SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

CAUSTIC SODA LYE 10-50% W/W

Version 1 Revision Date 28.01.2020 Print Date 04.10.2021 SE / EN

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name	:	CAUSTIC SODA LYE 10-50% W/W
Substance name	:	Natriumhydroxid, lösning

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture	:	Specific use(s):	Industrial and professional use Consumer use Refer to attached exposure scenario Annex.
Recommended restrictions on use	:	None.	

1.3 Details of the supplier of the safety data sheet

Company	:	Nobian Industrial Chemicals B.V. Van Asch van Wijckstraat 53 NL 3811 LP Amersfoort Netherlands
Telephone	:	
Telefax	:	
E-mail address	:	Customerservice@nobian.com

1.4 Emergency telephone number

Emergency telephone number	:	24 hours emergency response number: +44 1235 239670KEMIAKUTEN, Sweden: +46-8-33 70 43 Swedish Poison Information Centre: 112 (In case of emergency poisoning and ask for Poison Information both day and night.)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Corrosive to metals, 1, H290
Skin corrosion, 1A, H314
Serious eye damage, 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Pictogram :

Signal word : Danger

Hazard statements :	H290	May be corrosive to metals.
	H314	Causes severe skin burns and eye damage.
Precautionary statements :	**Prevention:**	
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
	Response:	
	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
	P305 + P351 + P338 + P310	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.
	P390	Absorb spillage to prevent material damage.
	Disposal:	
	P501	Dispose of contents/container in accordance with local regulation.

For the full list of P-statements please see section 16.

Hazardous components which must be listed on the label:
Sodium hydroxide 1310-73-2

2.3 Other hazards

No further data available.

PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Pure substance/mixture : Substance
CAS-No. : 1310-73-2

Hazardous substance

Chemical name	PBT vPvB OEL	CAS-No. EC-No. REACH No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [%]
Sodium hydroxide		1310-73-2 215-185-5 01-2119457892-27	Met. Corr. 1; H290 Skin Corr. 1A; H314 Eye Dam. 1; H318	10 - 50

For the full text of the H-Statements mentioned in this Section, see Section 16.

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).
Status : Not applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice : Immediate medical attention is required.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : If breathed in, move person into fresh air.
Consult a physician after significant exposure.

In case of skin contact : Take off contaminated clothing and shoes immediately.
Rinse immediately with plenty of water.
Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.

In case of eye contact : Rinse with plenty of water.
Get medical attention immediately. Continue to rinse during transport.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

If swallowed : Clean mouth with water and drink afterwards plenty of water.
Never give anything by mouth to an unconscious person.
Take victim immediately to hospital.
Do not induce vomiting! May cause chemical burns in mouth and throat.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. Inhalation may provoke the following symptoms: Risk of delayed pulmonary oedema.
Risks	:	corrosive effects Causes serious eye damage. Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting / Specific hazards arising from the chemical	:	Water spray may be ineffective unless used by experienced firefighters. Do not allow run-off from fire fighting to enter drains or water courses. May form toxic or explosive vapours in presence of certain metals.
Combustion products	:	No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Wear respiratory protection. Ensure adequate ventilation.
Emergency measures on accidental release	:	Evacuate personnel to safe areas. Only qualified personnel equipped with suitable protective equipment may intervene. Prevent unauthorised persons entering the zone.

6.2 Environmental precautions

Environmental precautions	:	Try to prevent the material from entering drains or water courses.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up / Methods for containment	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal considerations see section 13.
For personal protection see section 8.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling	:	For personal protection see section 8. Avoid formation of aerosol. Do not breathe vapours or spray mist. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Store in closed dark containers made of anti-corrosive material.
Other data	:	Suitable container and packaging materials for safe storage Steel (all types and surface treatments) Polypropylene Polyethylene PVC
	:	Suitable container and packaging materials for safe storage > 50°C : Stainless steel Nickel
	:	No decomposition if stored and applied as directed.

