Safety Data Sheet
according to WHS Regulations

Printing date 10.08.2018 *Revision: 08.08.2018*

1 Identification

· ***Product identifier***

· ***Trade name:*** Nessler´s reagent

· ***Article number:*** RE0050

· ***Registration number***
A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

· ***Relevant identified uses of the substance or mixture and uses advised against***
No further relevant information available.

· ***Application of the substance / the preparation:*** Laboratory reagent

· ***Details of the supplier of the safety data sheet***

· ***Manufacturer/Supplier:***
Scharlab, S.L.
C/Gato Pérez, 33. Pol.Ind. Mas d'en Cisa
08181 Sentmenat (Barcelona) SPAIN
Tel: (+34) 93 745 64 00 - FAX: (+34) 93 715 27 65
email: scharlab@scharlab.com
Internet Web Site: www.scharlab.com

· ***Regional representation:***
Chem-Supply Pty Ltd
38-50 Bedford Street
Gillman South Australia 5013 AUSTRALIA
Tel: (08) 8440 2000 - FAX: (08) 8440 2001
email: info@chemsupply.com.au
Internet Web Site: www.chemsupply.com.au

· ***Further information obtainable from:*** technical department

· ***Emergency telephone number:***
EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

2 Hazard(s) Identification

· ***Classification of the substance or mixture***

health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H312 Harmful in contact with skin.
Acute Tox. 4 H332 Harmful if inhaled.

(Contd. on page 2)

(Contd. of page 1)

· ***Label elements***
· ***GHS label elements***
The product is classified and labelled according to the Globally Harmonised System (GHS).
· ***Hazard pictograms***

GHS05 GHS07 GHS08

· ***Signal word*** Danger

· ***Hazard-determining components of labelling:***
sodium hydroxide
mercury diiodide
· ***Hazard statements***
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
Causes severe skin burns and eye damage.
May cause damage to organs through prolonged or repeated exposure.
· ***Precautionary statements***
Do not breathe dusts or mists.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
Specific measures (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· ***Other hazards***
· ***Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.

3 Composition and Information on Ingredients

· ***Chemical characterisation: Mixtures***
· ***Description:*** Mixture of substances listed below with nonhazardous additions.

· ***Dangerous components:***

CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 Reg.nr.: 01-2119457892-27-XXXX	sodium hydroxide Skin Corr. 1A, H314; Acute Tox. 4, H302	10-25%
CAS: 7774-29-0 EINECS: 231-873-8 Index number: 080-002-00-6	mercury diiodide Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373	1-5%

· ***Additional information:*** For the wording of the listed hazard phrases refer to section 16.

(Contd. on page 3)

(Contd. of page 2)

4 First Aid Measures

· ***Description of first aid measures***
· ***General information:***
Immediately remove any clothing soiled by the product.
Remove breathing equipment only after contaminated clothing have been completely removed.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· ***After inhalation:***
Supply fresh air or oxygen; call for doctor.
In case of unconsciousness place patient stably in side position for transportation.
· ***After skin contact:*** Immediately wash with water and soap and rinse thoroughly.
· ***After eye contact:***
Rinse opened eye for several minutes under running water. Then consult a doctor.
· ***After swallowing:***
Do not induce vomiting; call for medical help immediately.
Drink plenty of water and provide fresh air. Call for a doctor immediately.
· ***Information for doctor:***
· ***Most important symptoms and effects, both acute and delayed***
No further relevant information available.
· ***Indication of any immediate medical attention and special treatment needed***
No further relevant information available.

5 Fire Fighting Measures

· ***Extinguishing media***
· ***Suitable extinguishing agents:***
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· ***Special hazards arising from the substance or mixture***
No further relevant information available.
· ***Advice for firefighters***
· ***Protective equipment:*** Mouth respiratory protective device.
· ***Hazchem code:*** 2X

6 Accidental Release Measures

· ***Personal precautions, protective equipment and emergency procedures***
Wear protective equipment. Keep unprotected persons away.
· ***Environmental precautions:***
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· ***Methods and material for containment and cleaning up:***
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· ***Reference to other sections***
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 4)

(Contd. of page 3)

7 Handling and Storage

· ***Handling:***
· ***Precautions for safe handling***
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
· ***Information about fire - and explosion protection:*** Keep respiratory protective device available.

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:*** No special requirements.
· ***Information about storage in one common storage facility:*** Not required.
· ***Further information about storage conditions:*** Keep container tightly sealed.
· ***Specific end use(s)*** No further relevant information available.

