FluviPox® blue Hardener 60

according to Regulation (EC) No. 1907/2006

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	**FluviPox® blue Hardener 60**
Article No.	41.269.b

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

Use of the Substance/Mixture	Hardener for Epoxy resin FluviPox® blue

1.3 Details of the supplier of the safety data sheet

Company	Fluvius GmbH Berta-Benz-Straße 22 D-40670 Meerbusch
Telephone	+49 (0) 2159-675 00-0
Telefax	+49 (0) 2159-675 00-19
E-mail address	info@fluvius.de

1.4 Emergency telephone number

+49 (0) 2159 - 675 00-0 (8-17 h)

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.

Acute toxicity, Category 4
H312 Harmful in contact with skin.

Skin corrosion, Category 1A
H314 Causes severe skin burns and eye damage.

Serious eye damage , Category 1
H318 Causes serious eye damage.

Skin sensitisation, Category 1
H317 May cause an allergic skin reaction.

Chronic aquatic toxicity, 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 + H312	Harmful if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements Prevention

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

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Response

P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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. .

Hazardous components which must be listed on the label

Fatty acids, C18-unsatd., dimers, polymers with tall-oil fatty acids, tetraethylenepentamine and triethylenetetramine

Trimethylolpropane poly(oxypropylene)triamine

Phenol, 4,4'-(1-methylethylidene)bis-, polymer with N,N'-bis(2-aminoethyl)-1,2- ethanediamine and (chloromethyl)oxirane

cyclohex-1,2-ylenediamine

2-piperazin-1-ylethylamine

3,6-diazaoctanethylenediamin

3,6,9-triazaundecamethylenediamine

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.

3. Composition/information on ingredients

3.1 Mixtures

Chemical nature **Aliphatic Amine**

Hazardous components

Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008	Concentration [%]
Fatty acids, C18- unsatd., dimers, polymers with tall-oil fatty acids, tetraethylenepentamine and triethylenetetramine	68071-65-8	Acute Tox. 4; H312 Aquatic Chronic 3; H412 Eye Irrit. 2; H319	>= 25 - < 30
Trimethylolpropane poly(oxypropylene)triamine	39423-51-3	Acute Tox. 4; H302 Acute Tox. 4; H312 Eye Dam. 1; H318 Aquatic Chronic 2; H411	>= 20 - < 25
Phenol, 4,4'-(1- methylethylidene) bis-, polymer with N,N'-bis (2- aminoethyl)-1,2- ethanediamine and (chloromethyl)oxirane	38294-69-8	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 10 - < 12,5

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Chemical Name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008	Concentration [%]
cyclohex-1,2-ylenediamine	694-83-7 211-776-7 01-2119976312-37	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1A; H314 Eye Dam. 1; H318 STOT SE 3; H335	>= 10 - < 12,5
Poly[oxy(methyl-1,2- ethanediyl)], .alpha.-(2- aminomethylethyl)- .omega.-(2- aminomethylethoxy)	9046-10-0	Skin Corr. 1C; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H411	>= 10 - < 12,5
2-piperazin-1-ylethylamine	140-31-8 205-411-0 01-2119471486-30	Acute Tox. 4; H302 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 3; H412 Acute Tox. 3; H311 1; H318	>= 3 - < 5
benzyldimethylamine	103-83-3 203-149-1	Flam. Liq. 3; H226 Acute Tox. 4; H331 Acute Tox. 4; H312 Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Chronic 3; H412	>= 3 - < 5
benzyl alcohol	100-51-6 202-859-9 01-2119492630-38	Acute Tox. 4; H332 Acute Tox. 4; H302 Eye Irrit.2; H319	>= 1 - < 3
3,6-diazaoctanethylenediamin	112-24-3 203-950-6 01-2119487919-13	Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 3; H412 Acute Tox. 4; H302 Eye Dam. 1; H318	>= 0,5 - < 1
3,6,9-triazaundecamethylene-diamine	112-57-2 203-986-2	Acute Tox. 4; H312 Acute Tox. 4; H302 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 0,5 - < 1

For explanation of abbreviations see section 16.

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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	corrosive effects, Burn, 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.

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.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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.

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 incompatibilitiesn

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.

