SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

HARDENERS

Version 11.0 SDB_GB | Revision Date 08.09.2021 | Print Date 08.09.2021

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

1.1 Product identifier

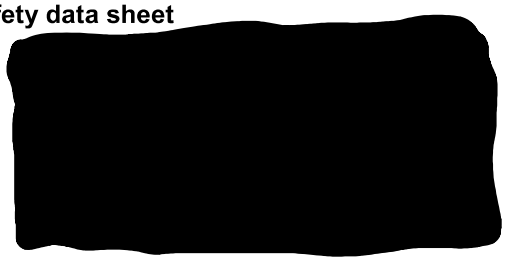
Trade name : Hardeners

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

Use of the Substance/Mixture : Electrical Insulation

1.3 Details of the supplier of the safety data sheet

Company :



Telephone :
Telefax :
E-mail address :

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 1B	H360: May damage fertility or the unborn child.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard, Category 1	H304: May be fatal if swallowed and enters airways.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H360	May damage fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P391	Collect spillage.

Hazardous components which must be listed on the label:

C18-unsaturated dimer fatty acids, polymer with tall oil fatty acids and tetraethylenepentamine

2,4,6-tris(dimethylaminomethyl)phenol

bis(isopropyl)naphthalene

bisphenol A

2-piperazin-1-ylethylamine

Phenol, methylstyrenated

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Hetherocyclic and aliphatic amine based mixture

Hazardous components

Chemical name	CAS-No. EC-No./List Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (%)
C18-unsaturated dimer fatty acids, polymer with tall oil fatty acids and tetraethylenepentamine	Not Assigned / 01-2119972321-42	Skin Irrit.2; H315 Eye Dam.1; H318 Skin Sens.1A; H317 Aquatic Chronic2; H411	>= 30 - < 50
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2 202-013-9 01-2119560597-27	Acute Tox.4; H302 Skin Irrit.2; H315 Eye Irrit.2; H319	>= 12,5 - < 20
bis(isopropyl)naphthalene	38640-62-9 254-052-6 01-2119565150-48	Asp. Tox.1; H304 Aquatic Chronic1; H410	>= 12,5 - < 20
salicylic acid	69-72-7 200-712-3 01-2119486984-17	Acute Tox.4; H302 Eye Dam.1; H318 Repr.2; H361d	>= 5 - < 7
bisphenol A	80-05-7 201-245-8 01-2119457856-23	Eye Dam.1; H318 Skin Sens.1; H317 Repr.1B; H360F STOT SE3; H335 Aquatic Chronic2; H411	>= 3 - < 5
2-piperazin-1-ylethylamine	140-31-8 205-411-0 01-2119471486-30	Acute Tox.4; H302 Acute Tox.3; H311 Skin Corr.1B; H314 Eye Dam.1; H318 Skin Sens.1; H317	>= 3 - < 5

		Repr.2; H361 STOT RE1; H372 Aquatic Chronic3; H412	
Phenol, methylstyrenated	68512-30-1 270-966-8 01-2119555274-38	Skin Irrit.2; H315 Skin Sens.1; H317 Aquatic Chronic3; H412	>= 3 - < 5

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Show this safety data sheet to the doctor in attendance.
Keep warm and in a quiet place.
Take off all contaminated clothing immediately.

If inhaled : Move to fresh air.
Keep patient warm and at rest.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
If breathing is irregular or stopped, administer artificial respiration.

In case of skin contact : Wash off immediately with soap and plenty of water.
Do NOT use solvents or thinners.
If on clothes, remove clothes.
Burns must be treated by a physician.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
If eye irritation persists, consult a specialist.
If easy to do, remove contact lens, if worn.

If swallowed : Do NOT induce vomiting.
If a person vomits when lying on his back, place him in the recovery position.
Call a physician immediately.
Give small amounts of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms : Burn
superficial burning sensation
Redness
Severe irritation

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : The first aid procedure should be established in consultation

with the doctor responsible for industrial medicine.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Carbon dioxide (CO2) Foam Dry powder Water mist
Unsuitable extinguishing media	:	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	The pressure in sealed containers can increase under the influence of heat. Cool closed containers exposed to fire with water spray. Hazardous decomposition products formed under fire conditions.

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
Further information	:	In the event of fire and/or explosion do not breathe fumes. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Immediately evacuate personnel to safe areas. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Refer to protective measures listed in sections 7 and 8. Evacuate personnel to safe areas. Use personal protective equipment. Ensure adequate ventilation. Inform the responsible authorities in case of gas leakage, or of entry into waterways, soil or drains.

