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

1.1. Product identifier

Product form : Mixture
Name : Sodium 2-Mercaptobenzothiazole

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

Corrosion inhibitors

Uses advised against
No available.

1.3. Details of the supplier of the safety data sheet

Company
SysKem Chemie GmbH
Brucknerweg 26
D-42289 Wuppertal

Telephone +49 (0) 202/30999510
Telefax +49 (0) 202/87088403
E-mail address info@syskem.de

Prepared by / E-mail address of person responsible for the SDS
info@syskem.de

1.4. Emergency telephone number

Vergiftungs-Informations-Zentrale Freiburg, Tel. +49 761 19240.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Met. Corr.1	H290 May be corrosive to metals.
Skin Corr. 1B	H314 Causes severe skin burns and eye damage.
Aquatic Acute 1	H400 Very toxic to aquatic life.
Aquatic Chronic 1	H410 Very toxic to aquatic life with long lasting effects.
Skin Sens. 1	H317 May cause an allergic skin reaction.

2.2. Label elements

Hazard pictograms (CLP)
The product is classified and labelled according to the CLP regulation.

Signal word (CLP)
Danger

Hazard-determining components of labelling:
Sodium benzothiazol-2-yl sulphide
sodium hydroxide

Hazard statements (CLP)
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP)
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P391 Collect spillage.

2.3. Other hazards

Results of PBT and vPvB assessment
PBT: Not applicable due to data
vPvB: Not applicable due to data

SECTION 3: Composition/information on ingredients

3.2 Mixture

Description:
Aqueous solution of:

Dangerous components:

CAS: 2492-26-4 EINECS: 219-660-8 Reg.nr.: 01-2119493018-35	Sodium benzothiazol-2-yl sulphide Met. Corr.1, H290; Skin Corr. 1B, H314; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Skin Sens. 1, H317	> 49%
CAS: 1310-73-2 EINECS: 215-185-5 Indexnumber: 011-002-00-6 Reg.nr.: 01-2119457892-27	sodium hydroxide Met. Corr.1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	< 0,6%
CAS: 95-16-9 EINECS: 202-396-2 Reg.nr.: 01-2119457568-24	benzothiazole Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 4, H332; Eye Irrit. 2, H319	< 0,5%

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information:
Personal protection for the First Aider.
Immediately remove any clothing soiled by the product.

After inhalation:
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
If breathing stops, provide artificial respiration.

After skin contact:
Immediately wash with water and soap and rinse thoroughly.
Immediate medical treatment necessary. Failure to treat burns can prevent wounds from healing.
Take off immediately all contaminated clothing

After eye contact:
Rinse opened eye for several minutes under running water.
Protect unharmed eye.
Call a doctor immediately.
Remove contact lenses.

After swallowing:
Rinse out mouth and then drink plenty of water.
Never give anything to the mouth of an unconscious person.
Do not induce vomiting; call for medical help immediately.
A person vomiting while laying on their back should be turned onto their side.

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

Nausea
Coughing
Spasms
Gastric or intestinal disorders
Irritation of mucous membranes
Skin irritation
Irritation and corrosion
Risk of blindness
Vomiting

Information for doctor
No specific therapy is known.

Hazards
Danger of gastric perforation.

4.3. Indication of any immediate medical attention and special treatment needed

Symptomatic treatment (decontamination, vital functions).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Use fire extinguishing methods suitable to surrounding conditions.
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Unsuitable extinguishing media
Water with full jet

5.2. Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Carbon monoxide and carbon dioxide
Nitrogen oxides (NOx)
Sulphur oxides (SOx)
Metalloxyde fumes

5.3. Advice for firefighters

Protective equipment:
Do not inhale explosion gases or combustion gases.
Wear fully protective suit.
Wear self-contained respiratory protective device.

Additional information
Cool endangered receptacles with water spray.
Heating leads to increased pressure and danger of bursting and explosion.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation
Wear protective equipment. Keep unprotected persons away.
Avoid contact with any product
Use respiratory protective device against the effects of fumes/dust/aerosol.

6.2. Environmental precautions

Avoid release to the environment.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Take up mechanically and collect in suitable container (adequately labelled) for disposal.
Ensure adequate ventilation.

