

Sodium hydroxide



[Identification](#) | [Characterisation](#) | [Formula](#) | [Physical and chemical properties](#) | [Toxicology / Ecotoxicology](#) | [Occupational health and first aid](#) | [Safe handling](#) | [Regulations](#) | [Links](#) | [Literature register](#)

IDENTIFICATION

Sodium hydroxide

Caustic soda
Caustic soda bead
Hydrate of sodium
Hydroxide of sodium
Sodium lye
Sodium hydrate
White caustic
Caustic soda, dry

ZVG No: 1270
CAS No: 1310-73-2
EC No: 215-185-5
INDEX No: 011-002-00-6

CHARACTERISATION

SUBSTANCE GROUP CODE

121400 Hydroxide
122200 Sodium compounds

STATE OF AGGREGATION

The substance is solid.

PROPERTIES

pellets
white
odourless

CHEMICAL CHARACTERISATION

Non-combustible substance.
Very soluble in water.

Hygroscopic.

Deliquesces in contact with air under uptake of moisture and carbon dioxide.

Aqueous solution reacts strongly alkaline.

Acute or chronic health hazards result from the substance.

(see: chapter REGULATIONS).

[Substance information in Wikipedia](#)

DUST EXPLOSIVENESS

No risk of dust explosion.

Quelle: 99999

FORMULA

NaOH

HNaO

$\text{Na}^+ \text{ } ^-\text{OH}$

Molar mass: 40,00 g/mol

PHYSICAL AND CHEMICAL PROPERTIES

[Melting point](#) | [Boiling point](#) | [Density](#) | [Solubility](#) | [pH-value](#) | [Hazardous reactions](#)

MELTING POINT

Melting point: 323 °C

Reference: 01211

BOILING POINT

Boiling Point: 1390 °C

Reference: 00106 01211 01221

DENSITY

DENSITY

Value: 2,13 g/cm³

Temperature: 20 °C

Reference: 01211

SOLUBILITY IN WATER

Concentration: 1090 g/l

Temperature: 20 °C

Reference: 01211

pH-VALUE

pH-value: ca. 14

Temperature: 20 °C

Concentration: 50 g/l

Reference: 01211 01221

HAZARDOUS REACTIONS

Hazardous chemical reactions

Risk of explosion in contact with:

bromine

concentrated acid

acrylonitrile; butine-2-diol-1,4 (heat); calcium (powder); chloroform/acetone; chloropicrin; furfural;

magnesium (humidity); methyl-3-pentene-2-ine-4-ol-1;

nitrobenzene/methanol; nitrobenzene/salt; nitromethane; nitroparaffines/salt; peroxides (rare);

silver nitrate; tetrachlorobenzene + methanol/heat;

1,1,1-trichloroethanol; zinc (humidity); tin (humidity)

The substance can react dangerously with:

alcohols

aluminium (powder)

chlorine

fluorine

organic substances

phosphorus

sulfuric acid

concentrated acid

water

hydrogen peroxide

acetone; aldol (polymerization); aluminium phosphide;

ammonium salts (ammonia); chlorine trifluoride;

dichloroethan (self-igniting); diketene (polymerization); epichlorohydrin (polymerization); ethylene oxide;

glycol derivatives; hydrogen halides; hydrazine hydrate; hydroquinone; hydroxylamine; potassium persulfate;

maleic anhydride; sodium hydridoborate;

phosphorus trioxide; 2-propenal; 2-propene-1-ol;

acid chlorides; hydrogen sulfide; trichloroethene; chloroform; water/combustible substances

TOXICOLOGY / ECOTOXICOLOGY

ECOTOXICOLOGICAL DATA

LC50 Fish (96 hours)

Minimum: 196 mg/l

Maximum: 196 mg/l

Median: 196 mg/l

Study number: 1

Reference for median:

Adema, D.M.M. 1985. Aquatic Toxicity of Compounds that may be Carried by Ships (Marpol 19733 Annex II). A Progress Report for 1985. Tech.Rep.No.R85/217, TNO, The Hague, Netherlands :40 p.

