

PRODUCT SAFETY INFORMATION

This Product Safety Information does not constitute a Safety Data Sheet and shall only be used as a source of information. The relevant Safety Data Sheet is available upon mail request to Productsafety.Information@solvay.com

CAUSTIC SODA

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1. Identification of the substance or preparation

Product name	:	CAUSTIC SODA
Chemical name	:	Sodium hydroxide
Synonym(s)	:	Sodium hydrate
Formula:	:	NaOH
Molecular Weight	:	40,01
EC Number (EINECS)	:	215-185-5

1.2. Use of the substance/preparation

Recommended uses	:	<ul style="list-style-type: none">- Chemical industry- Pulp and paper- Water treatment- Detergents- Textile industry- Agriculture industry
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Sodium hydroxide

CAS Number	:	1310-73-2
ID Number (Annex I)	:	011-002-00-6
EC Number (EINECS)	:	215-185-5
Symbols	:	C
Phrases R	:	35
Concentration	:	>= 98,00 %

3. HAZARDS IDENTIFICATION

- Substance classified as dangerous according to Directive 67/548/EEC.
- Corrosive product, hazardous to human health and the environment.

4. FIRST-AID MEASURES

4.1. Inhalation

- Remove the subject from the contaminated area as soon as possible; transport him/her lying down, with the head higher than the body, to a quiet, uncontaminated and well-ventilated location..
- Oxygen or pulmonary resuscitation if necessary.



- Consult with a physician in case of respiratory symptoms.

4.2. Eyes contact

- Consult with an ophthalmologist immediately in all cases.
- Take to hospital immediately.
- Flush eyes as soon as possible with running water for 15 minutes, while keeping the eyelids wide open.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).

4.3. Skin contact

- Remove contaminated shoes, socks and clothing; wash the affected skin with running water.
- Keep warm (blanket), provide clean clothing.
- Consult with a physician in all cases.

4.4. Ingestion

General recommendations

- Consult with a physician immediately in all cases.
- Take to hospital immediately.

If the subject is completely conscious:

- Rinse mouth with fresh water.
- Do not give anything to drink.
- Do not induce vomiting.

If the subject is unconscious:

- Classical resuscitation measures.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media

- In case of fire in close proximity, all means of extinguishing are acceptable (subject to section below).

5.2. Unsuitable extinguishing media

- Water

5.3. Special exposure hazards

- Non-combustible
- Exothermic reaction on contact with water.
- Formation of flammable gas on contact with certain metals (see 10).

5.4. Protective measures in case of intervention

- Evacuate all non-essential personnel.
- Intervention only by capable personnel who are trained and aware of the hazards of the product.
- When intervention in close proximity wear acid resistant over suit.
- Wear self contained breathing apparatus when in close proximity or in confined spaces.

5.5. Other precautions

- If safe to do so, remove the exposed containers, or cool with large quantities of water.
- Avoid direct contact of the product with water.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions

- If safe to do so, without over exposing anyone, try to stop the leak.
- Follow the protective measures given in section 8.
- Follow the protective measures given in section 5.

6.2. Environmental precautions

- Prevent discharges into the environment (sewers, rivers, soils,...).



- Immediately notify the appropriate authorities in case of significant discharge.

6.3. Methods for cleaning up

- Collect the product with suitable means avoiding dust formation.
- Place everything into a closed, labelled container compatible with the product.
- Store the product in a safe and isolated place.
- For disposal methods, refer to section 13.
- Clean the area with large quantities of water.

7. HANDLING AND STORAGE

7.1. Handling

- Dilution: add the product into water, but never the contrary.
- Keep away from reactive products (see section 10).
- Use only equipment and materials which are compatible with the product.
- Avoid any contact with water or humidity.

7.2. Storage

- In a dry area.
- Keep in original packaging, closed.
- Keep away from reactive products (see section 10).

7.3. Specific use(s)

- For any particular use, please contact the supplier.

7.4. Packaging

- Woven plastic material + PE.
- PE
- Paper + PE.
- Steel

7.5. Other precautions

- Warn people about the dangers of the product.
- Provide tight electrical equipment well protected against corrosion.
- Follow the protective measures given in section 8.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values

Sodium hydroxide

TLV (ACGIH-USA) 2002

TLVC = 2 mg/m³

8.2. Exposure controls

- Maintain employee exposures to levels below the applicable exposure limits.
- Follow the protective measures given in section 7.

8.2.1. Occupational exposure controls

8.2.1.1. *Respiratory protection*

- In case of dust clouds/fog/fumes, dust mask type P2.
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.
- Use only respiratory protection that conforms to international/ national standards.

8.2.1.2. *Hand protection*

- Protective gloves - impervious chemical resistant:
- Recommended materials: PVC, neoprene, rubber



- Non-recommended materials: Leather

8.2.1.3. Eye protection

- If risk of splashing, chemical proof goggles/face shield.
- Wear protective goggles for all industrial operations.

8.2.1.4. Skin protection

- Impervious overalls
- Apron/boots of PVC, neoprene in case of dusts.

8.2.1.5. Other precautions

- Shower and eye wash stations.
- Wash soiled equipment
- Consult the industrial hygienist or the safety manager for the selection of personal protective equipment suitable for the working conditions.

8.2.2. Environmental exposure controls

- Respect local/federal and national regulations for aqueous emissions (see section 15).

