

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 05.11.2012

Revision: 05.11.2012

1 Identification of the substance/mixture and of the company/undertaking

· **Product identifier**

· **Trade name:** Sodium Hydroxide Powder

· **Article number:** 40-5010-05

· **CAS Number:**

1310-73-2

· **EC number:**

215-185-5

· **Index number:**

011-002-00-6

· **Registration number** 01-2119457892-27-0065

· **Relevant identified uses of the substance or mixture and uses advised against**

Manufacturing of liquid NaOH; used in neutralization reactions and as a pH regulator; Industrial and professional use of NaOH; Alumina production and cleaning of equipment; Ph regulation; Bayer process; Industrial use of Sodium hydroxide as process aid in the plastics and paper industry; Intermediate for synthesis under strictly controlled conditions; Consumer use of NaOH.

· **Sector of Use**

SU0 Other

SU1 Agriculture, forestry, fishery

SU2a Mining, (without offshore industries)

SU2b Offshore industries

SU4 Manufacture of food products

SU5 Manufacture of textiles, leather, fur

SU6a Manufacture of wood and wood products

SU6b Manufacture of pulp, paper and paper products

SU7 Printing and reproduction of recorded media

SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU11 Manufacture of rubber products

SU12 Manufacture of plastics products, including compounding and conversion

SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement

SU14 Manufacture of basic metals, including alloys

SU15 Manufacture of fabricated metal products, except machinery and equipment

SU16 Manufacture of computer, electronic and optical products, electrical equipment

SU17 General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment

SU18 Manufacture of furniture

SU19 Building and construction work

SU20 Health services

SU21 Consumer uses: Private households / general public / consumers

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

SU23 Electricity, steam, gas water supply and sewage treatment

SU24 Scientific research and development

· **Product category**

PC0 Other

PC1 Adhesives, sealants

PC2 Adsorbents

PC3 Air care products

PC4 Anti-Freeze and de-icing products

PC7 Base metals and alloys

PC8 Biocidal products (e.g. Disinfectants, pest control)

PC9a Coatings and paints, thinners, paint removers

PC9b Fillers, putties, plasters, modelling clay

PC9c Finger paints

PC11 Explosives

PC12 Fertilizers

PC13 Fuels

PC14 Metal surface treatment products, including galvanic and electroplating products

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- PC15 Non-metal-surface treatment products
- PC16 Heat transfer fluids
- PC17 Hydraulic fluids
- PC18 Ink and toners
- PC19 Intermediate
- PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents
- PC21 Laboratory chemicals
- PC23 Leather tanning, dye, finishing, impregnation and care products
- PC24 Lubricants, greases, release products
- PC25 Metal working fluids
- PC26 Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
- PC27 Plant protection products
- PC28 Perfumes, fragrances
- PC29 Pharmaceuticals
- PC30 Photo-chemicals
- PC31 Polishes and wax blends
- PC32 Polymer preparations and compounds
- PC33 Semiconductors
- PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids
- PC35 Washing and cleaning products (including solvent based products)
- PC36 Water softeners
- PC37 Water treatment chemicals
- PC38 Welding and soldering products (with flux coatings or flux cores.), flux products
- PC39 Cosmetics, personal care products
- PC40 Extraction agents

Process category

- PROC1 Use in closed process, no likelihood of exposure
- PROC2 Use in closed, continuous process with occasional controlled exposure
- PROC3 Use in closed batch process (synthesis or formulation)
- PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC6 Calendering operations
- PROC7 Industrial spraying
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10 Roller application or brushing
- PROC11 Non industrial spraying
- PROC12 Use of blowing agents in manufacture of foam
- PROC13 Treatment of articles by dipping and pouring
- PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation
- PROC15 Use as laboratory reagent
- PROC16 Using material as fuel sources, limited exposure to unburned product to be expected
- PROC17 Lubrication at high energy conditions and in partly open process
- PROC18 Greasing at high energy conditions
- PROC19 Hand-mixing with intimate contact and only PPE available
- PROC20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
- PROC21 Low energy manipulation of substances bound in materials and/or articles
- PROC22 Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting
- PROC23 Open processing and transfer operations with minerals/metals at elevated temperature