EC50 Crustaceans (48 hours)

Minimum: 40,4 mg/l

Maximum: 40,4 mg/l

Median: 40,4 mg/l

Study number: 2

Reference for median:

Warne, M.S.J., and A.D. Schifko 1999. Toxicity of Laundry Detergent Components to a Freshwater Cladoceran and Their Contribution to Detergent Toxicity. *Ecotoxicol. Environ. Saf.* 44(2):196-206

Reference: 02072

OCCUPATIONAL HEALTH AND FIRST AID

[Routes of exposure](#) | [Toxic effects](#) |
[First Aid](#)

ROUTES OF EXPOSURE

Main routes of exposure

The most likely way for significant amounts of sodium hydroxide (S.) to become systemically bioavailable is if it is inhaled.[07619]

Respiratory tract

In workplaces, S. can be inhaled in the form of dust or as an aerosol from solutions.[07656]

Because the substance is hygroscopic and well soluble in water, inhalation of dust leads to rapid hydration and dissolution of the particles.[99999]

Following their dissociation into sodium ions and hydroxyl ions, these are expected to be transferred into the blood.[07619]

Because of the severe irritation (warning effect), massive, long-term exposure is generally avoided.[99999]

Skin

If solid S. comes into contact with the skin, it can impact as a concentrated solution due to rapid intake of water.[99999]

By reacting with cellular components, alkalis change the border membranes and the structure of tissues and can rapidly arrive at deeper layers of tissues.[07978]

No quantitative data on the absorption through the skin are available.[99983]

However, the intake of systemically efficient doses is not expected for concentrations which do not damage the skin.[07619]

Gastrointestinal tract

Unintentional swallowing of dust or solutions leads to rapid penetration of the alkali or of the sodium and hydroxyl ions into the tissues contacted. Proportionate transfer into the blood is to be expected.[99999]

TOXIC EFFECTS

Main toxic effects

Acute:

Severe irritation and chemical burns to all mucous membranes and skin contacted, danger of irreversible damage to the eyes (danger of blindness)

Chronic:

Irritation to the eyes, airways and skin[07619]

Acute toxicity

Irrespective of the route of exposure, local effects predominate. They are characterized by swelling and liquefaction of tissues contacted (colliquative necrosis) which progress rapidly deep into the tissues.[07978]

The extent of the damage to the tissue is significantly dependent on the duration of exposure, concentration, pH value, dose of S. as well as on how quickly the treatment starts.[07619]

Unintentional direct contact with the eyes and skin is the most frequent cause of accidents during occupational handling.[07656]

The handling of the concentrated solution or of the solid poses the highest risks. However, even strongly diluted solutions still cause irritation and chemical burns.[99999]

Following contact with the eyes, the intraocular pressure increases during the first minutes due to the transfer of hydroxyl ions through the cornea into the anterior chamber. Contact of rabbits' eyes with 1 N S. solution (4 %) for only 2 seconds caused swelling of the cornea in spite of (immediately starting) rinsing for 14 minutes. Instillation of 0.5 ml of 0.5 N S. solution (2 %) for 1 minute (then rinsing of each eye with 1 l water) resulted in protrusion or perforation of the cornea due to an increase of the intraocular pressure.[07619]

Dependent on the exposure conditions, the following clinical symptoms were reported for humans: severe irritation to the eyes with lid edema and minor damage to the cornea through to extreme damage to the conjunctiva, cornea and scleres (opacity, perforation/ulceration, vascularization, symblepharon), more seldom to the inner eye (retinitis). There is a danger of blindness.[99983] It is very important to note that following tissue contact with S. the pain can start after a delay. This can lead to a dangerous underestimation of the damage.[99999]

Application of 25 - 50 % S. solution to the skin of volunteers did not produce any irritation within 3 minutes. For 0.4 - 4 % S. solution, the feeling of irritation/pain can become noticeable only after a few hours. Irrespective of the presence or absence of symptoms, the damaging process starts immediately, even at the skin.