7.3 Specific end use(s)

Specific use(s)	:	Refer to attached exposure scenario Annex.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis	Form of exposure
Sodium hydroxide	1310-73-2	NGV	1 mg/m3	2018-02-19	SE AFS	inhalable fraction
	Further information	:	3: Inhalable fraction refers to the dust fraction as defined in the Swedish Standard SS-EN 481, Workplace Atmospheres - Size fraction definitions for measurement of airborne particles, 1st ED., 1993., Section 2.3 and having sampling characteristics as specified in paragraph 5.1. Respirable fraction refers to the dust fraction as defined in the Swedish Standard SS-EN 481, Workplace Atmospheres - Size fraction definitions for measurement of airborne particles, 1st ED., 1993., Section 2.11 and having sampling characteristics as specified in paragraph 5.3. Total dust refers to all the particles (aerosols) trapped in a filter in the sampling apparatus described in Methods, Sampling of total dust and respirable dust, method nr 1010, published by the National Board of Occupational Safety and Health, now Work Environment Authority. The filter diameter shall normally be 37 mm but can also be 25 mm. Despite its name, not the total amount of airborne particles is measured by this method.			
		KGV	2 mg/m3	2018-02-19	SE AFS	inhalable fraction
	Further information	:	3: Inhalable fraction refers to the dust fraction as defined in the Swedish Standard SS-EN 481, Workplace Atmospheres - Size fraction definitions for measurement of airborne particles, 1st ED., 1993., Section 2.3 and having sampling characteristics as specified in paragraph 5.1. Respirable fraction refers to the dust fraction as defined in the Swedish Standard SS-EN 481, Workplace Atmospheres - Size fraction definitions for measurement of airborne particles, 1st ED., 1993., Section 2.11 and having sampling characteristics as specified in paragraph 5.3. Total dust refers to all the particles (aerosols) trapped in a filter in the sampling apparatus described in Methods, Sampling of total dust and respirable dust, method nr 1010, published by the National Board of Occupational Safety and Health, now Work Environment Authority. The filter diameter shall normally be 37 mm but can also be 25 mm. Despite its name, not the total amount of airborne particles is measured by this method.			

ACGIH: American Conference of Governmental Industrial Hygienists
AGW: Arbeitsplatzgrenzwert
BEI: Biological Exposure Index
MAC: Maximum Allowable Concentration
NIOSH: National Institute for Occupational Safety and Health
OEL: OEL: Occupational exposure limit.
STEL: Short term exposure limit
TRGS: Technische Regel für Gefahrstoffe
TWA: Time Weighted Average

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006

Substance name	End Use	Exposure routes	Potential health effects	Value
Sodium hydroxide	Workers	Inhalation	Long-term local effects	1,0 mg/m3
	Consumers	Inhalation	Long-term local effects	1,0 mg/m3

8.2 Exposure controls

Engineering controls
Effective exhaust ventilation system
Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Respiratory protection	:	In the case of vapour or aerosol formation use a respirator with an approved filter.
Hand protection	:	Protective gloves complying with EN 374. Nitrile rubber Break through time: > 480 min Glove thickness: > 0,5 mm butyl-rubber Break through time: > 480 min Glove thickness: > 0,5 mm Chloroprene Break through time: > 480 min Glove thickness: > 0,5 mm Fluorinated rubber Break through time: > 480 min Glove thickness: > 0,5 mm PVC Break through time: > 480 min Glove thickness: > 0,5 mm
Eye protection	:	Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Protective suit
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Environmental exposure controls

General advice	:	Try to prevent the material from entering drains or water courses.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Form	:	liquid
Colour	:	colourless
Odour	:	odourless
Odour Threshold	:	Not applicable

Safety data

pH	:	> 14 at 20 °C
Melting point	:	-17 °C Concentration, 10%
		12 °C Concentration, 50%
Boiling point	:	111 - 145 °C at 1 013 hPa
Flash point	:	Not applicable
Evaporation rate	:	not determined
Flammability (solid, gas)	:	Not applicable
Flammability (liquids)	:	The product is not flammable.
Lower explosion limit	:	Not applicable
Upper explosion limit	:	Not applicable
Vapour pressure	:	1 - 14 hPa at 20 °C 17 - 121 hPa at 60 °C
Relative vapour density	:	Not applicable
Density	:	1 110 kg/m3 at 20 °C Concentration, 10%
		1 530 kg/m3 at 20 °C Concentration, 50%
Relative density	:	ca. 1,11 - 1,53 at 20 °C
Water solubility	:	completely miscible
Solubility in other solvents	:	Not applicable
Partition coefficient: n-octanol/water	:	Inorganic compound
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	Not applicable
Viscosity, dynamic	:	50 mPa.s at 26 °C
		69 mPa.s at 20 °C Concentration, 50%
Viscosity, kinematic	:	No data available

Explosive properties	:	Not explosive
Oxidizing properties	:	Not classified as oxidising.

