

SAFETY DATA SHEET according to Regulation (EC) No.

1907/2006

SODIUM HYDROXIDE 29%

Version 2.0

Print Date 28.10.2022

Revision date / valid from 17.06.2022

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

1.1. Product identifier

Trade name : SODIUM HYDROXIDE 29%

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

Use of the Substance/Mixture : Identified use: See table in front of appendix for a complete overview of identified uses.

Uses advised against : At this moment we have not identified any uses advised against

Remarks : Before referring to any Exposure Scenario attached to this Safety Data Sheet please check the grade of the product: the Exposure Scenarios presented are not related to all product grade

1.3. Details of the supplier of the safety data sheet

Company : Indufarm N.V.
Leon Bekaertstraat 5
BE 8770 Ingelmunster
Telephone : +32 (0)51-624245
Telefax : -
E-mail address : info@indufarm.com
Website : www.indufarm.com

1.4. Emergency telephone number

Emergency telephone number : Belgium: Antipoison Center - Brussels TEL: +32(0)70 245 245
Netherland: National Poisoning Information Center - Bilthoven
TEL: +31(0) 88 755 8000 (Only for the purpose of informing medical personnel in cases of acute intoxications)

SODIUM HYDROXIDE 29%

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	Hazard category	Target Organs	Hazard statements
Corrosive to metals	Category 1	---	H290
Skin corrosion	Category 1A	---	H314
Serious eye damage	Category 1	---	H318


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

Most important adverse effects

- Human Health : See section 11 for toxicological information.
- Physical and chemical hazards : See section 9/10 for physicochemical information.
- Potential environmental effects : See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

- Hazard symbols : 
- 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/ shower.

SODIUM HYDROXIDE 29%

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

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

P390 Absorb spillage to prevent material damage.

Hazardous components which must be listed on the label:

- sodium hydroxide

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical nature : Aqueous solution

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
sodium hydroxide			
Index-No. : 011-002-00-6	>= 25 - <= 30	Met. Corr.1	H290
CAS-No. : 1310-73-2		Skin Corr.1A	H314
EC-No. : 215-185-5		Eye Dam.1	H318
EU REACH-Reg. No. : 01-2119457892-27-xxxx			
		specific concentration limit	
		Skin Irrit. 2; H315	
		0,5 - < 2 %	
		Eye Irrit. 2; H319	
		0,5 - < 2 %	
		Skin Corr. 1A; H314	
		>= 5 %	
		Skin Corr. 1B; H314	
		2 - < 5 %	

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

SECTION 4: First aid measures

4.1. Description of first aid measures

SODIUM HYDROXIDE 29%

General advice	: Take off all contaminated clothing immediately.
If inhaled	: In case of accident by inhalation: remove casualty to fresh air and keep at rest. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.
In case of skin contact	: Call a physician immediately. Wash off immediately with soap and plenty of water.
In case of eye contact	: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.
If swallowed	: Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms	: See Section 11 for more detailed information on health effects and symptoms.
Effects	: Extremely corrosive and destructive to tissue. If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach. See Section 11 for more detailed information on health effects and symptoms.

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.
Unsuitable extinguishing media	: High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	: Incomplete combustion may form toxic pyrolysis products.
Hazardous combustion products	: The formation of caustic fumes is possible.

5.3. Advice for firefighters

Special protective equipment for firefighters	: In the event of fire, wear self-contained breathing apparatus. Wear appropriate body protection (full protective suit)
---	--

SODIUM HYDROXIDE 29%

Specific extinguishing methods	:	Control smoke with water spray.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Keep away unprotected persons. Use personal protective equipment. Ensure adequate ventilation. Avoid contact with the skin and the eyes. Do not breathe vapours or spray mist.
----------------------	---	--

6.2. Environmental precautions

Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.
---------------------------	---	--

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders). Keep in suitable, closed containers for disposal. : Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Use respirator with appropriate filter if vapours or aerosol are released. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately.

7.2. Conditions for safe storage, including any incompatibilities

SODIUM HYDROXIDE 29%

Requirements for storage areas and containers	: Store in original container. Suitable materials for containers: Stainless steel; polyethylene; Polypropylene; Polyvinylchloride; Unsuitable materials for containers: Aluminium; Zinc; Copper
Advice on protection against fire and explosion	: Normal measures for preventive fire protection.
Further information on storage conditions	: Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	: Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Specific use(s)	: Identified use: See table in front of appendix for a complete overview of identified uses.
-----------------	--

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limit values.