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- PROC24 High (mechanical) energy work-up of substances bound in materials and/or articles
- PROC25 Other hot work operations with metals
- PROC26 Handling of solid inorganic substances at ambient temperature
- PROC27a Production of metal powders (hot processes)
- PROC27b Production of metal powders (wet processes)
- **Environmental release category**
- ERC1 Manufacture of substances
- ERC2 Formulation of preparations
- ERC3 Formulation in materials
- ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
- ERC5 Industrial use resulting in inclusion into or onto a matrix
- ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
- ERC6b Industrial use of reactive processing aids
- ERC6c Industrial use of monomers for manufacture of thermo-plastics
- ERC6d Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers
- ERC7 Industrial use of substances in closed systems
- ERC8a Wide dispersive indoor use of processing aids in open systems
- ERC8b Wide dispersive indoor use of reactive substances in open systems
- ERC8c Wide dispersive indoor use resulting in inclusion into or onto a matrix
- ERC8d Wide dispersive outdoor use of processing aids in open systems
- ERC8e Wide dispersive outdoor use of reactive substances in open systems
- ERC8f Wide dispersive outdoor use resulting in inclusion into or onto a matrix
- ERC9a Wide dispersive indoor use of substances in closed systems
- ERC9b Wide dispersive outdoor use of substances in closed systems
- ERC10a Wide dispersive outdoor use of long-life articles and materials with low release
- ERC10b Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing)
- ERC11a Wide dispersive indoor use of long-life articles and materials with low release
- ERC11b Wide dispersive indoor use of long-life articles and materials with high or intended release (including abrasive processing)
- ERC12a Industrial processing of articles with abrasive techniques (low release)
- ERC12b Industrial processing of articles with abrasive techniques (high release)
- **Article category AC0 Other**
- **Application of the substance / the preparation**
Sodium hydroxide is used in many industries and many processes.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Severn Biotech Ltd.
Unit 2,
Park Lane,
Kidderminster,
Worcestershire.
DY11 6TJ
UK
Tel: 0044 1562 825286
Fax: 0044 1562 825284
email: info@severnbiotech.com
- **Further information obtainable from:** Product safety department.
- **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

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2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



C; Corrosive

R35: Causes severe burns.

- **Label elements**

- **Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labelled according to the CLP regulation.

- **Hazard pictograms** GHS05

- **Signal word** Danger

- **Hazard statements**

H314 Causes severe skin burns and eye damage.

- **Precautionary statements**

P260 Do not breathe dust.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

- **Additional information:**

Sodium hydroxide is listed on Annex VI of Regulation (EC) No 1272/2008 (CLP). The harmonized classification and labelling according to this CLP regulation is given in this section. However, in addition it is proposed in the future to classify the substance as: Corrosive to metals; category 1.

The Precautionary Statements mentioned in section 2.1 are applicable for industrial use of the substance NaOH. Other or additional Precautionary Statements may be more appropriate for professional and/or consumer use of NaOH.

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

1310-73-2 Sodium hydroxide

- **Identification number(s)**

- **EC number:** 215-185-5

- **Index number:** 011-002-00-6

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4 First aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
Supply fresh air; consult doctor in case of complaints.
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
- **After eye contact:**
Check for and remove any contact lenses.
Rinse opened eye for several minutes under running water. Then consult a doctor.
DO NOT DELAY!
- **After swallowing:**
Wash mouth out with water
Drink plenty of water and provide fresh air. Call for a doctor immediately.
DO NOT DELAY!
- **Information for doctor:** Treat symptomatically and supportively.
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
- **Special hazards arising from the substance or mixture**
Not combustible.
Contact with moisture or water may generate sufficient heat to ignite combustible substances.
Gives off hydrogen by reaction with metals.
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
Do not inhale explosion gases or combustion gases.
- **Additional information** Cool endangered receptacles with water spray.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Avoid formation of dust.
- **Environmental precautions:**
Do not allow to penetrate the ground/soil.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
See Section 7 for information on safe handling.

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See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.
NEVER pour water into this substance; when dissolving or diluting always add it slowly to the water.
- **Information about fire - and explosion protection:**
Not combustible.
Contact with moisture or water may generate sufficient heat to ignite combustible substances.
Gives off hydrogen by reaction with metals.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Prevent any seepage into the ground.
Suitable material:
- Stainless steel
- Polyethylene
- Paper + PE.
- **Information about storage in one common storage facility:**
Store away from metals.
Do not store together with acids.
Store away from foodstuffs.
- **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
This product is hygroscopic.
Store in dry conditions.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical facilities:** No further data; see item 7.