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8. Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

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

Trimethylolpropane poly(oxypropylene) triamine	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 1,6 mg/kg
	End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term systemic effects V alue: 14 mg/m³
	End Use: Consumers Exposure routes: Inhalation Potential health effects: Long-term systemic effects Value: 3,48 mg/m³
	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 0,8 mg/kg
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2- aminomethylethyl)-. omega.-(2- aminomethyl-ethoxy)-	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 2,5 mg/kg
	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 0,623 mg/cm²
	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 1,25 mg/kg
	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 0,311 mg/cm²
	End Use: Consumers Exposure routes: Ingestion Potential health effects: Long-term systemic effects Value: 0,04 mg/kg
cyclohex-1,2-ylenediamine	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term exposure Value: 1,5 mg/kg
	End Use: Workers Exposure routes: Inhalation Potential health effects: Short-term exposure Value: 0,5 mg/m³
	End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term exposure Value: 0,25 mg/m³
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

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	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 alue: 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
benzyl alcohol	End Use: Workers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 450 mg/m³ End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term exposure, Systemic effects Value: 90 mg/m³ End Use: Workers Exposure routes: Skin contact Potential health effects: Short-term exposure, Systemic effects Value: 47 mg/kg End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term exposure, Systemic effects Value: 9,5 mg/kg End Use: Consumers Exposure routes: Ingestion Potential health effects: Short-term exposure, Systemic effects Value: 25 mg/kg End Use: Consumers Exposure routes: Ingestion Potential health effects: Long-term exposure, Systemic effects Value: 5 mg/kg

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	End Use: Consumers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 40,55 mg/m³	End Use: Consumers Exposure routes: Skin contact Potential health effects: Short-term exposure, Systemic effects Value: 8 mg/kg
	End Use: Consumers Exposure routes: Inhalation Potential health effects: Long-term exposure, Systemic effects Value: 8,11 mg/m³	End Use: Consumers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 1600 mg/m³
	End Use: Consumers Exposure routes: Skin contact Potential health effects: Short-term exposure, Systemic effects Value: 28,5 mg/kg	End Use: Consumers Exposure routes: Ingestion Potential health effects: Short-term exposure, Systemic effects Value: 20 mg/kg
	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term exposure, Systemic effects Value: 5,7 mg/kg	End Use: Consumers Exposure routes: Skin contact Potential health effects: Local effects, Short-term exposure Value: 1 mg/cm²
3,6-diazaoctanethylene-diamin	End Use: Workers Exposure routes: Inhalation Potential health effects: Short-term exposure, Systemic effects Value: 5380 mg/m³	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 0,25 mg/kg
	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term systemic effects Value: 0,57 mg/kg	End Use: Consumers Exposure routes: Inhalation Potential health effects: Long-term systemic effects Value: 0,29 mg/m³
	End Use: Workers Exposure routes: Inhalation Potential health effects: Long-term systemic effects Value: 1 mg/m³	End Use: Consumers Exposure routes: Ingestion Potential health effects: Long-term systemic effects Value: 0,41 mg/kg
	End Use: Workers Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 0,028 mg/cm²	End Use: Consumers Exposure routes: Skin contact Potential health effects: Long-term local effects Value: 0,43 mg/cm²

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

Trimethylolpropane poly(oxypropylene) triamine	Fresh water Value: 0,0044 mg/l Marine water Value: 0,00044 mg/l Intermittent releases Value: 0,044 mg/l Fresh water sediment Value: 0,02 mg/kg Marine sediment Value: 0,002 mg/kg Soil Value: 0,002 mg/kg Sewage treatment plant Value: 10 mg/l
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2- aminomethylethyl)-. omega.-(2- aminomethyl-ethoxy)-	Fresh water Value: 0,015 mg/l Marine water Value: 0,0143 mg/l Fresh water sediment Value: 0,132 mg/kg Marine sediment Value: 0,125 mg/kg Soil Value: 0,0176 mg/kg Intermittent releases Value: 0,15 mg/l Sewage treatment plant Value: 7,5 mg/l
cyclohex-1,2-ylenediamine	Fresh water Value: 0,42 mg/l Marine water Value: 0,042 mg/l Intermittent releases Value: 0,42 mg/l
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
benzyl alcohol	Fresh water Value: 1 mg/l Marine water Value: 0,1 mg/l Fresh water sediment Value: 5,27 mg/kg Marine sediment Value: 0,527 mg/kg Soil Value: 0,456 mg/kg Sewage treatment plant Value: 39 mg/l Intermittent releases Value: 2,3 mg/l
3,6-diazaoctanethylene-diamin	Fresh water Value: 0,19 mg/l Marine water Value: 0,038 mg/l Fresh water sediment Value: 95,9 mg/kg Marine sediment Value: 19,2 mg/kg Soil Value: 19,1 mg/kg Sewage treatment plant Value: 4,25 mg/l