Component:	sodium hydroxide	CAS-No. 1310-73-2
Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)		

DNEL		
Workers, Long-term - local effects, Inhalation	:	1,0 mg/m ³
DNEL		
Consumers, Long-term - local effects, Inhalation	:	1,0 mg/m ³

Predicted No Effect Concentration (PNEC)

No PNEC value was derived. :

Other Occupational Exposure Limit Values

Belgium. OELs. Exposure Limit Values to Chemical Substances at Work, Code of Well-being at work, Book VI, Title 1, as amended, Time Weighted Average (TWA):
2 mg/m³

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

SODIUM HYDROXIDE 29%

Personal protective equipment

Respiratory protection

- Advice : In case of brief exposure or low pollution use breathing filter apparatus.
Respiratory protection complying with EN 141.
In case of intensive or longer exposure use self-contained breathing apparatus.
- Filter Type : P2 filter

Hand protection

- Advice : Wear suitable gloves.
The glove material has to be impermeable and resistant to the product / the substance / the preparation.
Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
Protective gloves should be replaced at first signs of wear.

- Material : Natural Rubber
Break through time : ≥ 8 h
Glove thickness : 0,5 mm

- Material : polychloroprene
Break through time : ≥ 8 h
Glove thickness : 0,5 mm

- Material : Nitrile rubber
Break through time : ≥ 8 h
Glove thickness : 0,35 mm

- Material : butyl-rubber
Break through time : ≥ 8 h
Glove thickness : 0,5 mm

- Material : Fluorinated rubber
Break through time : ≥ 8 h
Glove thickness : 0,4 mm

- Material : Polyvinylchloride
Break through time : ≥ 8 h
Glove thickness : 0,5 mm

Eye protection

- Advice : Safety goggles
Face-shield

SODIUM HYDROXIDE 29%

Skin and body protection

Advice : Impervious clothing
Chemical resistant apron

Environmental exposure controls

General advice : Do not flush into surface water or sanitary sewer system.
Avoid subsoil penetration.
If the product contaminates rivers and lakes or drains inform respective authorities.
If material reaches soil inform authorities responsible for such cases.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	:	liquid
Physical state	:	liquid
Colour	:	colourless
Odour	:	odourless
Odour Threshold	:	Not applicable
Melting point/range	:	< 12 °C
Boiling point/boiling range	:	> 100 °C
Flammability (solid, gas)	:	Not applicable
Upper explosion limit / Upper flammability limit	:	Not applicable
Lower explosion limit / Lower flammability limit	:	Not applicable
Flash point	:	Not applicable
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Self-Accelerating decomposition temperature (SADT)	:	No data available
pH	:	14 - 15 Concentration: 100 % Method: (calculated)

SODIUM HYDROXIDE 29%

Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Flow time	:	No data available
Solubility(ies)		
Water solubility	:	1090 g/l (20 °C)
Solubility in other solvents	:	No data available
Dissolution Rate	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Dispersion Stability	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	ca. 1,274 g/cm ³ (20 °C) 25% solution
		ca. 1,34 g/cm ³ (20 °C) 30% solution
Bulk density	:	No data available
Relative vapour density	:	No data available
Particle characteristics		No data available

9.2 Other information

Explosives	:	Product is not explosive.
Metal corrosion rate	:	Corrosive to metals
Evaporation rate	:	Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

SODIUM HYDROXIDE 29%

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : Corrosive in contact with metals Gives off hydrogen by reaction with base metals (zinc, aluminium). Reacts exothermically with water. Reacts exothermic with acids.

10.4. Conditions to avoid

Conditions to avoid : Heat, flames and sparks.
Thermal decomposition : No data available

10.5. Incompatible materials

Materials to avoid : Materials to avoid: Acids, Light metals, Alcohols, Halogenated hydrocarbon

10.6. Hazardous decomposition products

Hazardous decomposition : hydrogen products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Data for the product

Acute toxicity

Oral

Not classified based on the calculation method according to CLP regulation.

Inhalation

Not classified based on the calculation method according to CLP regulation.

Dermal

Not classified based on the calculation method according to CLP regulation.

Irritation

Skin

Result : Classified based on the calculation method according to CLP regulation.

Eyes

Result : Classified based on the calculation method according to CLP regulation.

SODIUM HYDROXIDE 29%

Sensitisation

Result : Not classified based on the calculation method according to CLP regulation.

CMR effects

CMR Properties

Carcinogenicity : Not classified based on the calculation method according to CLP regulation.
 Mutagenicity : Not classified based on the calculation method according to CLP regulation.
 Reproductive toxicity : Not classified based on the calculation method according to CLP regulation.

