

## 1. Identification

<b>Product identifier</b>	<b>Sodium Hydroxide Solutions</b>	
<b>Other means of identification</b>	Not available.	
<b>Synonyms</b>	Caustic Soda, Caustic Alkali, Lye, Caustic Soda Liquid 50%, Soda Lye, Liquid Caustic, Sodium Hydrate	
<b>Recommended use</b>	Pulping and bleaching, pH neutralizer, welding, detergent	
<b>Recommended restrictions</b>	None known.	
<b>Manufacturer / Importer / Supplier / Distributor information</b>		
<b>Company name</b>	KA Steel Chemicals, Inc	
<b>Address</b>	15185 Main Street Lemont, IL 60439	
<b>Telephone</b>	630-257-3900	
<b>E-mail</b>	<a href="http://www.kasteelchemicals.com/">http://www.kasteelchemicals.com/</a>	
<b>Contact person</b>	SDS Review Group	
<b>Emergency phone number</b>	CHEMTREC	(US) 1-800-424-9300 (Canada) 1-800-567-7455

## 2. Hazard(s) identification

<b>Physical hazards</b>	Corrosive to metals	Category 1
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
<b>OSHA defined hazards</b>	Not classified.	

### Label elements



<b>Signal word</b>	Danger	
<b>Hazard statement</b>	May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Keep only in original container.	
<b>Response</b>	If swallowed: Rinse mouth. Do NOT induce vomiting. 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. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.	
<b>Storage</b>	Store in corrosive resistant container with a resistant inner liner. Store locked up.	
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.	
<b>Hazard(s) not otherwise classified (HNOC)</b>	Not classified.	
<b>Environmental hazards</b>	Hazardous to the aquatic environment, acute hazard	Category 3
<b>Supplemental information</b>		
<b>Hazard statement</b>	Harmful to aquatic life.	
<b>Precautionary statement</b>		
<b>Prevention</b>	Avoid release to the environment.	

## 3. Composition/information on ingredients

### Mixtures

Chemical name	CAS number	%
Sodium hydroxide	1310-73-2	49 - 51
Sodium chloride	7647-14-5	< 1

#### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.
<b>Skin contact</b>	Take off immediately all contaminated clothing. Wash off IMMEDIATELY with plenty of water for at least 15-20 minutes. Get medical attention immediately! Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
<b>Ingestion</b>	Call a physician or poison control center immediately. Do not induce vomiting. Immediately rinse mouth and drink plenty of water. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Never give anything by mouth to an unconscious person. Do not use mouth-to-mouth method if victim ingested the substance.
<b>Most important symptoms/effects, acute and delayed</b>	Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Shortness of breath.
<b>Indication of immediate medical attention and special treatment needed</b>	Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Keep victim under observation.
<b>General information</b>	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

#### 5. Fire-fighting measures

<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ). Use extinguishing agent suitable for type of surrounding fire.
<b>Unsuitable extinguishing media</b>	Do not use a solid water stream as it may scatter and spread fire. Do not use halogenated extinguishing agents.
<b>Specific hazards arising from the chemical</b>	During fire, gases hazardous to health may be formed. The product itself does not burn. May decompose upon heating to produce corrosive and/or toxic fumes. Contact with metal may release flammable hydrogen gas.
<b>Special protective equipment and precautions for firefighters</b>	Fire fighters should enter the area only if they are protected from all contact with the material. Full protective clothing, including self-contained breathing apparatus, coat, pants, gloves, boots and bands around legs, arms, and waist, should be worn. No skin surface should be exposed. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
<b>Fire-fighting equipment/instructions</b>	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

#### 6. Accidental release measures

<b>Personal precautions, protective equipment and emergency procedures</b>	Keep unnecessary personnel away. Ensure adequate ventilation. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Local authorities should be advised if significant spillages cannot be contained.
<b>Methods and materials for containment and cleaning up</b>	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Following product recovery, flush area with water.  Small Spills: Absorb spill with vermiculite or other inert material. Clean surface thoroughly to remove residual contamination.
<b>Environmental precautions</b>	Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

#### 7. Handling and storage

<b>Precautions for safe handling</b>	Use caution when combining with water; DO NOT add water to caustic; ALWAYS add caustic to water while stirring to minimize heat generation. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe mist or vapor. Use only with adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
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**Conditions for safe storage, including any incompatibilities**

Keep container tightly closed. Store in a cool, dry, well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Store away from incompatible materials (See Section 10). Do not allow material to freeze.