8 Exposure controls and personal protection

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

· ***Control parameters***
· ***Ingredients with limit values that require monitoring at the workplace:***

1310-73-2 sodium hydroxide

WES Peak limitation: 2 mg/m³

7774-29-0 mercury diiodide

WES Long-term value: 0.025 mg/m³, 0.003 ppm
as Hg

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

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· ***Respiratory protection:***
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
· ***Protection of hands:***

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· ***Material of gloves***
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 5)

(Contd. of page 4)

· ***Penetration time of glove material***
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· ***Eye protection:***

Tightly sealed goggles

9 Physical and Chemical Properties

· ***Information on basic physical and chemical properties***
· ***General Information***
· ***Appearance:***

Form:	Fluid
Colour:	Yellow tint
· ***Odour:***	Odourless
· ***Odour threshold:***	Not determined.
· ***pH-value:***	Not determined.
· ***Change in condition***	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
· ***Flash point:***	Not applicable.
· ***Flammability (solid, gas):***	Not applicable.
· ***Decomposition temperature:***	Not determined.
· ***Auto-ignition temperature:***	Product is not selfigniting.
· ***Explosive properties:***	Product does not present an explosion hazard.
· ***Explosion limits:***	
Lower:	Not determined.
Upper:	Not determined.
· ***Vapour pressure at 20 °C:***	23 hPa
· ***Density at 20 °C:***	1.16 g/cm³
· ***Relative density***	Not determined.
· ***Vapour density***	Not determined.
· ***Evaporation rate***	Not determined.
· ***Solubility in / Miscibility with water:***	Not miscible or difficult to mix.
· ***Partition coefficient: n-octanol/water:***	Not determined.
· ***Viscosity:***	
Dynamic:	Not determined.
Kinematic:	Not determined.
· ***Solvent content:***	
Organic solvents:	0.0 %
Water:	79.9 %
Solids content:	20.1 %

(Contd. on page 6)

Trade name: Nessler´s reagent

(Contd. of page 5)

· ***Other information*** No further relevant information available.

10 Stability and Reactivity

· ***Reactivity*** No further relevant information available.
· ***Chemical stability***
· ***Thermal decomposition / conditions to be avoided:***
No decomposition if used according to specifications.
· ***Possibility of hazardous reactions*** No dangerous reactions known.
· ***Conditions to avoid*** No further relevant information available.
· ***Incompatible materials:*** No further relevant information available.
· ***Hazardous decomposition products:*** No dangerous decomposition products known.

11 Toxicological Information

· ***Information on toxicological effects***
· ***Acute toxicity***
· ***LD/LC50 values relevant for classification:***

1310-73-2 sodium hydroxide
Oral LD50 2,000 mg/kg (rat)

7774-29-0 mercury diiodide
Oral LD50 18 mg/kg (rat)
Dermal LD50 75 mg/kg (rat)

· ***Primary irritant effect:***
· ***Skin corrosion/irritation*** Strong caustic effect on skin and mucous membranes.
· ***Serious eye damage/irritation*** Strong caustic effect.
· ***Respiratory or skin sensitisation*** No sensitising effects known.
· ***Additional toxicological information:***
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Corrosive
Very toxic
Danger through skin adsorption.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological Information

· ***Toxicity***
· ***Aquatic toxicity:*** No further relevant information available.
· ***Persistence and degradability*** No further relevant information available.
· ***Behaviour in environmental systems:***
· ***Bioaccumulative potential*** No further relevant information available.
· ***Mobility in soil*** No further relevant information available.
· ***Ecotoxical effects:***
· ***Remark:*** Toxic for fish
· ***Additional ecological information:***
· ***General notes:***
Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Must not reach sewage water or drainage ditch undiluted or unneutralised.

(Contd. on page 7)

(Contd. of page 6)

Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms

· ***Results of PBT and vPvB assessment***
· ***PBT:*** Not applicable.
· ***vPvB:*** Not applicable.
· ***Other adverse effects*** No further relevant information available.

13 Disposal considerations

· ***Waste treatment methods***
· ***Recommendation***
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· ***Uncleaned packaging:***
· ***Recommendation:*** Disposal must be made according to official regulations.

14 Transport information

· ***UN-Number***	
· ***ADG, IMDG, IATA***	UN2922
· ***UN proper shipping name***	
· ***ADG***	2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, MERCURY IODIDE), ENVIRONMENTALLY HAZARDOUS
· ***IMDG***	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, MERCURY IODIDE), MARINE POLLUTANT
· ***IATA***	CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, MERCURY IODIDE)

· ***Transport hazard class(es)***

· ***ADG***

· ***Class***	8 Corrosive substances.
· ***Label***	8+6.1

· ***IMDG***

· ***Class***	8 Corrosive substances.
· ***Label***	8/6.1

· ***IATA***

· ***Class***	8 Corrosive substances.