Specific Target Organ Toxicity

Single exposure

Remarks : Not classified based on the calculation method according to CLP regulation.

Repeated exposure

Remarks : Not classified based on the calculation method according to CLP regulation.

Other toxic properties

Repeated dose toxicity

No data available

Aspiration hazard

Not applicable,

Component: sodium hydroxide CAS-No. 1310-73-2

Acute toxicity

Oral

No valid data available.

Inhalation

No valid data available.

Dermal

No valid data available.

SODIUM HYDROXIDE 29%

Irritation

Skin

Result : Very corrosive (Rabbit) (No guideline followed)
Corrosive

Eyes

Result : corrosive effects (Rabbit; Test substance: 10% solution) (OECD Test Guideline 405) Equivalent or similar to OECD Guideline

Sensitisation

Result : not sensitizing (Human) (No guideline followed) Patch test on human volunteers did not demonstrate sensitisation properties.

CMR effects

CMR Properties

Carcinogenicity : No experimental references for cancerogenity available.
Mutagenicity : In vitro tests did not show mutagenic effects
In vivo tests did not show mutagenic effects
Teratogenicity : No data available
Reproductive toxicity : Not expected to impair fertility.

Specific Target Organ Toxicity

Single exposure

Remarks : The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

Remarks : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Aspiration hazard

Not applicable,

11.2. Information on other hazards

Data for the product

SODIUM HYDROXIDE 29%

Endocrine disrupting properties

No data available

SECTION 12: Ecological information

12.1. Toxicity

Component:	sodium hydroxide	CAS-No. 1310-73-2
-------------------	-------------------------	--------------------------

Acute toxicity

Fish

LC50 : 125 mg/l (Gambusia affinis; 96 h) (No guideline followed)
 LC50 : 145 mg/l (Poecilia reticulata; 24 h) (No guideline followed)

Toxicity to daphnia and other aquatic invertebrates

EC50 : 40,4 mg/l (Ceriodaphnia (water flea); 48 h) (No guideline followed)

algae

: No data available

Bacteria

EC50 : 22 mg/l (Photobacterium phosphoreum; 15 min) (EPS 1/RM/24)

12.2. Persistence and degradability

Component:	sodium hydroxide	CAS-No. 1310-73-2
-------------------	-------------------------	--------------------------

Persistence and degradability

Persistence

Result : No data available

Biodegradability

Result : The methods for determining the biological degradability are not applicable to inorganic substances.

SODIUM HYDROXIDE 29%

12.3. Bioaccumulative potential

Component:	sodium hydroxide	CAS-No. 1310-73-2
Bioaccumulation		

Result : Does not bioaccumulate.

12.4. Mobility in soil

Component:	sodium hydroxide	CAS-No. 1310-73-2
Mobility		

Water : The product is mobile in water environment.

12.5. Results of PBT and vPvB assessment

Component:	sodium hydroxide	CAS-No. 1310-73-2
Results of PBT and vPvB assessment		

Result : The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

Component:	sodium hydroxide	CAS-No. 1310-73-2
Additional ecological information		

Result : Harmful effects to aquatic organisms due to pH-shift. Neutralization is normally necessary before waste water is discharged into water treatment plants. Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Contaminated packaging : Empty contaminated packagings thoroughly. They can be recycled after thorough and proper cleaning. If recycling is not practicable, dispose of in compliance with local regulations.

SODIUM HYDROXIDE 29%

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

1824

14.2. UN proper shipping name

ADR : SODIUM HYDROXIDE SOLUTION
RID : SODIUM HYDROXIDE SOLUTION
IMDG : SODIUM HYDROXIDE SOLUTION

14.3. Transport hazard class(es)

ADR-Class : 8
 (Labels; Classification Code; Hazard Identification Number; Tunnel restriction code) 8; C5; 80; (E)
 RID-Class : 8
 (Labels; Classification Code; Hazard Identification Number) 8; C5; 80
 IMDG-Class : 8
 (Labels; EmS) 8; F-A, S-B

14.4. Packaging group

ADR : II
 RID : II
 IMDG : II

14.5. Environmental hazards

Environmentally hazardous according to ADR : no
 Environmentally hazardous according to RID : no
 Marine Pollutant according to IMDG-Code : no

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

SODIUM HYDROXIDE 29%

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

Data for the product

EU. REACH, Annex XVII, : Point Nos.: , 3; Listed
Marketing and Use
Restrictions (Regulation
1907/2006/EC)