A 0.0675 N S. solution (0.27 %) applied to volunteers caused reddening within 30 minutes.

Application of 20 µl 1 N S. solution (4 %) to the forearm of volunteers led to slight reddening after 25 - 30 min, then to a waxlike appearance of the skin and to swollen hair follicles. Bioptic skin specimens already showed changes to the horny layer of the epidermis and deeper skin layers after 15 minutes. After 60 minutes, some volunteers showed perforations of the skin. The changes appeared more rapidly than for hydrochloric acid of the same concentration.[07619]

Concentrated solutions of S. cause severe chemical burns to the skin with swelling of the tissue and formation of a soft surface. Incrustation does not occur.[07978]

If there is prolonged contact with S., even the nails and hair can be damaged. Exposure of the skin can cause loss of hair. In experiments, even very dilute S.-solutions (pH 9.2) decomposed hair and finger nails during a contact time of 20 hours.[07619]

S. in the atmosphere causes irritation to the airways (in particular in the nose and throat), eyes and skin.[07636]

Valid data on the irritative threshold dose have not been found.[99983]

A concentration of 2 mg/m³ was reported to have produced distinct but not excessive irritation. [07619]

The IDLH value (immediately dangerous to life or health) was declared to be 10 mg/m³. [07930]

Serious poisoning cases due to oral intake of S. or S. containing formulations (paint remover, pipe cleaner) have frequently been reported.[07619]

Typical symptoms are: painful reddening and glassy swelling of the mucous membranes in the mouth/throat, serious pain behind the sternum and in the stomach (radiating to the back)[07906], possible vomiting. Swallowing is extremely painful or impossible.[07637]

In serious cases, severe reactions to the heart/circulation system were already diagnosed within one hour (collapse, possibly fatal). Later on, local damage to the throat and gastrointestinal tract can become life threatening (glottic edema, hardly controllable bleeding, perforation of the esophagus and stomach).[08013]

Alkalis cause lesions of the gullet (in particular at the entrance of the esophagus and stomach) more frequently than acids. Because the perforations can be caused through even smallest amounts, a statement on lethal doses is not useful.[07978]

Further serious complications are to be expected (aspiration pneumonia, acute respiratory arrest, inflammation of the mediastinum, peritonitis; later stenosis in esophagus and stomach). Following extensive chemical burns, the following symptoms can also occur: disturbances in the acid-base balance and electrolyte balance (lacticidosis, hyperkalemia), consequences of hemolysis and renal failure (following shock).[08013]

Chronic toxicity

No information is available on consequences of long-term exposure.[99983]
Following chronic dermal exposure, inflammation to the skin was reported to have appeared.[07866]
There is no indication of any allergic action.[99983]
It is not expected either because S. dissociates into endogenous ions.
In studies in workplaces, irritation to the eyes, nose and throat as well as skin was reported.
Because of mixed exposure and inaccurate measurements on the exposure it could only be estimated that irritation occurs at concentrations of 0.5 - 2 mg/m³. It remained unclear whether only peak concentrations produced the effect.
From a case study (published only recently) on one worker who was exposed to mists of hot solutions of S. for 20 years it was concluded that long-term, high inhalative exposure can lead to obstructive disease of the airways.[07619]
Animal experimental results also indicate possible chronic damage to the airways.[07656]

Reproductive toxicity, mutagenicity, carcinogenicity

For classifying the reproductive toxicity and mutagenic and carcinogenic potential see list in Annex VI of the CLP regulation / TRGS 905 / List of MAK values (see section REGULATIONS).