9.2 Other information

Corrosive to metals	:	Corrosive to metals

This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Stable under normal conditions.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Exothermic reaction with strong acids.
Gives off hydrogen by reaction with metals.
The product reacts with water and generates heat.

10.4 Conditions to avoid

Conditions to avoid	:	Avoid contact with water. Extremes of temperature and direct sunlight.

10.5 Incompatible materials

Materials to avoid	:	Metals Strong acids Flammable materials

10.6 Hazardous decomposition products

Hazardous decomposition products	:	No hazardous decomposition products are known.
Thermal decomposition	:	Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Product information:

Acute toxicity	:	Not classified based on available information.
Skin corrosion/irritation	:	Causes severe burns.
Serious eye damage/eye irritation	:	Causes serious eye damage.
Respiratory or skin sensitisation	:	Respiratory sensitisation: Not classified based on available information.

Skin sensitisation: Not classified based on available information.

Germ cell mutagenicity	:	Not classified based on available information.
Carcinogenicity	:	Not classified based on available information.
Reproductive toxicity	:	Not classified based on available information.
STOT - single exposure	:	Not classified based on available information.
STOT - repeated exposure	:	Not classified based on available information.
Aspiration hazard	:	Not classified based on available information.
Further information	:	No further data available.

Toxicology data for the components:
Sodium hydroxide

Acute toxicity:

Skin corrosion/irritation	:	Result: Causes severe burns.
Serious eye damage/eye irritation	:	Result: Risk of serious damage to eyes.
Respiratory or skin sensitisation	:	Result: Does not cause skin sensitisation.
Germ cell mutagenicity		
CMR effects Mutagenicity	:	In vivo tests did not show mutagenic effects, Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Genotoxicity in vitro	:	In vitro tests did not show mutagenic effects

SECTION 12: ECOLOGICAL INFORMATION

Product information:
Ecotoxicology Assessment

Additional ecological information	:	Raises the pH. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

12.1 Toxicity

Components:
Ecotoxicology Assessment
Sodium hydroxide

Long-term (chronic) aquatic hazard	:	This product has no known ecotoxicological effects.

Test result
Sodium hydroxide

Toxicity to daphnia and other aquatic invertebrates	:	EC50: 40,4 mg/l Exposure time: 48 h Species: Ceriodaphnia (water flea)

Test Type: Immobilization

12.2 Persistence and degradability

Product information : No information available.

Components:
Sodium hydroxide
Biodegradability : Result: Not applicable
inorganic

12.3 Bioaccumulative potential

Product information : No information available.

Components:
Sodium hydroxide
Bioaccumulation : Does not bioaccumulate.

12.4 Mobility in soil

Product information : No information available.

Components:
Sodium hydroxide
Mobility : Can be leached out from soil.

Distribution among environmental compartments : Transport to air is not expected.

12.5 Results of PBT and vPvB assessment

Product information:
PBT and vPvB assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:
Sodium hydroxide
PBT and vPvB assessment : This substance is not considered to be a PBT (Persistent, Bioaccumulation, Toxic)
This substance is not considered to be vPvB (very Persistent nor very Bioaccumulating)

12.6 Other adverse effects

Product information : No information available.

Components:
Sodium hydroxide
Biochemical Oxygen Demand (BOD) : Not applicable

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with

chemical or used container.
Hazardous waste
Dispose of contents/container in accordance with local regulation.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

ADN : UN 1824
ADR : UN 1824
RID : UN 1824
IMDG-Code : UN 1824
IATA-DGR : UN 1824

14.2 Proper shipping name

ADN : SODIUM HYDROXIDE SOLUTION
ADR : SODIUM HYDROXIDE SOLUTION
RID : SODIUM HYDROXIDE SOLUTION
IMDG-Code : SODIUM HYDROXIDE SOLUTION
IATA-DGR : Sodium hydroxide solution

14.3 Transport hazard class

ADN : 8
ADR : 8
RID : 8
IMDG-Code : 8
IATA-DGR : 8

14.4 Packing group

ADN
Packing group : II
Classification Code : C5
Hazard Identification Number : 80
Labels : 8
Special Provisions : Transport by inland tank barge: UN1824, SODIUM HYDROXIDE SOLUTION, 8 (N3), II, ENVIRONMENTALLY HAZARDOUS

ADR
Packing group : II
Classification Code : C5
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)

RID
Packing group : II
Classification Code : C5
Hazard Identification Number : 80
Labels : 8

IMDG-Code
Packing group : II
Labels : 8
EmS Code : F-A, S-B
Remarks : Handle with care.