EU. Directive : ; The substance/mixture does not fall under this legislation.
2012/18/EU (SEVESO
III) on major accident
hazards involving
dangerous substances,
Annex I

Component:	sodium hydroxide	CAS-No. 1310-73-2
-------------------	-------------------------	--------------------------

EU. Chemicals Subject : ; The substance/mixture does not fall under this legislation.
to PIC Procedure:
Regulation 649/2012/EU
on export and import of
dangerous chemicals, as
amended

EU. Regulation No : EC Number: , 215-185-5; Listed
1451/2007 [Biocides],
Annex I, OJ (L 325)

EU. Regulation No. : Maximum concentration in ready for use preparation: 2 %; Hair
1223/2009 on cosmetic straightener: General use; See the text of the regulation for
products, Annex III: List applicable exceptions or provisions.
of Restricted Substances
in Cosmetic Products

pH < 12,7.; pH adjuster for depilatories; See the text of the
regulation for applicable exceptions or provisions.
Maximum concentration in ready for use preparation: 4,5 %;
Hair straightener: Professional use; See the text of the
regulation for applicable exceptions or provisions.

pH < 11.; Uses as pH adjuster other than for depilatories; See
the text of the regulation for applicable exceptions or
provisions.

Maximum concentration in ready for use preparation: 5 %; Nail
cuticle solvent; See the text of the regulation for applicable
exceptions or provisions.

SODIUM HYDROXIDE 29%

Notification status sodium hydroxide:

Regulatory List	Notification	Notification number
EINECS	YES	215-185-5
DSL	YES	
KECI (KR)	YES	97-1-136
KECI (KR)	YES	KE-31487
ENCS (JP)	YES	(1)-410
ISHL (JP)	YES	(1)-410
NZIOC	YES	HSR001547
INSQ	YES	
IECSC	YES	
ONT INV	YES	
TCSI	YES	
PICCS (PH)	YES	
TSCA	YES	
VN INV L	YES	
TH INV	YES	2815.11
TH INV	YES	2815.12
TH INV	YES	55-1-01354
PHARM (JP)	YES	
AU AIICL	YES	

15.2. Chemical safety assessment

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.

Full text of the Notes referred to under section 3.

Abbreviations and Acronyms

AU AIICL	Australia. Industrial Chemicals Act (AIIIC) List
BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
DSL	Canada. Environmental Protection Act, Domestic Substances List

SODIUM HYDROXIDE 29%

EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ENCS (JP)	Japan. Kashin-Hou Law List
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IECSC	China. Inventory of Existing Chemical Substances
INSQ	Mexico. National Inventory of Chemical Substances
ISHL (JP)	Japan. Inventory of Industrial Safety & Health
KECI (KR)	Korea. Existing Chemicals Inventory
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NDSL	Canada. Environmental Protection Act. Non-Domestic Substances List
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
NZIOC	New Zealand. Inventory of Chemicals
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
ONT INV	Canada. Ontario Inventory List
PBT	persistent, bioaccumulative and toxic
PHARM (JP)	Japan. Pharmacopoeia Listing
PICCS (PH)	Philippines. Inventory of Chemicals and Chemical Substances
PNEC	predicted no-effect concentration
REACH Auth. No.:	REACH Authorisation Number
REACH AuthAppC. No.	REACH Authorisation Application Consultation Number
STOT	specific target organ toxicity
SVHC	substance of very high concern
TCSI	Taiwan. Existing Chemicals Inventory
TH INV	Thailand. Existing Chemicals Inventory from FDA
TSCA	US. Toxic Substances Control Act
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
VN INVL	Vietnam. National Chemical Inventory
vPvB	very persistent and very bioaccumulative

Further information

Key literature references : Supplier information and data from the "Database of registered

SODIUM HYDROXIDE 29%

and sources for data	substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	: The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	: The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of hazardous materials must be adhered to.
Other information	: <p>The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship.</p> <p>The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.</p>

|| Indicates updated section.