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. General information

Appearance	:	crystalline solid, translucent, very hygroscopic. Various forms: solid, flakes, pearls
Color/Colour	:	white
Odor/Odour	:	odorless/odourless

9.2. Important health, safety and environmental information

pH	:	> 13 <i>Concentration: 0,5 %</i>
Boiling point	:	1.390 °C
Flash point	:	Not applicable
Flammability	:	Not applicable
Explosive properties	:	Non-explosive <i>Remark: See also section 10</i>
Vapor/vapour pressure	:	1 mbar <i>Temperature: 739 °C</i> 80 mbar <i>Temperature: 1.057 °C</i> 1.013 mbar <i>Temperature: 1.390 °C</i>
Density	:	<u>Specific gravity:</u> = 2,13 <u>Bulk density:</u> 0,5 - 1,2 kg/dm ³ (Scales, perls, microperls, ...)
Solubility	:	Water 420 g/l <i>Temperature: 0 °C</i> Water 3.470 g/l <i>Temperature: 100 °C</i>



: Soluble in
: Alcohol
: Glycerol
Partition coefficient P (n-octanol/water) : Not applicable

9.3. Other information

Melting point/range : 318,4 °C

10. STABILITY AND REACTIVITY

10.1. Conditions to avoid

- Moisture

10.2. Materials to avoid

- Aluminum
- Copper and its alloys.
- zinc
- Lead
- React with all metals to release hydrogen.
- Acids
- Water

10.3. Hazardous decomposition products

- Hydrogen

10.4. Other information

- Violent reaction with water and acids with heat release.
- Many exothermic reactions.
- Corrosive action with many metals.

11. TOXICOLOGICAL INFORMATION

11.1. Toxicological datas

Acute toxicity

- Oral route, LD 50, no data
- Dermal route, LD 50, no data
- Inhalation, LC 50, no data

Irritation

- Man, Non sensitizing (skin)

Sensitization

- No data

Chronic toxicity

- Inhalation, acute and repeated exposure, rat, Target organ: respiratory system, corrosive effect
- Oral route, after repeated exposure, rat, Target organ: gastro-intestinal system, corrosive effect
- In vitro, no mutagenic effect

Comments

- Toxic effect linked with corrosive properties

11.2. Health effects

Main effects

- Corrosive to mucous membrane, eyes and skin.



- Fatalities have been observed after a single dose of 5 grams and more taken by an adult weighing 70 kg.

Inhalation

- Severe irritation of the nose and the throat.
- Cough and difficulty in breathing.
- At high concentrations, risk of chemical pneumonitis, pulmonary (o)edema.
- In case of repeated or prolonged exposure: risk of sore throat, nose bleeds, chronic bronchitis.

Eyes contact

- Severe eye irritation, watering, redness and swelling of the eyelids.
- Burns.
- Risk of serious or permanent eye lesions.
- Risk of blindness.

Skin contact

- Painful irritation, redness and swelling of the skin.
- Risk of severe burns; slow healing.

Ingestion

- Severe irritation, burns, perforation of the gastrointestinal tract accompanied by shock.
- Abundant salivation.
- Risk of throat (o)edema and suffocation.
- Nausea, vomiting (bloody), abdominal cramps and diarrhea (bloody).
- Risk of general symptoms.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity

Acute ecotoxicity

- Fishes, *Gambusia affinis*, LC 50, 96 h, 125 mg/l
Conditions: pH > 10
- Crustaceans, *Ceriodaphnia dubia*, EC 80, 48 h, 40 mg/l
Conditions: pH > 10

Chronic ecotoxicity

- Result: no data

12.2. Mobility

- Air
Result: instantaneous degradation
- Water
Result: considerable solubility and mobility
- Soil/sediments
Result: considerable solubility and mobility
- Soil/sediments
Result: groundwater contamination if raining

12.3. Persistence and degradability

Abiotic degradation

- Air, neutralization (atmospheric CO₂), t 1/2 = 13 second(s)
Degradation's products: sodium carbonate (aerosol)
- Water
Result: instantaneous ionization with pH increase
- Water, neutralization
Degradation's products: salts
- Soil, ionization/neutralization



Biotic degradation

- Aerobic
Result: not applicable
- Anaerobic
Result: not applicable

12.4. Bioaccumulative potential

- Result: non-bioaccumulable

12.5. Other adverse effects

- Study in progress

12.6. Comments

- Harmful for aquatic organisms due to alkaline pH.
- Diluted product is rapidly neutralized at environmental pH.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment

- Dispose in compliance with local/federal and national regulations.
- Contact waste exchanges for recycling.
- Or
- Dissolve carefully in water.
- Neutralise the product with an acid.

13.2. Packaging treatment

- Rinse the empty containers with plenty of water and treat the effluent in the same way as waste.
- The empty and clean containers are to be reused in conformity with regulations.

14. TRANSPORT INFORMATION

UN Number	1823
IATA Class:	8
Packing group:	II
Hazard label:	CORROSIVE
PSN: SODIUM HYDROXIDE, SOLID	
IMDG Class:	8
Packing group:	II
Hazard label:	CORROSIVE
Placard:	1823
EmS:	8-06
IMDG Name: SODIUM HYDROXIDE, SOLID	
ADR/ADNR Class	8
Packing group:	II
Hazard label:	8
Placard:	80/1823
ADR/RID Name: SODIUM HYDROXIDE, SOLID	
RID Class:	8
Packing group:	II
Hazard label:	8
Placard:	80/1823
ADR/RID Name: SODIUM HYDROXIDE, SOLID	



15. REGULATORY INFORMATION

15.1. EC Labelling

- Name of dangerous product(s) (to indicate on the label): Sodium hydroxide
- Labelling following Directive 67/548/EEC.

Symbols	C	Corrosive
Phrases R	35	Causes severe burns.
Phrases S	(1/2) 26	(Keep locked up and out of the reach of children.) In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	37/39 45	Wear suitable gloves and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

15.2. Additional informations (label for packaging)

- Indicate on the label: EC LABELING

16. OTHER INFORMATION

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