6.2 Environmental precautions

Environmental precautions	:	Do not allow uncontrolled discharge of product into the environment. Try to prevent the material from entering drains or water courses. Local authorities should be advised if significant spillages

cannot be contained.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Pick up and transfer to properly labelled containers.

6.4 Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Provide sufficient air exchange and/or exhaust in work rooms. Do not breathe vapours or spray mist. Avoid inhalation, ingestion and contact with skin and eyes. Wear personal protective equipment. Persons with a history of skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Keep away from open flames, hot surfaces and sources of ignition.
Hygiene measures	:	Provide adequate ventilation. Wash hands and face before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labelled containers. To maintain product quality, do not store in heat or direct sunlight.
Further information on storage conditions	:	Protect from moisture.
Advice on common storage	:	Keep away from isocyanates. Do not store near acids. Keep away from oxidizing agents.
Other data	:	Stable at normal ambient temperature and pressure.

7.3 Specific end use(s)

Specific use(s)	:	Consult the technical guidelines for the use of this substance/mixture.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
bisphenol A	80-05-7	TWA (inhalable fraction)	2 mg/m3	2017/164/EU
Further information	Indicative			
		TWA	2 mg/m3	GB EH40

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

bis(isopropyl)naphthalene :
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 2,1 mg/kg
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 2,1 mg/kg
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 4,3 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 7,4 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 30 mg/m3

bisphenol A :
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Acute local effects
Value: 5 mg/m3
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 5 mg/m3
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 5 mg/m3
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 0,05 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 0,25 mg/m3

End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 0,7 mg/kg
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute local effects
Value: 10 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Acute systemic effects
Value: 10 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term local effects
Value: 10 mg/m3
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 10 mg/m3
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 1,4 mg/kg

2-piperazin-1-ylethylamine : End Use: Workers
Exposure routes: Skin contact
Potential health effects: Short-term exposure, Systemic effects
Value: 20 mg/kg
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Short-term exposure, Local effects
Value: 0,04 mg/cm2
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 3,3 mg/kg
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 3,6 mg/m3
End Use: Workers
Exposure routes: Skin contact
Potential health effects: Long-term local effects
Value: 0,006 mg/cm2
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Short-term exposure, Systemic effects
Value: 10 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Systemic effects
Value: 5,3 mg/m3
End Use: Consumers
Exposure routes: Ingestion

Potential health effects: Short-term exposure, Systemic effects
Value: 1,5 mg/kg
End Use: Workers
Exposure routes: Inhalation
Potential health effects: Short-term exposure, Systemic effects
Value: 21,4 mg/m3
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Short-term exposure, Local effects
Value: 0,02 mg/cm2
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term systemic effects
Value: 1,7 mg/kg
End Use: Consumers
Exposure routes: Inhalation
Potential health effects: Long-term systemic effects
Value: 0,9 mg/m3
End Use: Consumers
Exposure routes: Ingestion
Potential health effects: Long-term systemic effects
Value: 0,3 mg/kg
End Use: Consumers
Exposure routes: Skin contact
Potential health effects: Long-term local effects
Value: 0,003 mg/cm2

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

bis(isopropyl)naphthalene : Sewage treatment plant
Value: 0,15 mg/l
Fresh water
Value: 0,00026 mg/l
Marine water
Value: 0,000026 mg/l
Fresh water sediment
Value: 0,94 mg/kg
Marine sediment
Value: 0,094 mg/kg
Soil
Value: 0,19 mg/kg

bisphenol A : Fresh water
Value: 0,018 mg/l
Intermittent releases
Value: 0,01 mg/l
Marine water
Value: 0,016 mg/l
Fresh water sediment
Value: 2,2 mg/kg
Marine sediment
Value: 0,44 mg/kg

2-piperazin-1-ylethylamine : Fresh water
Value: 0,058 mg/l
Marine water
Value: 0,0058 mg/l

Intermittent releases
Value: 0,58 mg/l
Fresh water sediment
Value: 215 mg/kg
Marine sediment
Value: 21,5 mg/kg
Soil
Value: 42,9 mg/kg
Sewage treatment plant
Value: 250 mg/l

8.2 Exposure controls

Engineering measures

Effective exhaust ventilation system
effective ventilation in all processing areas

Personal protective equipment

Eye protection	:	Safety glasses with side-shields conforming to EN166 Do not wear contact lenses. Ensure that eyewash stations and safety showers are close to the workstation location.
Hand protection		
Material	:	Protective gloves complying with EN 374.
Remarks	:	Nitrile rubber
Skin and body protection	:	Protective suit Recommended preventive skin protection
Respiratory protection	:	Use respirator when performing operations involving potential exposure to vapour of the product. The filter class for the respirator must be suitable for the maximum expected contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If this concentration is exceeded, self-contained breathing apparatus must be used. Recommended Filter type: ABEK-filter Equipment should conform to EN 14387
Protective measures	:	Avoid contact with skin. Wear suitable protective equipment.

