survived accidental childhood ingestion and are likely due to the tissue destruction and possible scarring of the esophagus rather than a direct effect of this material.</p>	
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ECOLOGICAL INFORMATION

Ecotoxicological Information:	Data on this material and/or a similar material are summarized below. Sodium Hydroxide. Data from several species of fish showed a range of tolerance (brook trout > spotfin and Lake Emerald shiners > minnows > mosquitofish > goldfish) that was most likely related to changes in the pH produced by addition of this material to the water. The minimum lethal concentration for minnows, Mayfly larvae and Daphnia was 100 ppm and for Chironomus larvae, 700 ppm.
Chemical Fate Information:	Data on this material and/or a similar material are summarized below. Sodium Hydroxide: No Data were available, but this material is a strong alkali that easily dissolves in water with resulting acid/base chemistry.

DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with environmental engineer or professional to determine if neutralization is appropriate and for handling procedures for residual material. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulation.
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TRANSPORT INFORMATION	
DOT Name:	Sodium Hydroxide Solution
DOT Hazard Class:	8
UN Number:	UN 1824
DOT Packing Group:	PG II
RQ:	1000 lbs
DOT Special Information:	Tank Trucks: Corrosive Placards Tank Cars: Placarded Corrosive

REGULATORY INFORMATION			
Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)			
Immediate (Acute) Health:	Yes	Fire:	No
Delayed Chronic Health:	No	Reactive:	No
Sudden Release of Pressure:	No		
The components of this product are all on the TSCA inventory list.			

Ingredient Related Regulatory Information:

SARA Reportable Quantities	CERCLA RQ	SARA TPQ
Sodium Hydroxide	1000 Lbs.	
Water	NE	

Massachusetts Right to know
This product does contain the following chemical (s), as indicated below, currently on the Massachusetts Right-to-Know Substances List.
Sodium Hydroxide

New Jersey Right to know
This product does contain the following chemical (s), as indicated below, currently on the New Jersey Right-to-Know Substances List.
Sodium Hydroxide

Pennsylvania Environmental Hazard
This product does contain the following chemical (s), as indicate below, currently on the Pennsylvania Environmental Hazard List.
Sodium Hydroxide.

Pennsylvania Right to Know
This product does contain the following chemical (s), as indicated below, currently on the Pennsylvania Hazardous Substance List.
Sodium Hydroxide.

OTHER INFORMATION		
Revision Information		
Revision Date	08.01.2001	Revision Number 1
Supercedes Revision Dated	07.20.1999	
Revision Summary	Initial Entry into 16 section format	
Key:	NE = Not Established	NA = Not Applicable (R) Registered Trademark

Miscellaneous

NOTE: Toxic carbon monoxide gas can form upon contact with food and beverage products in enclosed spaces and cause death.

This MSDS covers the following grades:

50% Membrane Grade

50% High Purity Membrane Grade

50% Rayon Grade

50% Standard Grade

50% Chemical Grade

50% Bleach Grade

50% With Additive

Please Note: The information contained herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge and belief. NO WARRANTY OR GUARANTEE, expressed or implied, is made regarding the product performance, product stability, or as to any other condition of use, handling, transportation, and storage. Customer use, handling, transportation, and storage may involve additional safety and/or performance considerations. Our technical personnel will be happy to respond to questions regarding safe handling, storage, transportation and use procedures. The safe handling, storage, transportation and use procedures remain the sole responsibility of the customer. No suggestions for handling, storage, transportation or use are intended as or to be construed as recommendations which may infringe on any existing patents or violate any Federal, State, and/or local law and/or regulation, ordinance, standard, etc.. This Material Safety Data Sheet has been prepared by HASA, Inc. staff from test reports and other information available in the public domain.