SAFETY DATA SHEET**Sodium hydroxide**

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Manufacture of substance - liquid	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES035
2	Manufacture of substance - solid	3	8	NA	1, 2, 3, 4, 8a, 8b, 9	1	NA	ES057
3	Industrial use	3	NA	NA	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 15	2, 4, 6a, 6b, 7	NA	ES065
4	Professional use	22	NA	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15	8a, 8b, 8d, 9a	NA	ES067
5	Consumer use	21	NA	20, 35, 39	NA	8a, 8b, 8d, 9a	NA	ES075

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

1. Short title of Exposure Scenario 1: Manufacture of substance - liquid

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
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 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)
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 50%
Other given operational conditions affecting environmental exposure	Continuous exposure	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Application Area	Industrial use
	Water	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. Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes.
Conditions and measures related to external treatment of waste for disposal	Disposal methods	Waste should be reused or discharged to the industrial wastewater and further neutralized if needed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

Product characteristics	Concentration of the	Concentration of substance in product : 0% - 50%
-------------------------	----------------------	--

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

	Substance in Mixture/Article	
	Physical Form (at time of use)	liquid
Frequency and duration of use	Frequency of use	200 days/year
	Frequency of use	8 hours/day
Technical conditions and measures to control dispersion from source towards the worker	Application Area	Industrial use
	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)	
Organisational measures to prevent /limit releases, dispersion and exposure	Application Area	Industrial use
	Replacing, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes. 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 and c) to follow the safety procedures instructed by the employer. The employer has also to ascertain that the required PPE is available	
Conditions and measures related to personal protection, hygiene and health evaluation	Application Area	Industrial use
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Wear chemically resistant 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 wear tightly fitting safety goggles, face-shield Wear suitable protective clothing, aprons, shield and suits If splashes are likely to occur: Rubber or plastic boots	

3. Exposure estimation and reference to its source

Environment

The aquatic effect and risk assessment only deals with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the metal ion is expected to be insignificant compared to the (potential) pH effect. The high water solubility and very low vapour pressure indicates that the substance will be found predominantly in water. When the risk management measures related to the environment are implemented, there is no exposure to the activated sludge of a sewage treatment plant and there is no exposure to the receiving surface water. The sediment compartment is not considered, because it is not relevant for the substance. If emitted to the aquatic compartment, sorption to sediment particles will be negligible. Significant emissions to air are not expected due to the very low vapour pressure of the substance. If emitted to air as a water-based aerosol, the substance will be rapidly neutralised as a result of its reaction with CO₂ (or acids). Significant emissions to the terrestrial environment are not expected. The sludge application route is not relevant

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

for the emission to agricultural soil, as no sorption of the substance to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH- will be neutralised in the soil pore water or the pH may increase. Bioaccumulation will not occur.

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9 Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Modeled exposure data, very low vapour pressure, Without local exhaust ventilation, without respiratory protection	Inhalation worker exposure	0,17mg/m ³	0,17
PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Measured exposure data, worst-case	worker inhalation, acute - local	0,33mg/m ³	0,33
PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9	Measured exposure data, worst-case	Worker - inhalative, long-term - local	0,14mg/m ³	0,14

This substance is corrosive. For the handling of corrosive substances and formulations, immediate dermal contacts occur only occasionally and it is assumed that repeated daily dermal exposure can be neglected. Dermal exposure to the substance was not quantified. The substance is not expected to be systemically available in the body under normal handling and use conditions. Systemic effects of NaOH after dermal or inhalation exposure are not expected to occur.

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below
 If measured data are not available, the DU may make use of an appropriate scaling tool such as ECETOC TRA. Important note: By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2).

Additional good practice advice beyond the REACH Chemical Safety Assessment

Local exhaust ventilation is not required but good practice.
 General ventilation is good practice unless local exhaust ventilation

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

1. Short title of Exposure Scenario 2: Manufacture of substance - solid

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU8: Manufacture of bulk, large scale chemicals (including petroleum products)
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p>
Environmental Release Categories	ERC1: Manufacture of substances

2.1 Contributing scenario controlling environmental exposure for: ERC1

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Other given operational conditions affecting environmental exposure	Continuous exposure	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Application Area	Industrial use
	Water	<p>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. Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes.</p>

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9

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

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

	use)	
Frequency and duration of use	Frequency of use	200 days/year
	Frequency of use	8 hours/day
Technical conditions and measures to control dispersion from source towards the worker	Application Area	Industrial use
	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)	
Organisational measures to prevent /limit releases, dispersion and exposure	Application Area	Industrial use
	Replacing, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes. 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 and c) to follow the safety procedures instructed by the employer. The employer has also to ascertain that the required PPE is available	
Conditions and measures related to personal protection, hygiene and health evaluation	Application Area	Industrial use
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Wear chemically resistant 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 wear tightly fitting safety goggles, face-shield Wear suitable protective clothing, aprons, shield and suits If splashes are likely to occur: Rubber or plastic boots	