Environmental exposure controls

General advice	:	Do not allow uncontrolled discharge of product into the environment. Try to prevent the material from entering drains or water courses. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	amber
Odour	:	ammoniacal
Odour Threshold	:	not determined
pH	:	11, 1 %
Melting point/freezing point	:	Not applicable
Boiling point/boiling range	:	> 150 °C
Flash point	:	100 °C
Evaporation rate	:	not determined
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	Not applicable
Relative vapour density	:	not determined
Density	:	0,99 g/cm3 (25 °C)
Bulk density	:	not determined
Solubility(ies)		
Solubility in other solvents	:	not determined
Partition coefficient: n-octanol/water	:	No data available
Ignition temperature	:	Not applicable
Auto-ignition temperature	:	Not applicable
Thermal decomposition	:	Method: No data available
Viscosity		
Viscosity, dynamic	:	1.000 - 1.500 mPa.s (25 °C)

Viscosity, kinematic	:	not determined
Explosive properties	:	Not applicable
Oxidizing properties	:	Not applicable

9.2 Other information

Surface tension	:	not determined
Sublimation point	:	Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Reacts with the following substances: Acids Strong oxidizing agents

10.4 Conditions to avoid

Conditions to avoid	:	No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid	:	Strong acids Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products	:	This product may release the following: Nitrogen oxides (NOx) Carbon monoxide Carbon dioxide (CO2)

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate : 1.938 mg/kg Method: Calculation method

Acute inhalation toxicity : Remarks: No data available

Acute dermal toxicity : Acute toxicity estimate : > 2.000 mg/kg
Method: Calculation method

Acute toxicity (other routes of administration) : Remarks: No data available

Components:

bis(isopropyl)naphthalene:

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,64 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rat, male and female): > 4.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

2-piperazin-1-ylethylamine:

Acute oral toxicity : LD50 (Rat, male): 2.097 mg/kg
GLP: no

Acute dermal toxicity : LD50 (Rabbit, male): 866 mg/kg
GLP: no

Phenol, methylstyrenated:

Acute oral toxicity : LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423
GLP: yes

Acute inhalation toxicity : LC50 (Rat, male and female): 5 mg/l
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
GLP: yes

Skin corrosion/irritation

Product:

Remarks: No data available

Components:

bis(isopropyl)naphthalene:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: yes

bisphenol A:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
GLP: yes

2-piperazin-1-ylethylamine:
Species: Rabbit
Result: Corrosive

Phenol, methylstyrenated:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation
GLP: yes

Serious eye damage/eye irritation

Product:
Remarks: No data available

Components:

bis(isopropyl)naphthalene:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation
GLP: yes

bisphenol A:
Species: Rabbit
Method: OECD Test Guideline 405
Result: Risk of serious damage to eyes.
GLP: yes

2-piperazin-1-ylethylamine:
Species: Rabbit
Result: Risk of serious damage to eyes.

Phenol, methylstyrenated:
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation
GLP: yes

Respiratory or skin sensitisation

Product:
Remarks: No data available

Components:

bis(isopropyl)naphthalene:
Test Type: Maximisation Test
Exposure routes: Dermal
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.
GLP: yes

2-piperazin-1-ylethylamine:
Test Type: Maximisation Test
Exposure routes: Dermal
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

Phenol, methylstyrenated:
Test Type: Mouse Local Lymph Node assay (LLNA)
Exposure routes: Dermal
Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.
GLP: yes

Germ cell mutagenicity

Carcinogenicity

Product:
Remarks: No data available

Reproductive toxicity

Product:

Effects on fertility	:	Remarks: No data available
		Remarks: No data available
Effects on foetal development	:	Remarks: No data available Remarks: No data available

STOT - single exposure

Product:
Remarks: No data available

STOT - repeated exposure

Repeated dose toxicity

Product:
Remarks: No data available

Aspiration toxicity

Further information

Product:

Remarks: No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	Remarks: No data available
Toxicity to daphnia and other aquatic invertebrates	:	Remarks: No data available

Components:

bis(isopropyl)naphthalene:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): > 0,5 mg/l Exposure time: 96 h Test Type: semi-static test Method: Directive 67/548/EEC, Annex V, C.1. GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 1,7 mg/l Exposure time: 48 h Test Type: semi-static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,013 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test
M-Factor (Long-term (chronic) aquatic hazard)	:	1

bisphenol A:

Toxicity to fish	:	LC50 (Menidia menidia (Atlantic silverside)): 9,4 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203 GLP: yes