Reproductive toxicity:

There is no reason to fear a risk of damage to the developing embryo or foetus when MAK and BAT values are observed.
[05341]

It was estimated that inhalative exposure to 2 mg S./m³ can only cause a little influence on the pH value of the blood and on the sodium balance in the organism, even under unfavorable conditions.

Mutagenicity:

According to a few available tests, S. is non-genotoxic at physiological pH values. Increase of the pH value due to S. produced clastogenic effects in in-vitro tests.

Carcinogenicity:

Following serious oral poisoning with S., squamous cell carcinoma of the esophagus was diagnosed after a latency period of several years (13 - 71 y.). Following chemical burns due to alkalis, the incidence of the occurrence of esophageal tumors is increased by a factor between 1000 and 3000. However, the tumor formation is a consequence of massive tissue destruction and the regenerative processes which subsequently start and is not the result of a direct carcinogenic effect. The skin tumors observed following dermal application of S. are attributed to analogous mechanisms. If irritation is avoided, the formation of tumors is not to be expected.[07619]

Biotransformation and excretion

Absorption of S. is thought basically only to cause a change of the blood pH value due to the increased supply of hydroxyl ions.

An excess of sodium is avoided through increased elimination which is directed by homeostatic mechanisms.

The tissue damaging effect of S. is attributed to its alkalinity which causes the splitting of bindings in the protein structures.[07619]

The specific picture of the colliquative necrosis is assigned to the formation of hydrophilic alkali albuminates and surface-active soaps (saponification of fats).[07978]

Annotation

This occupational health information was compiled on 02.07.2004.
It will be updated if necessary.

FIRST AID

Eyes

Danger of blindness!

As soon as possible:

Rinse the affected eye with widely spread lids for 10 minutes under running water whilst protecting the unimpaired eye.

Direct a mild water jet directly into the eye in order to dilute the alkali and rinse it away quickly.

Then, immediately transport the casualty to an eye doctor / to hospital.

Continue rinsing during the transport with isotonic saline solution, alternatively with water.

[08013, 00160]

Skin

Rapidly remove/wipe off all solid matter (pellets, rough dust) from the skin using cellulose or cloth materials.

Then, and also if the contamination was with solutions immediately,

Rinse the affected skin areas for at least 10 to 20 minutes under running water.

Remove contaminated clothing while protecting yourself.

Lay the casualty down in a quiet place to rest and protect him against hypothermia.

Rapidly arrange medical treatment. Following extensive contact, call a physician to the site of the accident.

[08013, 99999]

Respiratory tract

Whilst protecting yourself remove the casualty from the hazardous area and take him to the fresh air.

Lay the casualty down in a quiet place and protect him against hypothermia.

Have the casualty breath water vapor, vapor of camomile tea or of dilute acetic acid, whatever is most rapidly available.

As soon as possible repeatedly have the casualty deeply breath a glucocorticoid inhalation spray in.

In the case of breathing difficulties have the casualty inhale oxygen.

In the meantime call a physician to the site of the accident.

[08013]

Swallowing

Rinse the mouth and spit the fluids out.

If minor amounts of concentrated alkali or large amounts of very diluted alkali have been swallowed:

[

if the person is conscious, immediately have him slowly drink 1 glass of water, but do not induce vomiting!

If the casualty has swallowed larger amounts of concentrated alkali, he should not drink water.

Lay the casualty down in a quiet place and protect him against hypothermia.

During spontaneous vomiting hold the head of the casualty low with the body in a prone position in order to avoid aspiration.

In the meantime call a physician to the site of the accident.

[08013, 07906, 07638, 99983]

Information for physicians

- Symptoms of acute poisoning:

The local damage proceeds very quickly, initially without any or little (inadequate!) sensation of pain.[08013]

Eyes: in particular damage to the conjunctives, cornea, sclera (edema, ulceration/perforation, opacity of the cornea), more seldom even to the retina and choroidea; there is a danger of blindness! [07979]

Skin: erythema -> erosion with swelling of the tissue showing soft, gelatinous surface (colliquative necrosis), -> deficient skin function (rule of nines!)