6.4 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.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
Wear suitable respiratory protective device when aerosols are formed.

Information about fire - and explosion protection:
No special measures required.
The product is not flammable.

7.2. Conditions for safe storage, including any incompatibilities

Storage:
Requirements to be met by storerooms and receptacles:
Store only in the original receptacle.
Provide alkali-resistant floor. Prevent any seepage into the ground.
Unsuitable material for receptacle: aluminium.
Unsuitable material for receptacle: zinc

Information about storage in one common storage facility:
Store away from feed and foodstuffs.
Do not store together with acids.
Store away from oxidising agents.

Further information about storage conditions:
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Store receptacle in a well ventilated area.
Store under lock and key and with access restricted to technical experts or their assistants only.

Storage class:
8B - Non-flammable corrosive hazardous materials

7.3. Specific end use(s)

No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:
1310-73-2 sodium hydroxide
WEL (Great Britain) Short-term value: 2 mg/m3

DNELs
In = Industrial
Cons = Consumer
LLE = Long term, local effects
LSE = Long term, systemic effects
SLE = Short term, local effects
SSE = Short term, systemic effects

2492-26-4 Sodium benzothiazol-2-yl sulphide

Oral	DNEL/Cons/LSE 1.5 mg/kg bw/day (human)
	DNEL/Cons/SSE 1.5 mg/kg bw/day (human)
Dermal	DNEL/In/LSE 2.8 mg/kg bw/day (human)
	DNEL/In/SSE 2.8 mg/kg bw/day (human)
	DNEL/Cons/SSE 1.5 mg/kg bw/day (human)
	DNEL/Cons/LSE 1.5 mg/kg bw/day (human)
Inhalative	DNEL/In/LLE 1 mg/m3 (human)
	DNEL/In/LSE 10 mg/m3 (human)
	DNEL/In/SLE 1 mg/m3 (human)
	DNEL/In/SSE 10 mg/m3 (human)
	DNEL/Cons/LLE 1 mg/m3 (human)
	DNEL/Cons/LSE 2.5 mg/m3 (human)
	DNEL/Cons/SLE 1 mg/m3 (human)
	DNEL/Cons/SSE 2.5 mg/m3 (human)

1310-73-2 sodium hydroxide

Inhalative	DNEL/In/LLE 1 mg/m3 (human)
	DNEL/Cons/LLE 1 mg/m3 (human)

PNECs
Abbreviations:
aq = aqua
sed = sediment

2492-26-4 Sodium benzothiazol-2-yl sulphide

PNEC/Aq	0.004 mg/l (freshwater)
	0 mg/l (marine water)
PNEC/sed	0.147 mg/kg (freshwater)
	0.015 mg/kg (marine water)
PNEC/soil	0.027 mg/kg (soil)
PNEC STP	0.3 mg/l (sewage treatment plant)

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

8.2. Appropriate engineering 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.
Do not inhale gases / fumes / aerosols.
Avoid contact with the eyes and skin.
Ensure that washing facilities are available at the work place.
Provide eye bath.
If larger quantities are handled provide emergency showers.

Respiratory protection:
If vapours or aerosols occur wear suitable respiratory device.
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.
Short term filter device: Filter A/P2 ABEK

Protection of hands:
chemicals resistant gloves.
Softening of the callus when wearing air-impermeable gloves is possible.
Check protective gloves prior to each use for their proper condition.
If only a short-term loading of the glove material by splashes is expected, tricoted gloves with higher wearability for the better acceptance of the users are recommended.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
After use of gloves apply skin-cleaning agents and skin cosmetics.

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.

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

As protection from splashes gloves made of the following materials are suitable:
Nitrile rubber, NBR
PVC gloves
Chloroprene rubber, CR

Eye protection:
Tightly sealed goggles
If vapours or aerosols occur which may harm the eyes, wearing of a full mask is strongly recommended.