IATA-DGR

Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851
Packing instruction (LQ)	:	Y840
Packing group	:	II
Labels	:	8
Remarks	:	Handle with care.

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG-Code

Marine pollutant : no

IATA-DGR

Environmentally hazardous : no

14.6 Special precautions for user

Remarks : Handle with care.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Ship type	:	3
Pollution category	:	Y

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Not applicable

Notification status

DSL	:	YES. All components of this product are on the Canadian DSL
AICS	:	YES. On the inventory, or in compliance with the inventory
NZIoC	:	YES. On the inventory, or in compliance with the inventory
ENCS	:	YES. On the inventory, or in compliance with the inventory
ISHL	:	YES. On the inventory, or in compliance with the inventory
KECI	:	YES. On the inventory, or in compliance with the inventory
PICCS	:	YES. On the inventory, or in compliance with the inventory
IECSC	:	YES. On the inventory, or in compliance with the inventory
TCSI	:	YES. On the inventory, or in compliance with the inventory
TSCA	:	YES. All chemical substances in this product are either listed on the TSCA Inventory or in compliance with a TSCA Inventory exemption.

For explanation of abbreviation see section 16.

15.2 Chemical safety assessment

Sodium hydroxide	:	A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H290	:	May be corrosive to metals.
H314	:	Causes severe skin burns and eye damage.
H318	:	Causes serious eye damage.

Classification procedure:
Corrosive to metals, 1, H290, Based on product data or assessment
Skin corrosion, 1A, H314, Calculation method
Serious eye damage, 1, H318, Calculation method

Full list of P-statements.

Prevention:

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

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.
P310	Immediately call a POISON CENTER/doctor.
P390	Absorb spillage to prevent material damage.

Storage:

P406	Store in corrosive resistant stainless steel container with a resistant inner liner.

Disposal:

P501	Dispose of contents/ container to an approved waste disposal plant.

Full text of other abbreviations

SE AFS	:	Sweden. Occupational Exposure Limit Values
SE AFS / NGV	:	Time Weighted Average
SE AFS / KGV	:	Short Term Exposure Limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal

inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Annex :

Manufacture

Industrial use

Professional use

Consumer use

1. Short title of Exposure Scenario: Manufacture

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories	:	ERC1: Manufacture of the substance
Process categories	:	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 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)

2.1 Contributing scenario controlling environmental exposure for: ERC1: Manufacture of the substance

Technical conditions and measures / Organizational measures

Water	:	Risk management measures related to the environment aim to avoid discharging NaOH solutions into municipal waste water or to surface water. In case such discharges are expected to cause significant pH changes then regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised. In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms.

2.2 Contributing scenario controlling worker exposure for: All PROCs: Applicable to all above mentioned process categories.

Product characteristics

Concentration of the Substance in Mixture/Article	:	Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use)	:	liquid

Frequency and duration of use

Exposure duration (per shift)	:	1 - 600 min
Frequency of use	:	200 days/year

Organisational measures to prevent /limit releases, dispersion and exposure

Workers in the risky process/areas identified should be trained a) to avoid to work without respiratory protection and b) to understand the corrosive properties and, especially, the respiratory inhalation effects of sodium hydroxide and c) to follow the safer procedures instructed by the employer.
The employer has also to ascertain that the required personal protection equipment is available and used according to instructions.

Conditions and measures related to personal protection, hygiene and health evaluation

Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2) (required)
Hand protection: impervious chemical resistant protective gloves.
• material: butyl-rubber, PVC, polychloroprene with natural latex liner, material thickness:0.5 mm, breakthrough time: > 480 min
• material: nitrile-rubber,fluorinated rubber, material thickness: 0.35-0.4 mm, breakthrough time: > 480 min
Eye protection: If splashes are likely to occur, wear tightly fitting chemical resistant safety goggles, face–shield.
If splashes are likely to occur, wear suitable protective clothing, aprons,
shield and suits, rubber or plastic boots, rubber or plastic boots.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : Good practice:
• Replace, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and
subsequent potential splashes
• Use closed systems or covering of open containers (e.g. screens)
• Transport over pipes, technical barrel filling/emptying of barrel with
automatic systems (suction pumps etc.)
• Use of pliers, grip arms with long handles with manual use “to avoid
direct contact and exposure by splashes (no working over one’s head)”,Local exhaust ventilation is not required but good practice.,General ventilation is good practice unless local exhaust ventilation