## 8. Exposure controls/personal protection

### Occupational exposure limits

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

#### US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

#### US NIOSH Pocket Guide to Chemical Hazards: Ceiling Limit Value and Time Period (if specified)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

### Biological limit values

No biological exposure limits noted for the ingredient(s).

### Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

### Individual protection measures, such as personal protective equipment

#### Eye/face protection

Wear chemical goggles and face shield.

#### Skin protection

##### Hand protection

Wear appropriate chemical resistant gloves.

##### Other

Wear appropriate chemical resistant clothing.

#### Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with organic vapor cartridge and full facepiece.

#### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

### General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

#### Physical state

Liquid.

#### Form

Viscous liquid.

#### Color

Clear to light grey.

#### Odor

Odorless.

#### Odor threshold

Not available.

#### pH

14

#### Melting point/freezing point

50 - 53 °F (10 - 11.67 °C) (50% solution)

#### Initial boiling point and boiling range

266 - 284 °F (130 - 140 °C) (50% solution)

#### Flash point

Not available.

#### Evaporation rate

Not available.

#### Flammability (solid, gas)

Not available.

#### Upper/lower flammability or explosive limits

##### Flammability limit - lower (%)

Not available.

##### Flammability limit - upper (%)

Not available.

<b>Explosive limit - lower (%)</b>	Not available.
<b>Explosive limit - upper (%)</b>	Not available.
<b>Vapor pressure</b>	23.76 mm Hg (25°C/77°F)
<b>Vapor density</b>	Not available.
<b>Relative density</b>	1.53
<b>Relative density temperature</b>	60 °F (15.56 °C)
<b>Solubility(ies)</b>	Completely miscible with water.
<b>Partition coefficient (n-octanol/water)</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not available.
<b>Other information</b>	
<b>Density</b>	12.76 lb/gal (15.5°C / 60°F)
<b>Molecular formula</b>	NaOH
<b>Molecular weight</b>	40.1 g/mol

## 10. Stability and reactivity

<b>Reactivity</b>	Contact with metal may release flammable hydrogen gas.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	Hazardous polymerization does not occur.
<b>Conditions to avoid</b>	Reacts violently with strong acids. This product may react with oxidizing agents. Do not mix with other chemicals. Corrosive to aluminum, tin, zinc, copper and most alloys in which they are present including brass and bronze. Corrosive to steels at elevated temperatures above 40°C (104°F).
<b>Incompatible materials</b>	Oxidizing agents. Acids. Phosphorus. Aluminum. Zinc. Tin. Initiates or catalyzes violent polymerization of acetaldehyde, acrolein or acrylonitrile.
<b>Hazardous decomposition products</b>	Contact with metals (aluminum, zinc, tin) and sodium tetrahydroborate liberates hydrogen gas.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion</b>	Causes digestive tract burns. Harmful if swallowed.
<b>Inhalation</b>	May cause irritation to the respiratory system.
<b>Skin contact</b>	Causes severe skin burns.
<b>Eye contact</b>	Causes severe eye burns. Causes serious eye damage.

**Symptoms related to the physical, chemical and toxicological characteristics** Burning pain and severe corrosive skin damage. Permanent eye damage including blindness could result.