- **Control parameters**

- **Ingredients with limit values that require monitoring at the workplace:**

1310-73-2 Sodium hydroxide	
WEL	Short-term value: 2 mg/m ³

- **DNELs** 1 mg/m³

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not breath dust

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A safe system of work must be formulated and followed to ensure safe working with this product. Relevant workers must receive suitable and sufficient training and supervision.

Do not eat, drink, smoke or sniff while working.

A safe system of work must be formulated and followed to ensure that workers who may be pregnant or breastfeeding do not come into direct contact with the product.

· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

When handling for a short time: Respirator with P2 particle filter

In the event of prolonged exposure during handling: wear a self contained respiratory apparatus

Note time limit for wearing respiratory protective equipment.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Glove material Nitrile, for example:

- Material thickness 0,11 mm
- Break through time > 480 min
- Method DIN EN 374

For handling for longer periods or of large amounts

- Glove material Nitrile/Chloroprene,.
- Material thickness 0,65 mm
- Break through time > 480 min
- Method DIN EN 374

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

Chemical goggles for industrial operations.

For handling small amounts under controlled conditions: safety glasses with side-shields conforming to EN166

· **Body protection:** Alkaline resistant protective clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Solid

Colour: White

· **Odour:** Odourless

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- | |
|---|
| · Change in condition
Melting point/Melting range: 323 °C
Boiling point/Boiling range: 1388 °C |
| · Flash point: Not applicable. |
| · Flammability (solid, gaseous): Product is not flammable. |
| · Danger of explosion: Product does not present an explosion hazard. |
| · Vapour pressure at 25 °C: <0.0001 hPa |
| · Density at 20 °C: 2.13 g/cm ³ |
| · Solubility in / Miscibility with water at 20 °C: 420 g/l |
| · Other information No further relevant information available. |

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
The substance is a strong base, it reacts violently with acid and is corrosive in moist air to metals like zinc, aluminium, tin and lead forming a combustible/explosive gas (hydrogen).
Reacts with ammonium salts to produce ammonia, causing fire hazard. Attacks some forms of plastics, rubber or coatings.
Rapidly absorbs carbon dioxide and water from air.
Contact with moisture or water may generate SIGNIFICANT heat.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
Finely powdered metals.
Strong acids.
Aluminium, other light metals and their alloys.
Nitriles, alkaline earth metals in powder form, ammonium compounds, cyanides, magnesium, organic nitro compounds, organic combustible substances., phenols and oxidizable agents
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values relevant for classification:		
Oral	LD50	2000 mg/kg (rat)

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Other information (about experimental toxicology):**
Inhalation of an aerosol of the substance may cause lung oedema. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential.
The occupational exposure limit value should not be exceeded during any part of the working exposure.
Coughing is a symptom of respiratory tract irritation after inhalation of dusts or smoke from caustic

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solids.

In the eye, caustic dusts or smoke cause, depending on the intensity of exposure, severe irritation, destruction, and ablation of the epithelium of the conjunctiva and cornea, corneal clouding, edema and ulcerations.

ROUTES OF EXPOSURE: The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.

- **Subacute to chronic toxicity:** Repeated or prolonged contact with skin may cause dermatitis.
- **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** Product is not expected to bioaccumulate.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Contact waste processors for recycling information.
Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
Solutions with high pH-value must be neutralized before discharge.
- **European waste catalogue**
Waste key numbers in accordance with the European Waste catalogue (EWC) are origin-referred defined. Since this product is used in several industries, no waste key can be provided by the supplier. The waste key number should be determined in arrangement with your waste disposal partner or the responsible authority.
- **Uncleaned packaging:**
- **Recommendation:**
Disposal must be made according to official regulations.
Container remains hazardous when empty. Continue to observe all precautions.

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- **Recommended cleansing agents:**
Water, if necessary together with cleansing agents.
Solutions with high pH-value must be neutralized before discharge.

14 Transport information

· UN-Number	
· ADR, IMDG, IATA	1823
· UN proper shipping name	
· ADR	1823 SODIUM HYDROXIDE, SOLID
· IMDG, IATA	SODIUM HYDROXIDE, SOLID
· Transport hazard class(es)	
· ADR, IMDG, IATA	
	
· Class	8 Corrosive substances.
· Label	8
· Packing group	
· ADR, IMDG, IATA	II
· Special precautions for user	Warning: Corrosive substances.
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	LQ23
· Transport category	2
· Tunnel restriction code	E
· UN "Model Regulation":	UN1823, SODIUM HYDROXIDE, SOLID, 8, II

15 Regulatory information

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing MSDS:** Product safety department.