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Based on measurements. , EU RAR	Unspecified.	Acute inhalation local exposure	0,33 mg/m3	0,33
All PROCs	Based on	Unspecified.	Chronic	0,33 mg/m3	0,33

	measurements. , EU RAR		inhalation local exposure		

All PROCs: Applicable to all above mentioned process categories.
The risk assessment for the environment is only applicable for the aquatic environment, when applicable including sewage treatment plants (STPs)/ waste water treatment plants (WWTPs), as the emissions of NaOH in the different lifecycle stages (production and use) mainly apply to (waste) water. The aquatic effect and risk assessment will only deal with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the Na+ ion is expected to be insignificant compared to the (potential) pH effect. Only the local scale will be addressed, including STPs or WWTPs when applicable, both for production and industrial use. Any effects that might occur would be expected to take place on a local.

The high water solubility and very low vapour pressure indicate that NaOH will be found predominantly in water. Significant emissions to air are not expected due to the very low vapour pressure of NaOH. Significant emissions to the terrestrial environment are not expected either. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of NaOH to particulate matter will occur in STPs/WWTPs.

The exposure assessment for the aquatic environment will only deal with the possible pH changes in STP effluent and surface water related to the OH- discharges at the local scale.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.

1. Short title of Exposure Scenario: Industrial use

Main User Groups	:	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Environmental Release Categories	:	ERC1, ERC2, ERC4, ERC6a, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC9a, Other ERCs: Manufacture of the substance, Formulation of preparations, Use of non-reactive processing aid at industrial site (no inclusion into or onto article), Use of intermediate, Use of reactive processing aid at industrial site (no inclusion into or onto article), Industrial use of substances in closed systems, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, The environmental release categories mentioned above are assumed to be the most important ones but other industrial environmental release categories could also be possible (ERC 1 – 12).
Process categories	:	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) 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 PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent Other PROCs: The process categories mentioned above are assumed to be the most important ones but other process categories could also be possible (PROC 1 – 27).

2.1 Contributing scenario controlling environmental exposure for: All ERCs: Applicable to all above mentioned environmental release categories.

Technical conditions and measures / Organizational measures

Water : Risk management measures related to the environment aim to avoid discharging NaOH solutions into municipal waste water or to surface water. In case such discharges are expected to cause significant pH changes then regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised. In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms.

2.2 Contributing scenario controlling worker exposure for: : Applicable to all process categories in this exposure scenario.

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid

Frequency and duration of use

Exposure duration (per shift) : 1 - 600 min

Frequency of use : 200 days/year

Organisational measures to prevent /limit releases, dispersion and exposure

Workers in the risky process/areas identified should be trained a) to avoid to work without respiratory protection and b) to understand the corrosive properties and, especially, the respiratory inhalation effects of sodium hydroxide and c) to follow the safer procedures instructed by the employer.
The employer has also to ascertain that the required personal protection equipment is available and used according to instructions.

Conditions and measures related to personal protection, hygiene and health evaluation

Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2) (required)
Hand protection: impervious chemical resistant protective gloves.
• material: butyl-rubber, PVC, polychloroprene with natural latex liner, material thickness:0.5 mm, breakthrough time: > 480 min
• material: nitrile-rubber,fluorinated rubber, material thickness: 0.35-0.4 mm, breakthrough time: > 480 min
Eye protection: If splashes are likely to occur, wear tightly fitting chemical resistant safety goggles, face–shield.
If splashes are likely to occur, wear suitable protective clothing, aprons, shield and suits, rubber or plastic boots, rubber or plastic boots.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice : Good practice:
• Replace, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes

• Use closed systems or covering of open containers (e.g. screens)
• Transport over pipes, technical barrel filling/emptying of barrel with
automatic systems (suction pumps etc.)
• Use of pliers, grip arms with long handles with manual use “to avoid
direct contact and exposure by splashes (no working over one’s head)”,Local exhaust ventilation is not required but good practice.,General ventilation is good practice unless local exhaust ventilation