3. Exposure estimation and reference to its source

Environment

The aquatic effect and risk assessment only deals with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the metal ion is expected to be insignificant compared to the (potential) pH effect. The high water solubility and very low vapour pressure indicates that the substance will be found predominantly in water. When the risk management measures related to the environment are implemented, there is no exposure to the activated sludge of a sewage treatment plant and there is no exposure to the receiving surface water. The sediment compartment is not considered, because it is not relevant for the substance. If emitted to the aquatic compartment, sorption to sediment particles will be negligible. Significant emissions to air are not expected due to the very low vapour pressure of the substance. If emitted to air as a water-based aerosol, the substance will be rapidly neutralised as a result of its reaction with CO₂ (or acids). Significant emissions to the terrestrial environment are not expected. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of the substance to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH- will be neutralised in the soil pore water or the pH may increase. Bioaccumulation will not occur.

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

Workers

PROC1, PROC2, PROC3, PROC4, PROC8a, PROC9 Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	Modeled exposure data, Low dustiness, no LEV, no respiratory protection (RPE)	Inhalation worker exposure	0,01mg/m ³	0,01
PROC3, PROC9	Modeled exposure data, Low dustiness, no LEV, no respiratory protection (RPE)	Inhalation worker exposure	0,1mg/m ³	0,1
PROC4, PROC8a	Modeled exposure data, Low dustiness, no LEV, no respiratory protection (RPE)	Inhalation worker exposure	0,5mg/m ³	0,5
PROC9	Measured exposure data, worst-case	worker inhalation, acute - local	0,26mg/m ³	0,26

This substance is corrosive. For the handling of corrosive substances and formulations, immediate dermal contacts occur only occasionally and it is assumed that repeated daily dermal exposure can be neglected. Dermal exposure to the substance was not quantified. The substance is not expected to be systemically available in the body under normal handling and use conditions. Systemic effects of NaOH after dermal or inhalation exposure are not expected to occur.

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below
 If measured data are not available, the DU may make use of an appropriate scaling tool such as ECETOC TRA. Important note: By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2).

Additional good practice advice beyond the REACH Chemical Safety Assessment

Local exhaust ventilation is not required but good practice.
 General ventilation is good practice unless local exhaust ventilation

SAFETY DATA SHEET according to Regulation (EC) No.

1907/2006

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

1. Short title of Exposure Scenario 3: Industrial use

Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC7: Industrial spraying</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	<p>ERC2: Formulation of preparations</p> <p>ERC4: Industrial use of processing aids in processes and products, not becoming part of articles</p> <p>ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)</p> <p>ERC6b: Industrial use of reactive processing aids</p> <p>ERC7: Industrial use of substances in closed systems</p>

2.1 Contributing scenario controlling environmental exposure for: ERC2, ERC4, ERC6a, ERC6b, ERC7

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Other given operational conditions affecting environmental exposure	Continuous exposure	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Application Area	Industrial use
	Water	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. Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

		surface water, in case such discharges are expected to cause significant pH changes.
--	--	--

Conditions and measures related to external treatment of waste for disposal	Disposal methods	Waste should be reused or discharged to the industrial wastewater and further neutralized if needed.
---	------------------	--

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15

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

Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	200 days/year

Technical conditions and measures to control dispersion from source towards the worker	Application Area	Industrial use
	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)	

Organisational measures to prevent /limit releases, dispersion and exposure	Application Area	Industrial use
	Replacing, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes. 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 and c) to follow the safety procedures instructed by the employer. The employer has also to ascertain that the required PPE is available	

Conditions and measures related to personal protection, hygiene and health evaluation	Application Area	Industrial use
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Wear chemically resistant 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 If splashes are likely to occur: wear tightly fitting safety goggles, face-shield Wear suitable protective clothing, aprons, shield and suits Rubber or plastic boots	

3. Exposure estimation and reference to its source

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

Environment

The aquatic effect and risk assessment only deals with the effect on organisms/ecosystems due to possible pH changes related to OH⁻ discharges, as the toxicity of the metal ion is expected to be insignificant compared to the (potential) pH effect. The high water solubility and very low vapour pressure indicates that the substance will be found predominantly in water. When the risk management measures related to the environment are implemented, there is no exposure to the activated sludge of a sewage treatment plant and there is no exposure to the receiving surface water. The sediment compartment is not considered, because it is not relevant for the substance. If emitted to the aquatic compartment, sorption to sediment particles will be negligible. Significant emissions to air are not expected due to the very low vapour pressure of the substance. If emitted to air as a water-based aerosol, the substance will be rapidly neutralised as a result of its reaction with CO₂ (or acids). Significant emissions to the terrestrial environment are not expected. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of the substance to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH⁻ will be neutralised in the soil pore water or the pH may increase. Bioaccumulation will not occur.