(Contd. on page 8)

(Contd. of page 7)

· ***Label***	8 (6.1)
· ***Packing group***	
· ***ADG, IMDG, IATA***	II
· ***Environmental hazards:***	Product contains environmentally hazardous substances: mercury diiodide
· ***Marine pollutant:***	Yes Symbol (fish and tree)
· ***Special marking (ADG):***	Symbol (fish and tree)
· ***Special precautions for user***	Warning: Corrosive substances.
· ***Danger code (Kemler):***	86
· ***EMS Number:***	F-A,S-B
· ***Segregation groups***	Alkalis, heavy metals and their salts (including their organometallic compounds)
· ***Stowage Category***	B
· ***Stowage Code***	SW2 Clear of living quarters.
· ***Transport in bulk according to Annex II of Marpol and the IBC Code***	Not applicable.
· ***Transport/Additional information:***	

· ***ADG***	
· ***Limited quantities (LQ)***	1L
· ***Transport category***	2
· ***Tunnel restriction code***	E
· ***UN "Model Regulation":***	UN 2922 CORROSIVE LIQUID, TOXIC, N.O.S. (SODIUM HYDROXIDE, MERCURY IODIDE), 8 (6.1), II, ENVIRONMENTALLY HAZARDOUS
· ***Hazchem code:***	2X

15 Regulatory information

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

· ***Australian Inventory of Chemical Substances***

All ingredients are listed.

· ***Standard for the Uniform Scheduling of Medicines and Poisons***

1310-73-2 sodium hydroxide: S5, S6, S10

· ***GHS label elements***

The product is classified and labelled according to the Globally Harmonised System (GHS).

· ***Hazard pictograms***

GHS05 GHS07 GHS08

· ***Signal word*** Danger

· ***Hazard-determining components of labelling:***

sodium hydroxide
mercury diiodide

· ***Hazard statements***

Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.
Causes severe skin burns and eye damage.

(Contd. on page 9)

(Contd. of page 8)

May cause damage to organs through prolonged or repeated exposure.

· ***Precautionary statements***
Do not breathe dusts or mists.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
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.
Specific measures (see on this label).
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· ***Directive 2012/18/EU***
· ***Named dangerous substances - ANNEX I*** None of the ingredients is listed.
· ***Seveso category*** E2 Hazardous to the Aquatic Environment
· ***Qualifying quantity (tonnes) for the application of lower-tier requirements*** 200 t
· ***Qualifying quantity (tonnes) for the application of upper-tier requirements*** 500 t
· ***Chemical safety assessment:*** A Chemical Safety Assessment has been carried out.

16 Other information

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

· ***Relevant phrases***
H300 Fatal if swallowed.
H302 Harmful if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.

· ***Department issuing SDS:*** product safety department
· ***Contact:*** msds@scharlab.com
· ***Abbreviations and acronyms:***
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADG: Australian Code for the Transport of Dangerous Goods by Road & Rail.
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Acute Tox. 2: Acute toxicity – Category 2
Acute Tox. 4: Acute toxicity – Category 4
Acute Tox. 1: Acute toxicity – Category 1
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

(Contd. on page 10)

(Contd. of page 9)

Annex: Exposure scenario 1

· ***1 - Short title of the exposure scenario***
Exposure scenario: Sodium hydroxide
Industrial use
· ***Sector of Use***
SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites
· ***Product category*** PC21 Laboratory chemicals
· ***Process category*** PROC15 Use as laboratory reagent
· ***Environmental release category***
ERC2 Formulation into mixture
ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
· ***Description of the activities / processes covered in the Exposure Scenario***
See section 1 of the annex to the Safety Data Sheet.
· ***2 - Conditions of use***
· ***Duration and frequency***
5 workdays/week.
Emission days (days/year): 200
· ***Physical parameters***
· ***Physical state*** Solid
· ***Concentration of the substance in the mixture***
Raw material.
It covers a percentage of substance in the product up to 100 %
· ***Other operational conditions***
· ***Other operational conditions affecting environmental exposure*** No special measures required.
· ***Other operational conditions affecting worker exposure***
Avoid contact with eyes.
Avoid contact with the skin.
· ***Risk management measures***
The aim is to prevent the passage of NaOH solutions to municipal wastewater or to surface water . If such discharges are expected to cause significant changes in pH , it is required to regularly monitor the pH during introduction into open water . Overall downloads are made so that the pH variations are minimized on the surface of the receiving waters.