3. Exposure estimation and reference to its source

All PROCs: Applicable to all above mentioned process categories.
The risk assessment for the environment is only applicable for the aquatic environment, when applicable including sewage treatment plants (STPs)/ waste water treatment plants (WWTPs), as the emissions of NaOH in the different lifecycle stages (production and use) mainly apply to (waste) water. The aquatic effect and risk assessment will only deal with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the Na+ ion is expected to be insignificant compared to the (potential) pH effect. Only the local scale will be addressed, including STPs or WWTPs when applicable, both for production and industrial use. Any effects that might occur would be expected to take place on a local.

The high water solubility and very low vapour pressure indicate that NaOH will be found predominantly in water. Significant emissions to air are not expected due to the very low vapour pressure of NaOH. Significant emissions to the terrestrial environment are not expected either. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of NaOH to particulate matter will occur in STPs/WWTPs.

The exposure assessment for the aquatic environment will only deal with the possible pH changes in STP effluent and surface water related to the OH- discharges at the local scale.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users
http://guidance.echa.europa.eu/downstream_users_en.htm

1. Short title of Exposure Scenario: Professional use

Main User Groups	:	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Environmental Release Categories	:	ERC1, ERC2, ERC4, ERC6a, ERC6b, ERC7, ERC8a, ERC8b, ERC8d, ERC9a, Other ERCs: Manufacture of the substance, Formulation of preparations, Use of non-reactive processing aid at industrial site (no inclusion into or onto article), Use of intermediate, Use of reactive processing aid at industrial site (no inclusion into or onto article), Industrial use of substances in closed systems, Wide dispersive indoor use of processing aids in open systems, Wide dispersive indoor use of reactive substances in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive indoor use of substances in closed systems, The environmental release categories mentioned above are assumed to be the most important ones but other industrial environmental release categories could also be possible (ERC 1 – 12).
Process categories	:	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) 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 PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent Other PROCs: The process categories mentioned above are assumed to be the most important ones but other process categories could also be possible (PROC 1 – 27).

2.1 Contributing scenario controlling environmental exposure for: All ERCs: Applicable to all above mentioned environmental release categories.

Technical conditions and measures / Organizational measures

Water : Risk management measures related to the environment aim to avoid discharging NaOH solutions into municipal waste water or to surface water. In case such discharges are expected to cause significant pH changes then regular control of the pH value during introduction into open waters is required. In general discharges should be carried out such that pH changes in receiving surface waters are minimised. In general most aquatic organisms can tolerate pH values in the range of 6-9. This is also reflected in the description of standard OECD tests with aquatic organisms.

2.2 Contributing scenario controlling worker exposure for: All PROCs: Applicable to all above mentioned process categories.

Product characteristics

Concentration of the Substance in Mixture/Article : Covers the percentage of the substance in the product up to 100 % (unless stated differently).

Physical Form (at time of use) : liquid

Frequency and duration of use

Exposure duration (per shift) : 1 - 600 min

Frequency of use : 200 days/year

Organisational measures to prevent /limit releases, dispersion and exposure

NaOH products with a concentration > 2% are corrosive, therefore the prescribed personal protective equipment is compulsory.
Dilutions of NaOH containing less than 2% of the substance do not have corrosive properties. For products with a NaOH concentration between 0.5% and 2% the prescribed personal protective equipment is good practice. No protection is required when NaOH concentration is < 0.5%

Conditions and measures related to personal protection, hygiene and health evaluation

Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2) (required)
Hand protection: In case of potential dermal contact: use impervious chemical resistant protective gloves
Eye protection: If splashes are likely to occur, wear tightly fitting chemical resistant safety goggles, face–shield.
If splashes are likely to occur, wear suitable protective clothing, aprons, shield and suits, rubber or plastic boots, rubber or plastic boots.

3. Exposure estimation and reference to its source

Workers

Contributing Scenario	Exposure Assessment Method	Specific conditions	Value	Level of Exposure	RCR
All PROCs	Based on measurements.	Unspecified.	Acute inhalation local exposure	< 1 mg/m3	< 1
All PROCs	Based on measurements.	Unspecified.	Chronic inhalation local exposure	< 1 mg/m3	< 1

All PROCs: Applicable to all above mentioned process categories.