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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	Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374.
Skin and body protection	Protective suit
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. Respirator with a vapour filter (EN 141).
Protective measures	Avoid contact with skin. Wear suitable protective equipment.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	liquid
Colour	blue
Odour	ammoniacal
Odour Threshold	not determined
pH	not determined
Melting point/ freezing point	Not applicable
Boiling point/ boiling range	> 150 °C
Flash point	200 °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	0,98 g/cm³ (25 °C)
Bulk density	not determined

Solubility(ies)

Solubility in other solvents	not determined
Partition coefficient n- octanol/water	No data available
Auto-ignition temperature	Not applicable
Thermal decomposition	Method: No data available

Viscosity

Viscosity, dynamic	100 - 200 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

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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)

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product

Acute oral toxicity	Acute toxicity estimate : 897,37 mg/kg Method: Calculation method
Acute inhalation toxicity	Acute toxicity estimate : > 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	Acute toxicity estimate : 1.280 mg/kg Method: Calculation method

Components

Trimethylolpropane poly(oxypropylene)triamine

Acute oral toxicity	LD50 (Rat, female): 550 mg/kg Method: OECD Test Guideline 425 GLP: yes
Acute dermal toxicity	LD50 (Rat, male and female): > 1.000 mg/kg Method: OECD Test Guideline 402 GLP: yes

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Acute oral toxicity	LD50 (Rat, male and female): 2.885,3 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute dermal toxicity	LD50 (Rabbit, male and female): 2.979,7 mg/kg Method: OECD Test Guideline 402 GLP: yes

2-piperazin-1-ylethylamine

Acute oral toxicity	LD50 (Rat, male): 2.097 mg/kg
Acute dermal toxicity	LD50 (Rabbit, male): 866 mg/kg

benzyldimethylamine

Acute oral toxicity	Acute toxicity estimate : 500 mg/kg Method: Converted acute toxicity point estimate
Acute dermal toxicity	Acute toxicity estimate : 1.100 mg/kg Method: Converted acute toxicity point estimate

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benzyl alcohol

Acute inhalation toxicity	LC50 (Rat, male and female): > 4.178 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: yes

3,6-diazaoctanethylenediamin

Acute oral toxicity	LD50 (Rat, male): 1.716 mg/kg Method: OECD Test Guideline 401 GLP: yes
Acute dermal toxicity	LD50 (Rabbit): 1.465 mg/kg Method: OECD Test Guideline 402 GLP: yes

3,6,9-triazaundecamethylenediamine

Acute oral toxicity	Acute toxicity estimate : 500 mg/kg Method: Converted acute toxicity point estimate
Acute dermal toxicity	Acute toxicity estimate : 1.100 mg/kg Method: Converted acute toxicity point estimate

Skin corrosion/irritation

Product

Remarks	Acute dermal irritation/corrosion

Components

Trimethylolpropane poly(oxypropylene)triamine

Species	Rabbit
Method	OECD Test Guideline 404
Result	Mild skin irritation
GLP	yes

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Species	Rabbit
Method	OECD Test Guideline 404
Result	Corrosive

2-piperazin-1-ylethylamine

Species	Rabbit
Result	Corrosive

benzyl alcohol

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

3,6-diazaoctanethylenediamin

Method	OECD Test Guideline 435
Result	Corrosive

Serious eye damage/eye irritation

Product

Remarks	Severe eye irritation

Components

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Method	OECD Test Guideline 405
Result	Risk of serious damage to eyes.