Inhalation: tussive irritation, following massive inhalation possible dyspnoea, stridor, danger of laryngospasm/glottic edema, pulmonary edema, bronchopneumonia[08013]

Ingestion: painful reddening/glassy swelling of the mucous membranes of the mouth/tongue (however, signs of corrosion can also be absent!);[07978] pain behind the sternum and in the epigastrium, dysphagia, under certain circumstances emesis (danger of aspiration); in serious cases rapid entry of collapse/shock (sometimes fatal); later also hardly controllable bleeding, perforation of the esophagus (mainly the upper section) and stomach (cardia); also danger of glottic edema, aspiration pneumonia, shock lung (ARDS); mediastinitis, peritonitis, delayed perforation; stenosis/strictures in the area of esophagus/cardia/pylorus.

Following extensive/serious chemical burns possible lactacidosis (even if there was no shock), hemolysis and[08013] renal failure (consequence of shock).

- Medical advice:

Following contact with the eyes, intensely rinse for at least 15 minutes (for blepharospasm apply some drops of 2 % lidocaine)[07906], immediately arrange further treatment by specialists.[00022] Thoroughly rinse contaminated skin with water and then carefully rinse with (very) strongly diluted acid. For serious damage, treat as for chemical burns. Protection against infection, prophylaxis for tetanus as necessary. Treatment against shock can become necessary! Following extensive exposure always transport the casualty to hospital. Tussive irritation following inhalation can be treated with a centrally acting cough sedative agent. Following massive inhalation, application of glucocorticoids (inhalatively/i.v.) and all of the further prophylactic measures for pulmonary edema are indicated. [08013]

Soon also prophylaxis for pneumonia. If there is a danger of glottic edema (stridor), immediate intubation is necessary.[07978]

Always check the functions of the heart/circulatory system and lung.[08013]

Following ingestion, drinking of water is recommended if minor amounts or dilute alkali have been swallowed in order to obtain a rinsing effect in the esophagus. Following intake of larger amounts of concentrated alkali, the overload of the tissues in the form of additional administration of water should be avoided (see "Recommendations"). No gastrolavage because of the danger of perforation! [07906]

No application of charcoal because an endoscopy will become necessary![07978]

Because of a danger of glottic edema, early nasal intubation and application of glucocorticoids are recommended.[07906]

Stabilize the functions of the heart/circulatory system and respiratory organ. Hypotension is almost a consequence of hypovolemia. In the first phase, the application of whole electrolyte solutions is recommended. Further treatment in hospital as soon as possible.[07978]

Recommendations

Provide the physician information about the substance/product and treatment already administered.

The intended alleviation of the action of alkali (and acids) by means of the dilution therapy as a first aid measure following ingestion has become questionable on closer inspection. Significant criticisms are:

- The penetration of the corrosive agent proceeds quickly (in seconds).
- If larger amounts of concentrated alkali were taken in, large amounts of water would be necessary in order to decrease the pH value. This would be an additional load on the damaged tissue.
- The administration of water can induce vomiting -> the increase of pressure and the reexposure intensify the danger of perforation.[07978]

Annotation

This first aid information was compiled on 02.07.2004.
It will be updated if necessary.

[Handling](#) | [Storage](#) | [Fire and explosion protection](#) | [Organisational measures](#) | [Personal protection](#) | [Disposal considerations](#) | [Accidental release measures](#) | [Fire fighting measures](#)

TECHNICAL MEASURES - HANDLING

Workplace

Provision of good ventilation in the working area.

Washing facility at the workplace required.

Eye bath required. These locations must be signposted clearly.

When handling excessive amounts of the substance an emergency shower is required.

Equipment

Use closed apparatus if possible.

If release of the substance cannot be prevented, then it should be suctioned off at the point of exit.

Consider emission limit values, a purification of waste gases if necessary.

Label containers and pipelines clearly.