Body protection:
Protective work clothing
Boots
Apron
Selection of protective clothing is subject to the specific kind of work and the corresponding risk potential.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Information	
Appearance:	
Form	Fluid
Colour	Amber coloured
Odour	Characteristic
Odour threshold	Not determined.
pH-value at 20 °C:	11,5 - 13,5
Change in condition	
Melting point/freezing point:	~ -14 °C
Initial boiling point and boiling range:	107 °C
Flash point:	> 108 °C (c.c.)
Flammability (solid, gas):	Not applicable.
Ignition temperature:	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.
Oxidising properties	No
Vapour pressure at 20 °C:	23 hPa
Density at 20 °C:	1,26 g/cm3
Relative density	Not determined.
Vapour density	Not determined.
Evaporation rate	Not determined.
Solubility in / Miscibility with water:	Fully miscible.
Partition coefficient: n-octanol/water at 20 °C	2,42 log POW ((CAS 2492-26-4))
Viscosity:	
Dynamic at 20 °C:	27 mPa*s
Kinematic:	Not determined.
Solvent content:	
Organic solvents:	0,0 %
Water:	45 - 55 %
Solids content:	45 - 55 %

9.2. Other information

No further relevant information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No further relevant information available.

10.2. Chemical stability

No decomposition if used and stored according to specifications.
To avoid thermal decomposition do not overheat.

10.3. Possibility of hazardous reactions

Reacts with light alloys to form hydrogen.
Reacts with acids.

10.4. Conditions to avoid

Sources of ignition

10.5. Incompatible materials

Acids.
Aluminium
Zinc

10.6. Hazardous decomposition products

If stored and handled properly: none known

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity
Based on available data, the classification criteria are not met.

LD/LC50 values relevant for classification:
ATE oral: > 2000 mg/kg
ATE dermal: > 2000 mg/kg

2492-26-4 Sodium benzothiazol-2-yl sulphide

Oral	LD50	2,100 mg/kg (rat (masculus))
Dermal	LD50	>7,940 mg/kg (rabbit)

95-16-9 benzothiazole

Oral	LD50	178 mg/kg (rat (femininus)) (similar to OECD 401) 257 mg/kg (rat (masculus)) (similar to OECD 401)
Dermal	LD50	933 mg/kg (rat (femininus)) (OECD 402) 1,231 mg/kg (rat (masculus)) (OECD 402)
Inhalative	LC50/4 h	~5 mg/l (rat) (OECD 403) atmosphere containing analytical concentrations of 0.377mg/l (vapour); 2.36 mg/l (aerosol) and 6.154 mg/l (aerosol) benzothiazole for 4 hours.

Skin corrosion/irritation
Causes severe skin burns and eye damage.

Serious eye damage/eye irritation
Causes severe skin burns and eye damage.

Respiratory or skin sensitisation
May cause an allergic skin reaction.

Mutagenicity
Based on available data, the classification criteria are not met.

Genotoxicity in vivo
Based on available data, the classification criteria are not met.

Carcinogenicity
Based on available data, the classification criteria are not met.

Reproductive toxicity
Based on available data, the classification criteria are not met.

STOT - single exposure
Based on available data, the classification criteria are not met.

STOT - repeated exposure
Based on available data, the classification criteria are not met.

Aspiration toxicity
Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:
2492-26-4 Sodium benzothiazol-2-yl sulphide

NOEC (dynamic)	0.041 mg/l (Onchorhynchus mykiss) (89d; TSCA Test No. 797.1600) READ ACROSS (2-mercaptobenzothiazole, purity 98.2 %)
LC50/96h (dynamic)	0.73 mg/l (Onchorhynchus mykiss) (similar to OECD 203) READ ACROSS (Thiotax, purity not specified)
EC50/72h (static)	0.5 mg/l (Pseudokircheneriella subcapitata) (OECD 201)
EC50/48h (static)	0.71 mg/l (Daphnia magna) (OECD 202) READ ACROSS
NOEC (21d)	0.08 mg/l (Daphnia magna) (OECD 211) READ ACROSS

95-16-9 benzothiazole

LC50/96h	39 mg/l (Orl) (OECD 203)
EC50/72h (static)	48.7 mg/l (Desmodesmus subspicatus) (OECD 201)
EC50/48h (static)	19 mg/l (Daphnia magna) (OECD 202)
NOEC (21d)	1.5 mg/l (Daphnia magna) (OECD 211)

12.2 Persistence and degradability

2.4 % / 14 d (OECD 301 C)
Not easily biodegradable
(READ ACROSS for CAS 2492-26-4)

12.3 Bioaccumulative potential

The potential of accumulation in organisms is to be estimated small.