Workers

Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24	liquid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,17mg/m ³	---
PROC1, PROC2	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,01mg/m ³	---
PROC3, PROC15	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,1mg/m ³	---
PROC4, PROC5, PROC14	solid, no respiratory protection (RPE)	worker inhalation, acute - local	0,2mg/m ³	---
PROC8a, PROC8b, PROC9, PROC10, PROC13,	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,5mg/m ³	---

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

PROC19				
PROC23	solid, with RPE (90%)	worker inhalation, acute - local	0,4mg/m ³	---
PROC24	solid, with RPE (90%)	worker inhalation, acute - local	0,5mg/m ³	---

This substance is corrosive. For the handling of corrosive substances and formulations, immediate dermal contacts occur only occasionally and it is assumed that repeated daily dermal exposure can be neglected. Dermal exposure to the substance was not quantified. The substance is not expected to be systemically available in the body under normal handling and use conditions. Systemic effects of NaOH after dermal or inhalation exposure are not expected to occur. Based on workplace measurements and following the proposed risk management measures controlling worker and professional exposure, the inhalation exposure is below the DNEL.

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below
 If measured data are not available, the DU may make use of an appropriate scaling tool such as ECETOC TRA.
 Important note: By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2).

Additional good practice advice beyond the REACH Chemical Safety Assessment

Local exhaust ventilation is not required but good practice.
 General ventilation is good practice unless local exhaust ventilation

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

1. Short title of Exposure Scenario 4: Professional use

Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Process categories	<p>PROC1: Use in closed process, no likelihood of exposure</p> <p>PROC2: Use in closed, continuous process with occasional controlled exposure</p> <p>PROC3: Use in closed batch process (synthesis or formulation)</p> <p>PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises</p> <p>PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)</p> <p>PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities</p> <p>PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities</p> <p>PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>PROC10: Roller application or brushing</p> <p>PROC11: Non industrial spraying</p> <p>PROC13: Treatment of articles by dipping and pouring</p> <p>PROC15: Use as laboratory reagent</p>
Environmental Release Categories	<p>ERC8a: Wide dispersive indoor use of processing aids in open systems</p> <p>ERC8b: Wide dispersive indoor use of reactive substances in open systems</p> <p>ERC8d: Wide dispersive outdoor use of processing aids in open systems</p> <p>ERC9a: Wide dispersive indoor use of substances in closed systems</p>

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC9a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Other given operational conditions affecting environmental exposure	Continuous exposure	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Application Area	Professional use
	Water	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.,Risk management measures related to the environment aim to avoid discharging the substance into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes.
Conditions and measures related	Disposal methods	Waste should be reused or discharged to the

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

to external treatment of waste for disposal		industrial wastewater and further neutralized if needed.
---	--	--

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Physical Form (at time of use)	Solid, low dustiness
Frequency and duration of use	Frequency of use	8 hours/day
	Frequency of use	200 days/year
Technical conditions and measures to control dispersion from source towards the worker	Application Area	Professional use
	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) Where possible use of specific dispensers and pumps specifically designed to prevent splashes/spills/exposure to occur.	
Organisational measures to prevent /limit releases, dispersion and exposure	Application Area	Professional use
	Replacing, where appropriated, manual processes by automated and/or closed processes. This would avoid irritating mists, sprayings and subsequent potential splashes. 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 and c) to follow the safety procedures instructed by the employer. The employer has also to ascertain that the required PPE is available	
Conditions and measures related to personal protection, hygiene and health evaluation	Application Area	Professional use
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Wear chemically resistant 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 If splashes are likely to occur: wear tightly fitting safety goggles, face-shield Wear suitable protective clothing, aprons, shield and suits Rubber or plastic boots	

3. Exposure estimation and reference to its source

Environment

The aquatic effect and risk assessment only deals with the effect on organisms/ecosystems due to possible pH changes related to OH- discharges, as the toxicity of the metal ion is expected to be insignificant compared to the (potential) pH effect. The high water solubility and very low vapour pressure indicates that the substance will be

SAFETY DATA SHEET
Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

found predominantly in water. When the risk management measures related to the environment are implemented, there is no exposure to the activated sludge of a sewage treatment plant and there is no exposure to the receiving surface water. The sediment compartment is not considered, because it is not relevant for the substance. If emitted to the aquatic compartment, sorption to sediment particles will be negligible. Significant emissions to air are not expected due to the very low vapour pressure of the substance. If emitted to air as a water-based aerosol, the substance will be rapidly neutralised as a result of its reaction with CO₂ (or acids). Significant emissions to the terrestrial environment are not expected. The sludge application route is not relevant for the emission to agricultural soil, as no sorption of the substance to particulate matter will occur in STPs/WWTPs. If emitted to soil, sorption to soil particles will be negligible. Depending on the buffer capacity of the soil, OH⁻ will be neutralised in the soil pore water or the pH may increase. Bioaccumulation will not occur.