Unsuitable materials:

Aluminium

Zinc

Tin

Brass

Plastics have to be proven for their resistibility.

Advice on safer handling

Take care to keep workplace clean and dry.

The substance must not be present at workplaces in quantities above that required for work to be progressed.

Do not leave container open.

Sufficient ventilation must be guaranteed for refilling, transfer, or open use.

Avoid spillage.

Fill only into labelled container.

Avoid any contact when handling the substance.

Avoid rising dust.

Do not transport together with incompatible substances.

Use an appropriate exterior vessel when transporting in fragile containers.

Cleaning and maintenance

Use protective equipment while cleaning if necessary.

According to circumstances, either dry cleaning of room and workplace or using a large amount of water.

Only conduct maintenance and other work on or in the vessel or closed spaces after obtaining written permission.

Only work with vessels and lines after they have been thoroughly rinsed.

TECHNICAL MEASURES - STORAGE

Storage

Do not use any food containers - risk of mistake.

Containers have to be labelled clearly and permanently.

Store in the original container as much as possible.

Do not use any metal containers.

Preferably use unbreakable containers rather than glass containers.

Place fragile vessels in break-proof outer vessels.

Keep container tightly closed.
Recommended storage at room temperature.
Store in a dry place.
Substance is hygroscopic, protect from moisture.

Conditions of collocated storage

Storage class 8 B (Non-combustible corrosive substances)

Only substances of the same storage class should be stored together.

Collocated storage with the following substances is prohibited:

- Pharmaceuticals, foods, and animal feeds including additives.
- Infectious, radioactive und explosive substances.
- Strongly oxidizing substances of storage class 5.1A.
- Organic peroxides and self reactive substances.

Under certain conditions the collocated storage with the following sub-stances is permitted (For more details see [TRGS 510](#)):

- Other explosive substances of storage class 4.1A.
- Pyrophoric substances.
- Substances liberating flammable gases in contact with water.
- Ammonium nitrate and preparations containing ammonium nitrate.

The substance should not be stored with substances with which hazardous chemical reactions are possible.

TECHNICAL MEASURES - FIRE AND EXPLOSION PROTECTION

Technical, constructive measures

Substance is non-combustible. Select fire and explosion prevention measures according to the other used substances.

Inspect the electrical fittings regularly against the higher risk of corrosion.

ORGANISATIONAL MEASURES

Instruction on the hazards and the protective measures using instruction manual ([TRGS 555](#)) are required with signature if just more than one minor hazard was detected.

Instruction must be provided before employment and then at a minimum of once per annum thereafter.

Observe the restrictions on juvenile employment as defined in the "Jugendarbeitsschutzgesetz".

PERSONAL PROTECTION

Body protection

Depending on the risk, wear a sufficiently long apron and boots or a suitable chemical protection suit.

Respiratory protection

In an emergency (e.g.: unintentional release of the substance) respiratory protection must be worn. Consider the maximum period for wear.

Respiratory protection: Particle filter P2, colour code white.

Use insulating device for concentrations above the usage limits for filter devices, for oxygen concentrations below 17% volume, or in circumstances which are unclear.

Eye protection

Sufficient eye protection must be worn.

Wear chemical safety goggles.

If the face is at risk a protective shield must also be worn.

Hand protection

Use protective gloves. The glove material must be sufficiently impermeable and resistant to the substance. Check the tightness before wear. Gloves should be well cleaned before being removed, then stored in a well ventilated location. Pay attention to skin care.

Skin protection cremes do not protect sufficiently against the substance.

Textile or leather gloves are completely unsuitable.

The following information applies to solutions having a concentration of 10% or 50%.