2-piperazin-1-ylethylamine

Species	Rabbit
Result	Risk of serious damage to eyes.

benzyl alcohol

Species	Rabbit
Method	OECD Test Guideline 405
Result	Eye irritation
GLP	yes

3,6-diazaoctanethylenediamin

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

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Respiratory or skin sensitisation

Product

Remarks	No data available

Components

Trimethylolpropane poly(oxypropylene)triamine

Test Type	Buehler 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 (GPMT)
Exposure routes	Dermal
Species	Guinea pig
Method	OECD Test Guideline 406
Result	May cause sensitisation by skin contact.
GLP	yes

3,6-diazaoctanethylenediamin

Test Type	Buehler Test
Exposure routes	Dermal
Species	Guinea pig
Method	OECD Test Guideline 406
Result	May cause sensitisation by skin contact.
GLP	yes

Germ cell mutagenicity

Carcinogenicity

Reproductive toxicity

STOT - single exposure

STOT - repeated exposure

Repeated dose toxicity

Product

Remarks	No data available

Aspiration toxicity

Further information

Product

Remarks	No data available

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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

Trimethylolpropane poly(oxypropylene)triamine

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l Exposure time: 96 h Test Type: static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 13 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): 4,4 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes
	NOEC (Pseudokirchneriella subcapitata (green algae)): 1 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)): > 15 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)): 80 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	NOEC (Pseudokirchneriella subcapitata (green algae)): 0,32 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 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

benzyl alcohol

Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 230 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae	ErC50 (Pseudokirchneriella subcapitata (green algae)): 770 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 GLP: yes

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3,6-diazaoctanethylenediamin

Toxicity to daphnia and other aquatic invertebrates	EC50 (Daphnia magna (Water flea)): 31,1 mg/l Exposure time: 48 h Test Type: static test GLP: yes
Toxicity to algae	ErC50 (Selenastrum capricornutum (green algae)): Exposure time: 72 h Test Type: semi-static test Method: OECD Test Guideline 201 GLP: yes

12.2 Persistence and degradability

Product

Biodegradability	Remarks: No data available

Components

Trimethylolpropane poly(oxypropylene)triamine

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

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Biodegradability	Test Type: aerobic Result: Not readily biodegradable. Method: OECD Test Guideline 301B GLP: yes

cyclohex-1,2-ylenediamine

Biodegradabilityt	Test Type: aerobic Result: Readily biodegradable. Method: OECD Test Guideline 301D GLP: yes

2-piperazin-1-ylethylamine

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

3,6-diazaoctanethylenediamin

Biodegradability	Test Type: aerobic Result: Not readily biodegradable. Method: OECD Test Guideline 301D GLP: yes

12.3 Bioaccumulative potential

Product

Bioaccumulation	Remarks: No data available

Components

Trimethylolpropane poly(oxypropylene)triamine

Partition coefficient n- octanol/water	log Pow: -1,13 (20 °C) pH: 12,7 GLP: yes

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethyl-ethyl)-.omega.-(2- aminomethylethoxy)-

Partition coefficient n- octanol/water	log Pow: 1,34 (25 °C) Method: OECD Test Guideline 117 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

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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

Additional ecological information	Remarks: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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.

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. (Trimethylolpropane poly(oxypropylene) triamine)
IMDG	AMINES, LIQUID, CORROSIVE, N.O.S. (Trimethylolpropane poly(oxypropylene) triamine)
IATA	Amines, liquid, corrosive, n.o.s. (Trimethylolpropane poly(oxypropylene) triamine)

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

IMDG

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

IATA

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

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14.5 Environmental hazards

ADR/RID/ADN

Environmentally hazardous	no

IMDG

Marine pollutant	no

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

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)	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - List of substances subject to authorisation (Annex XIV)	Not applicable

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major- accident hazards involving dangerous substances

Not applicable

15.2 Chemical Safety Assessment

Not applicable

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16 Other information

Full text of H-Statements

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H312	Harmful 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.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
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	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Skin Corr.	Skin corrosion
Skin Sens.	Skin sensitisation
STOT SE	Specific target organ toxicity - single exposure

Further information

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

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

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