Most aquatic organisms can tolerate pH values of 6 to 9. This is also reflected in the description of standard OECD tests with aquatic organisms.
· ***Worker protection***
· ***Organisational protective measures***
Provide Internal Plant Instruction.
Handling procedures must be well documented.
Ensure that activities are executed by specialists or authorised personnel only.
Workers processes / areas identified risk should be trained to :
a) Avoid working without respiratory protection
b) To understand the corrosive properties of the substance with they work
c) Observe the safest procedures indicated by the employer
The employer must also ensure that the required personal protective equipment is available and it is used as directed.
Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
· ***Technical protective measures***
Ensure that suitable extractors are available on processing machines
Replace, if possible, manual processes by automated processes and / or closed. This would avoid irritating mists, sprays and splashes.
Store in cool, dry place in tightly closed receptacles.
Only handle and refill product in closed systems.

(Contd. on page 11)

(Contd. of page 10)

The work process has to be performed under closed conditions.
Put lid on container immediately after use.
Use closeable conveyance devices.
Using forceps, claws with long handles in the hand to avoid direct contact and exposure by splashes.
Ensure good ventilation/exhaustion at the workplace.

· ***Personal protective measures***
Do not inhale dust / smoke / mist.
Avoid contact with the skin.
Avoid contact with the eyes.
Tightly sealed goggles
Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Recommended material for gloves :

- Butyl rubber , PVC , polychloroprene with natural latex liner , material thickness: 0,5 mm , breakthrough time: >480min.

- Nitrile rubber , fluoro rubber , material thickness: 0,35-0,4mm , breakthrough time: >480min.

Respiratory protection: In case of dust or aerosol formation (eg by spraying) use respiratory protection with approved filter (P2).
Use protective suit.
Apron
Rubber boots or plastic.

· ***Measures for consumer protection*** Ensure adequate labelling.

· ***Environmental protection measures***
The risk assessment for the environment is only applicable to the aquatic environment, when applicable, including treatment plants, wastewater (STP) / plants wastewater treatment plant (WWTP), as emissions of NaOH in different life cycle stages (production and use) mainly apply to water (waste).

· ***Air***
No special measures required.
No major air emissions are expected due to the very low vapor pressure of NaOH.

· ***Water***
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
Risk assessment and aquatic effect only deal with the effect on ecosystems / organisms due to possible pH changes related downloads OH-, as it is expected that the toxicity of Na + ions is insignificant compared to the effect (potential) pH .

Only the local scale will be treated, including sewage treatment plant STP or, where applicable, both for production and for industrial use. Any effect that may arise would be expected to take place in a local.
The high water solubility and very low vapor pressure indicate that NaOH is predominant in water.
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- released locally.

· ***Soil***
No special measures required.
No significant emissions to the terrestrial environment are expected.
The sludge application route is not relevant to the issue to agricultural land , because there will be no sorption of NaOH to particulate STP / WWTP.

(Contd. on page 12)

Safety Data Sheet
according to WHS Regulations

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Trade name: Nessler´s reagent

(Contd. of page 11)

· ***Disposal measures***
Disposal must be made according to official regulations.
Ensure that waste is collected and contained.
· ***Waste type***
Liquid product residues
Aqueous solution
Partially emptied and uncleaned packaging
· ***3 - Exposure estimation***
· ***Worker (oral)*** No significant oral exposure
· ***Worker (dermal)*** No significant dermal exposure
· ***Worker (inhalation)***
PROC 15: < 1 (mg/m3)
RCR: <1
· ***4 - Guidance for downstream users***
Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
For the risk assessment, the tools recommended by ECHA can be used.

(Contd. on page 13)

(Contd. of page 12)

Annex: Exposure scenario 2

· ***1 - Short title of the exposure scenario*** Laboratory use
· ***Sector of Use***
SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
· ***Product category*** PC21 Laboratory chemicals
· ***Process category*** PROC15 Use as laboratory reagent
· ***Environmental release category***
ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
ERC9b Widespread use of functional fluid (outdoor)
· ***Description of the activities / processes covered in the Exposure Scenario***
See section 1 of the annex to the Safety Data Sheet.
· ***2 - Conditions of use***
· ***Duration and frequency***
5 workdays/week.
Emission days (days/year): 200
· ***Physical parameters***
· ***Physical state*** Solid
· ***Concentration of the substance in the mixture***
Raw material.
It covers a percentage of substance in the product up to 100 %
· ***Other operational conditions***
· ***Other operational conditions affecting environmental exposure*** No special measures required.
· ***Other operational conditions affecting worker exposure***
Avoid contact with eyes.
Avoid contact with the skin.
· ***Risk management measures***
The aim is to prevent the passage of NaOH solutions to municipal wastewater or to surface water . If such discharges are expected to cause significant changes in pH , it is required to regularly monitor the pH during introduction into open water . Overall downloads are made so that the pH variations are minimized on the surface of the receiving waters.