The following materials are suitable for protective gloves (Permeation time \geq 8 hours):

Natural rubber/Natural latex - NR (0,5 mm) (use non-powdered and allergen free products)

Polychloroprene - CR (0,5 mm)

Nitrile rubber/Nitrile latex - NBR (0,35 mm)

Butyl rubber - Butyl (0,5 mm)

Fluoro carbon rubber - FKM (0,4 mm)

Polyvinyl chloride - PVC (0,5 mm)

The times listed are suggested by measurements taken at 22 °C and constant contact. Temperatures raised by warmed substances, body heat, etc. and a weakening of the effective layer thickness caused by expansion can lead to a significantly shorter breakthrough time. In case of doubt contact the gloves' manufacturer. A 1.5-times increase / decrease in the layer thickness doubles / halves the breakthrough time. This data only applies to the pure substance. Transferred to mixtures of substances, these figures should only be taken as an aid to orientation.

Occupational hygiene

Foods, beverages and other articles of consumption must not be consumed at the work areas.

Suitable areas are to be designated for these purposes.

Avoid contact with skin. In case of contact wash skin.

Avoid contact with eyes. In case of contact rinse the affected eye(s).

Avoid inhalation of dust.

Avoid contact with clothing. Contaminated clothes must be exchanged and cleaned carefully.

Provide washrooms with showers and if possible rooms with separate storage for street clothing and work clothing.

The skin must be washed with soap and water before breaks and at the end of work. Apply fatty skin-care products after washing.

DISPOSAL CONSIDERATIONS

Hazardous waste according to Waste Catalogue Ordinance (AVV).

If there is no way of recycling it must be disposed of in compliance with the respective national and local regulations.

Collection of small amounts of substance:

Bases and alcoholates are dilute, if necessary, by stirring cautiously in water. Then are neutralized with hydrochloric acid, check the pH value.

Place in collecting containers for salt solutions, adjust for a pH value of 6 - 8, or

place in collecting containers for toxic inorganic residues as well as heavy-metal salts and their solutions.

Collection vessels must be clearly labelled with a systematic description of their contents. Store the vessels in a well-ventilated location. Entrust them to the appropriate authorities for disposal.

ACCIDENTAL RELEASE MEASURES

Evacuate area. Warn affected surroundings.

The hazardous area may only be entered once suitable protective measures are implemented. Only then can the hazardous situation be removed (see chapter Personal Protection).

Slip hazard through spilled substance!

For sodium hydroxide solution:

Take up with an absorbent (absorbent and neutralizer for spilled alkalis) and dispose of according to regulations.

For the solid substance:

Pick up without creating dust.

Afterwards ventilate area and wash spill site.

Endangerment of watert:

Low hazard to waters. Inform the responsible authorities when very large quantities get into water, drainage, sewer, or the ground.

FIRE FIGHTING MEASURES

Instructions

Substance is incombustible. Select fire fighting measures according to the surrounding conditions.

REGULATIONS

[GHS Classification/Labelling](#) | [Workplace labelling](#) | [Water hazard class](#) | [Air quality control](#) | [Transport Regulations](#) | [MAK recommendations](#) | [Restriction of use](#) | [Technical rules](#) | [Regulations of accident insurers](#)

EUROPEAN GHS CLASSIFICATION AND LABELLING

Classification

Corrosive to metals, Category 1; H290

Skin corrosion, Category 1A; H314



Signal Word "Danger"

Hazard Statement - H-phrases

H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage.

Precautionary Statement - P-phrases

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

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

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

P308+P310: IF exposed or concerned: Immediately call a POISON CENTER or doctor.

Manufacturer's specification by Merck

Reference: [01211](#)

State: 2017

Checked: 2020

The substance is listed in appendix VI, table 3 of CLP regulation.

The given classification can deviate from the listed classification, since this classification is to be complemented concerning missing or divergent danger classes and categories for the respective substance.

Reference: [99999](#)

GHS-CLASSIFICATION OF MIXTURES

Specific Concentration Limits

Skin Corr. 1A; H314: $C \geq 5\%$
Skin Corr. 1B; H314: $2\% \leq C < 5\%$
Skin Irrit. 2; H315: $0,5\% \leq C < 2\%$
Eye Irrit. 2; H319: $0,5\% \leq C < 2\%$

The general concentration limits from Annex 1 of the Regulation (EU) 1272/2008 are to be used for possibly unspecified concentration ranges or further available substance classifications.