### Information on toxicological effects

**Acute toxicity** Harmful if swallowed.

Product	Species	Test Results
Sodium Hydroxide Solutions (CAS Mixture)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	1350 mg/kg, (Sodium hydroxide)
<i>Oral</i>		
LD50	Rat	140 - 340 mg/kg, (Sodium hydroxide)

<b>Skin corrosion/irritation</b>	Causes severe skin burns and eye damage.
<b>Serious eye damage/eye irritation</b>	Causes severe eye burns. Causes serious eye damage.
<b>Respiratory sensitization</b>	No data available.
<b>Skin sensitization</b>	No data available.

<b>Germ cell mutagenicity</b>	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
<b>Carcinogenicity</b>	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
<b>Reproductive toxicity</b>	No data available.
<b>Specific target organ toxicity - single exposure</b>	Not available.
<b>Specific target organ toxicity - repeated exposure</b>	Not available.
<b>Aspiration hazard</b>	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
<b>Chronic effects</b>	Prolonged exposure may cause chronic effects.

## 12. Ecological information

**Ecotoxicity** Harmful to aquatic life.

Components	Species	Test Results
Sodium hydroxide (CAS 1310-73-2)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Ceriodaphnia dubia) 34.59 - 47.13 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus) 99 mg/l, 48 hours
		Western mosquitofish (Gambusia affinis) 125 mg/l, 96 hours

<b>Persistence and degradability</b>	Expected to degrade rapidly in air.
<b>Bioaccumulative potential</b>	The product is not expected to bioaccumulate.
<b>Mobility in soil</b>	Not available.
<b>Other adverse effects</b>	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13. Disposal considerations

<b>Disposal instructions</b>	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

<b>UN number</b>	UN1824
<b>UN proper shipping name</b>	Sodium hydroxide solution
<b>Transport hazard class(es)</b>	8
<b>Subsidiary class(es)</b>	-
<b>Packing group</b>	II
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	B2, IB2, N34, T7, TP2
<b>Packaging exceptions</b>	154
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	242

### IATA

<b>UN number</b>	UN1824
<b>UN proper shipping name</b>	Sodium hydroxide solution
<b>Transport hazard class(es)</b>	8
<b>Subsidiary class(es)</b>	-
<b>Packaging group</b>	II
<b>Environmental hazards</b>	No
<b>Labels required</b>	8
<b>ERG Code</b>	8L

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

#### IMDG

**UN number** UN1824  
**UN proper shipping name** SODIUM HYDROXIDE SOLUTION  
**Transport hazard class(es)** 8  
**Subsidiary class(es)** -  
**Packaging group** II  
**Environmental hazards**  
**Marine pollutant** No  
**Labels required** 8  
**EmS** F-A, S-B

**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** This substance/mixture is not intended to be transported in bulk.

## 15. Regulatory information

### US federal regulations

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) LISTED

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

**Hazard categories** Immediate Hazard - Yes  
Delayed Hazard - No  
Fire Hazard - No  
Pressure Hazard - No  
Reactivity Hazard - Yes

**SARA 302 Extremely hazardous substance** No

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)** Not regulated.

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

**Food and Drug Administration (FDA)** Not regulated.

### US state regulations

#### US. Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)

#### US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

#### US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)

#### US. Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

#### US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

#### US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

## International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

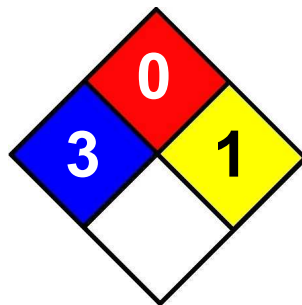
## 16. Other information, including date of preparation or last revision

**Issue date** 09-January-2014

**Revision date** -

**Version #** 01

### NFPA Ratings



**List of abbreviations**  
LD50: Lethal Dose, 50%.  
LC50: Lethal Concentration, 50%.  
EC50: Effective concentration, 50%.  
TWA: Time weighted average.

**References**  
EPA: AQUIRE database  
HSDB® - Hazardous Substances Data Bank  
US. IARC Monographs on Occupational Exposures to Chemical Agents  
IARC Monographs. Overall Evaluation of Carcinogenicity  
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

**Disclaimer**  
This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.