12.4 Mobility in soil

No further relevant information available.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable due to data
vPvB: Not applicable due to data

12.6 Other adverse effects

No further relevant information available.

Ecotoxical effects:
Remark:
Very toxic for algae
Harmful effect by pH-value shift.

Additional ecological information:
General notes:
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
Disposal must be made according to official regulations.
Must be recycled or disposed of according to the regulations. Waste has to be classified according to the European Waste Catalogue (EWC) based on the identification of the waste generating source.

European waste catalogue

16 00 00	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 03 00	off-specification batches and unused products
16 03 05*	organic wastes containing dangerous substances

Uncleaned packaging:
Recommendation:
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

Recommended cleansing agents:
Water, if necessary together with cleansing agents.

SECTION 14: Transport information

14.1 UN number

ADR, IMDG, IATA	UN3267

14.2 UN proper shipping name

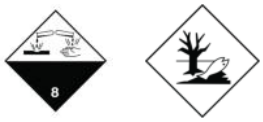
ADR	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Sodium benzothiazol-2-yl sulphide, SODIUM HYDROXIDE), ENVIRONMENTALLY HAZARDOUS
IMDG	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Sodium benzothiazol-2-yl sulphide, SODIUM HYDROXIDE), MARINE POLLUTANT
IATA	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (Sodium benzothiazol-2-yl sulphide, SODIUM HYDROXIDE)

14.3 Transport hazard class(es)

ADR

Class	8 (C7) Corrosive substances.
Label	8

IMDG



Class	8 Corrosive substances.
Label	8

IATA

Class	8 Corrosive substances.
Label	8

14.4 Packing group

ADR, IMDG, IATA	II

14.5 Environmental hazards

	Product contains environmentally hazardous substances: Sodium benzothiazol-2-yl sulphide
Marine pollutant:	YES
	Symbol (fish and tree)
Special marking (ADR):	Symbol (fish and tree)

14.6 Special precautions for user

Warning: Corrosive substances.

Danger code (Kemler):	80
EMS Number:	F-A,S-B
Segregation groups	Alkalis
Stowage Category	B
Stowage Code	SW2 Clear of living quarters.
Segregation Code	SG35 Stow "separated from" acids.

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

Not applicable.

Transport/Additional information:

ADR

Limited quantities (LQ)	1L
Excepted quantities (EQ)	Code: E2
	Maximum net quantity per inner packaging: 30 ml
	Maximum net quantity per outer packaging: 500 ml
Transport category	2
Tunnel restriction code	E

IMDG

Limited quantities (LQ)	1L
Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

UN "Model Regulation": UN 3267 CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (SODIUM BENZOTHIAZOL-2-YL SULPHIDE, SODIUM HYDROXIDE), 8, II, ENVIRONMENTALLY HAZARDOUS

SECTION 15: Regulatory information

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

Directive 2012/18/EU
Named dangerous substances - ANNEX I
None of the ingredients is listed.

Seveso category
E1 Hazardous to the Aquatic Environment

Qualifying quantity (tonnes) for the application of lower-tier requirements	100 t
Qualifying quantity (tonnes) for the application of upper-tier requirements	200 t

REGULATION (EC) No 1907/2006 ANNEX XVII
Conditions of restriction: 3

National regulations:
Information about limitation of use:
Employment restrictions concerning juveniles must be observed.

Waterhazard class:
Water hazard class 2 (Self-assessment): hazardous for water.

15.2. Chemical Safety Assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Further 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
H290 May be corrosive to metals.
H301 Toxic if swallowed.
H311 Toxic in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Training hints
Provide adequate information, instruction and training for operators.

Sources
ECHA - European Chemicals Agency
MSDS of the supplier

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
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
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
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)
DNEL: Derived No-Effect Level (REACH)
PNEC: Predicted No-Effect Concentration (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Met. Corr.1: Corrosive to metals – Category 1
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Corr. 1A: Skin corrosion/irritation – Category 1A
Skin Corr. 1B: Skin corrosion/irritation – Category 1B
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
Skin Sens. 1: Skin sensitisation – Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1