Sodium hydroxide

Reference: [07500](#)

WORKPLACE LABELLING ACCORDING TO GERMAN [ASR A1.3](#)

Warning label



Caution - corrosive material

Precept label



Use safety goggles



Wear safety gloves

GERMAN WATER HAZARD CLASS

Substance No: 142

WGK 1 - low hazard to waters

Classification according to the announcement of the list of substances hazardous to water in the Federal Register of 10.08.2017, last update 24.11.2023

TECHNICAL INSTRUCTIONS ON AIR QUALITY CONTROL ([TA LUFT](#))

Chapter 5.2.1 Overall Dust, including fine dust

The emissions of dust in the exhaust gas are not allowed to exceed the following values:

Mass flow: 0,20 kg/hr

or

Mass conc.: 20 mg/m³

The mass per unit volume of 0,15 g/m³ in exhaust gas is not allowed to be exceeded also on observance or lower deviation of a mass flow of 0,20 kg/h.

TRANSPORT REGULATIONS

UN Number: 1823
Shipping name: Sodium hydroxide,
solid
Hazard Identification Number: 80
Class: 8 (Corrosive Substances)
Packing Group: II (medium danger)
Danger Label: 8



[Classification code](#): C6

Tunnel restrictions:
Passage forbidden through tunnels of category E.

Reference: [07902](#)

UN Number: 1824
Shipping name: Sodium hydroxide,
solution
Hazard Identification Number: 80
Class: 8 (Corrosive Substances)
Packing Group: II/III (medium/low danger)
Danger Label: 8



[Classification code](#): C5

Tunnel restrictions:
Passage forbidden through tunnels of category E.

Reference: [07902](#)

[RECOMMENDATIONS OF MAK-COMMISSION](#)

This data is recommended by scientific experience and is not established law.

II b) substances, for which (still) no MAK-values can be established

RESTRICTIONS OF USE / BANS OF USE

REACH Regulation (EC) No 1907/2006 Annex XVII

Annex XVII, Point 75

Mixtures containing certain hazardous substances shall no longer be placed on the market for tattooing purposes. Mixtures containing such substances in specified concentrations shall no longer be used for tattooing purposes after 04.01.2022. Substances falling within one or more of the following points:

- carcinogenic or reproductive toxic substances according to Part 3 of Annex VI to CLP Regulation (excluding the classification due to effects only following exposure by inhalation),
- skin-sensitising, skin-corrosive, skin-irritant, serious eye-damaging or eye-irritant substances according to Annex VI Part 3 of the CLP Regulation,
- substances listed with specified conditions in Annex II or IV to Regulation (EC) No 1223/2009 [Cosmetics Regulation], and
- substances listed in Appendix 13 to Annex XVII (point 75) of the REACH Regulation.

In general, mixtures placed on the market for use for tattooing purposes must be labelled "Mixture for use in tattoos or permanent make-up." from 04.01.2022 on and may not be used for tattooing purposes without this labelling. Further safety information shall be provided on the packaging or in the instructions for use. Before using a mixture for tattooing purposes, the person using the mixture shall provide this information to the person undergoing the procedure.

Further information on the restrictions, concentration limits and exemptions can be taken from the Regulation.

Annex XVII to Regulation (EC) No 1907/2006, [consolidated version](#) (BAUA) (only in German)

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Angabe des Bearbeiters

Indication of the editor

[Identification](#) | [Characterisation](#) | [Formula](#) | [Physical and chemical properties](#) |
[Toxicology / Ecotoxikology](#) | [Occupational health and first aid](#) | [Safe handling](#) | [Regulations](#) | [Links](#) |
[Literature register](#)

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