Workers

Used ECETOC TRA model.

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15, PROC19, PROC23, PROC24	liquid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,17mg/m ³	---
PROC1, PROC2	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,01mg/m ³	---
PROC3, PROC15	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,1mg/m ³	---
PROC4, PROC5, PROC11, PROC14	solid, no respiratory protection (RPE)	worker inhalation, acute - local	0,2mg/m ³	---
PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	solid, no LEV, no respiratory protection (RPE)	worker inhalation, acute - local	0,5mg/m ³	---
PROC23	solid, with RPE (90%)	worker inhalation, acute - local	0,4mg/m ³	---
PROC24	solid, with RPE (90%)	worker inhalation, acute -	0,5mg/m ³	---

SAFETY DATA SHEET

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

local

This substance is corrosive. For the handling of corrosive substances and formulations, immediate dermal contacts occur only occasionally and it is assumed that repeated daily dermal exposure can be neglected. Dermal exposure to the substance was not quantified. The substance is not expected to be systemically available in the body under normal handling and use conditions. Systemic effects of NaOH after dermal or inhalation exposure are not expected to occur. Based on workplace measurements and following the proposed risk management measures controlling worker and professional exposure, the inhalation exposure is below the DNEL.

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below
If measured data are not available, the DU may make use of an appropriate scaling tool such as ECETOC TRA.
Important note: By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2).

Additional good practice advice beyond the REACH Chemical Safety Assessment

Local exhaust ventilation is not required but good practice.
General ventilation is good practice unless local exhaust ventilation

SAFETY DATA SHEET according to Regulation (EC) No.

1907/2006

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

1. Short title of Exposure Scenario 5: Consumer use

Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)
Chemical product category	PC20: Products such as ph-regulators, flocculants, precipitants, neutralization agents PC35: Washing and cleaning products (including solvent based products) PC39: Cosmetics, personal care products
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8b: Wide dispersive indoor use of reactive substances in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems ERC9a: Wide dispersive indoor use of substances in closed systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8b, ERC8d, ERC9a

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	There are no specific risk management measures related to environment.	
Conditions and measures related to external treatment of waste for disposal	Disposal methods	This material and its container must be disposed of in a safe way (e.g. by returning to a public recycling facility)., If container is empty, trash as regular municipal waste., Batteries should be recycled as much as possible (e.g. by returning to a public recycling facility)., Recovery of the substance from alkaline batteries includes emptying the electrolyte, collection and neutralization.

2.2 Contributing scenario controlling consumer exposure for: PC20, PC35, PC39

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Physical Form (at time of use)	Solid, low dustiness
Conditions and measures related to protection of consumer (e.g. behavioural advice, personal protection and hygiene)	Consumer Measures	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

SAFETY DATA SHEET according to Regulation (EC) No.

1907/2006

Sodium hydroxide

Version 1.1

Print Date 30.01.2013

Revision Date 30.01.2013

	provokes the physical loss of information on hazards and use instructions.
Consumer Measures	In case of dust or aerosol formation: use respiratory protection with approved filter (P2)

3. Exposure estimation and reference to its source

Environment

Consumer uses relate to already diluted products which will further be neutralized quickly in the sewer, well before reaching a WWTP or surface water.

Consumers

ConsExpo and SrayExpo

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC20, PC35, PC39	Assessed only for the most critical use, (use of the substance in a spray oven cleaner)	consumer inhalation, acute - local	0,3 - 1,6mg/m ³	< 1

The calculated short-term exposure is slightly higher than the long term DNEL for inhalation, but smaller than the short term occupational exposure limit. The substance will be rapidly neutralised as a result of its reaction with CO₂ (or other acids) Consumer exposure to the substance in batteries is zero because batteries are sealed articles with a long service life maintenance.

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

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PCs listed above) as given below

If measured data are not available, the DU may make use of an appropriate scaling tool such as ConsEXpo software.

Important note: By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2).