The risk assessment for the environment is only applicable for the aquatic environment, when applicable including sewage treatment plants (STPs)/ waste water treatment plants (WWTPs), as the emissions of NaOH in the different lifecycle stages (production and use) mainly apply to (waste) water. The aquatic effect and risk assessment will only deal with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the Na+ ion is expected to be insignificant compared to the (potential) pH effect. Only the local scale will be addressed, including STPs or WWTPs when applicable, both for production and industrial use. Any effects that might occur would be expected to take place on a local.

The high water solubility and very low vapour pressure indicate that NaOH will be found predominantly in water. Significant emissions to air are not expected due to the very low vapour pressure of NaOH. Significant emissions to the terrestrial environment are not expected either. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of NaOH to particulate matter will occur in STPs/WWTPs.

The exposure assessment for the aquatic environment will only deal with the possible pH changes in STP effluent and surface water related to the OH- discharges at the local scale.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

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1. Short title of Exposure Scenario: Consumer use

Main User Groups	:	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	:	PC20: Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC35: Washing and cleaning products PC39: Cosmetics, personal care products : The other PCs are not explicitly considered in this exposure scenario. However, NaOH can also be used in other PCs in low concentrations e.g. PC3 (up to 0.01%), PC8 (up to 0.1%), PC28 and PC31 (up to 0.002%) but it can be used also in the remaining product categories (PC 0-40).

2.2 Contributing scenario controlling consumer exposure for: PC20, PC35, PC39: Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents, Washing and cleaning products, Cosmetics, personal care products

Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)

Application Route	:	Consumer uses (all except batteries)
Consumer Measures	:	Measured related to the design of the product • It is required to use resistant labelling-package to avoid its auto-damage and loss of the label integrity, under normal use and storage of the product. The lack of quality of the package provokes the physical loss of information on hazards and use instructions. • It is required that household chemicals, containing sodium hydroxide for more than 2%, which may be accessible to children should be provided with a child-resistant fastening (currently applied) and a tactile warning of danger (Adaptation to Technical Progress of the Directive 1999/45/EC, annex IV, Part A and Article 15(2) of Directive 67/548 in the case of, respectively, dangerous preparations and substances intended for domestic use). This would prevent accidents by children and other sensitive groups of society. • It is required that improved use instructions, and product information should always be provided to the consumers. This clearly can efficiently reduce the risk of misuse. For reducing the number of accidents in which (young) children or elderly people are involved, it should be advisable to use these products in the absence of children or other potential sensitive groups. To prevent improper use of sodium hydroxide, instructions for use should contain a warning against dangerous mixtures • It is advisable to deliver only in very viscous preparations • It is advisable to delivery only in small amounts,Instructions

		addressed to consumers: • Keep out of reach of children. • Do not apply product into ventilator openings or slots.,Respiratory protection: In case of dust or aerosol formation (e.g. spraying): use respiratory protection with approved filter (P2) (required),Hand protection: In case of potential dermal contact: use impervious chemical resistant protective gloves,Eye protection: If splashes are likely to occur, wear tightly fitting chemical resistant safety goggles, face–shield.
Remarks	:	NaOH products with a concentration > 2% are corrosive, therefore the prescribed personal protective equipment is compulsory. Dilutions of NaOH containing less than 2% of the substance do not have corrosive properties. For products with a NaOH concentration between 0.5% and 2% the prescribed personal protective equipment is good practice. No protection is required when NaOH concentration is < 0.5%
Application Route	:	Consumer uses (batteries)
Consumer Measures	:	Measured related to the design of the product: It is required to use completely sealed articles with a long service life maintenance.

3. Exposure estimation and reference to its source

Consumer uses relates to already diluted products which will further be neutralized quickly in the sewer, well before reaching a WWTP or surface water. Therefore, consumer use of NaOH is adequately under control for the environment.
Inhalation-local (acute): The calculated short-term exposure of NaOH (1,6 mg/m3) is slightly higher than the long term DNEL for inhalation of 1 mg/m3 but smaller than the short term occupational exposure limit of 2 mg/m3. Furthermore, NaOH will be rapidly neutralised as a result of its reaction with CO2 (or other acids).
Inhalation-local (long term): Since the NaOH concentration and amount handled are smaller compared to professional use and since the DNEL and RMMs are similar, safe use can be concluded for consumer use.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

For further information, please also consult our Internet site: Downstream Users
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