Most aquatic organisms can tolerate pH values of 6 to 9. This is also reflected in the description of standard OECD tests with aquatic organisms.
· ***Worker protection***
· ***Organisational protective measures***
Provide Internal Plant Instruction.
Handling procedures must be well documented.
Ensure that activities are executed by specialists or authorised personnel only.
Workers processes / areas identified risk should be trained to :
a) Avoid working without respiratory protection
b) To understand the corrosive properties of the substance with they work
c) Observe the safest procedures indicated by the employer
The employer must also ensure that the required personal protective equipment is available and it is used as directed.
Ensure good ventilation. This can be achieved by using a local exhaustion or general exhaust system. If these measures are insufficient to keep the solvent vapour concentration below the workplace limit, wear an adequate respiratory protective device.
· ***Technical protective measures***
Ensure that suitable extractors are available on processing machines
Replace, if possible, manual processes by automated processes and / or closed. This would avoid irritating mists, sprays and splashes.
Store in cool, dry place in tightly closed receptacles.
Only handle and refill product in closed systems.
The work process has to be performed under closed conditions.

(Contd. on page 14)

(Contd. of page 13)

Put lid on container immediately after use.
Use closeable conveyance devices.
Using forceps, claws with long handles in the hand to avoid direct contact and exposure by splashes.
Ensure good ventilation/exhaustion at the workplace.

· ***Personal protective measures***
Do not inhale dust / smoke / mist.
Avoid contact with the skin.
Avoid contact with the eyes.
Tightly sealed goggles
Protective gloves
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
Recommended material for gloves :

- Butyl rubber , PVC , polychloroprene with natural latex liner , material thickness: 0,5 mm , breakthrough time: >480min.

- Nitrile rubber , fluoro rubber , material thickness: 0,35-0,4mm , breakthrough time: >480min.

Respiratory protection: In case of dust or aerosol formation (eg by spraying) use respiratory protection with approved filter (P2).
Use protective suit.
Apron
Rubber boots or plastic.

· ***Measures for consumer protection*** Ensure adequate labelling.

· ***Environmental protection measures***
The risk assessment for the environment is only applicable to the aquatic environment, when applicable, including treatment plants, wastewater (STP) / plants wastewater treatment plant (WWTP), as emissions of NaOH in different life cycle stages (production and use) mainly apply to water (waste).

· ***Air***
No special measures required.
No major air emissions are expected due to the very low vapor pressure of NaOH.

· ***Water***
Generally, prior to the introduction of wastewater into wastewater treatment plants a neutralisation is required.
Risk assessment and aquatic effect only deal with the effect on ecosystems / organisms due to possible pH changes related downloads OH-, as it is expected that the toxicity of Na + ions is insignificant compared to the effect (potential) pH .

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The high water solubility and very low vapor pressure indicate that NaOH is predominant in water.
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- released locally.

· ***Soil***
No special measures required.
No significant emissions to the terrestrial environment are expected.
The sludge application route is not relevant to the issue to agricultural land , because there will be no sorption of NaOH to particulate STP / WWTP.

(Contd. on page 15)

(Contd. of page 14)

· ***Disposal measures***
Disposal must be made according to official regulations.
Ensure that waste is collected and contained.
· ***Waste type***
Liquid product residues
Aqueous solution
Partially emptied and uncleaned packaging
· ***3 - Exposure estimation***
· ***Worker (oral)*** No significant oral exposure
· ***Worker (dermal)*** No significant dermal exposure
· ***Worker (inhalation)***
PROC 15: < 1 (mg/m3)
RCR: <1
· ***4 - Guidance for downstream users***
Whether the downstream user acts within the scope of the Exposure Scenario can be verified based on the information in sections 1 to 8.
Whether the downstream user uses the substance / the mixture within the scope of the Exposure Scenario can be determined by means of a technical assessment.
For the risk assessment, the tools recommended by ECHA can be used.