2-piperazin-1-ylethylamine:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 2.190 mg/l Exposure time: 96 h Test Type: static test

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 58 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	:	ErC50 (Selenastrum capricornutum (green algae)): > 1.000 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 GLP: yes

Phenol, methylstyrenated:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 25,8 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 14 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	:	ErC50 (Scenedesmus subspicatus): 15 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes

12.2 Persistence and degradability

Product:

Biodegradability	:	Remarks: No data available
Physico-chemical removability	:	Remarks: No data available

Components:

bis(isopropyl)naphthalene:

Biodegradability	:	Test Type: aerobic Result: Not readily biodegradable. Method: OECD Test Guideline 310 GLP: yes

bisphenol A:

Biodegradability	:	Test Type: aerobic Result: Readily biodegradable. Method: OECD Test Guideline 301F GLP: yes

2-piperazin-1-ylethylamine:

Biodegradability	:	Result: Not readily biodegradable. Method: OECD Test Guideline 301F GLP: yes

12.3 Bioaccumulative potential

Product:

Bioaccumulation	:	Remarks: No data available

Components:

bis(isopropyl)naphthalene:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): > 500 Method: OECD Test Guideline 305 GLP: yes

bisphenol A:

Partition coefficient: n-octanol/water	:	log Pow: 3,4 (21,5 °C) pH: 6,4 Method: OECD Test Guideline 107 GLP: yes

2-piperazin-1-ylethylamine:

Partition coefficient: n-octanol/water	:	log Pow: -1,48 (20 °C)

12.4 Mobility in soil

Components:

2-piperazin-1-ylethylamine:

Distribution among environmental compartments	:	Medium:Soil Koc: 37000

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Other adverse effects

Product:

Further information	:	This substance/mixture contains components considered to have endocrine disrupting properties for environment , according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.
Additional ecological	:	Remarks: An environmental hazard cannot be excluded in the

information event of unprofessional handling or disposal.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : In accordance with local and national regulations.
Container hazardous when empty.
Do not dispose of with domestic refuse.
Do not mix waste streams during collection.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1 UN number

ADR/RID/ADN : UN 2735

IMDG : UN 2735

IATA : UN 2735

14.2 UN proper shipping name

ADR/RID/ADN : AMINES, LIQUID, CORROSIVE, N.O.S.
()

IMDG : AMINES, LIQUID, CORROSIVE, N.O.S.
()

IATA : Amines, liquid, corrosive, n.o.s.
()

14.3 Transport hazard class(es)

ADR/RID/ADN : 8

IMDG : 8

IATA : 8

14.4 Packing group

ADR/RID/ADN
Packing group : III
Classification Code : C7
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : E

IMDG
Packing group : III
Labels : 8
EmS Code : F-A, S-B

Remarks	:	IMDG Code segregation group 18 - Alkalis

IATA

Packing instruction (cargo aircraft)	:	856
Packing instruction (passenger aircraft)	:	852
Packing group	:	III
Labels	:	8

14.5 Environmental hazards

ADR/RID/ADN

Environmentally hazardous	:	yes

IMDG

Marine pollutant	:	yes

IATA

Environmentally hazardous	:	yes

14.6 Special precautions for user

Remarks	:	The transport of dangerous goods, including their loading and unloading, must be done by people who received the necessary training required by Modal Regulations.

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: bisphenol A (Number on list 66, 30)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	bisphenol A
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable

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

		Quantity 1	Quantity 2
E2	ENVIRONMENTAL HAZARDS	200 t	500 t

Other regulations : For the product composition, we do not add any of the substances listed in the European Directive 2011/65/EU (RoHS 2, RoHS 3, and China RoHS).
The product is thus in line with those directives.
We do not add Conflict minerals to the product.

15.2 Chemical safety assessment

Not applicable

SECTION 16: Other information

Items where relevant changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Full text of H-Statements

H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H311	:	Toxic in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H335	:	May cause respiratory irritation.
H360F	:	May damage fertility.
H361	:	Suspected of damaging fertility or the unborn child.
H361d	:	Suspected of damaging the unborn child.
H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods

by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Training advice : Provide adequate information, instruction and training for operators.

Classification of the mixture:		**Classification procedure:**
Acute Tox. 4	H302	Calculation method
Skin Corr. 1B	H314	Calculation method
Skin Irrit. 2	H315	Calculation method
Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 1B	H360	Calculation method
STOT RE 2	H373	Calculation method
Asp. Tox. 1	H304	Calculation method
Aquatic Chronic 2	H411	Calculation method

The information contained herein is based on the present state of our knowledge and does therefore not guarantee certain properties.

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