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

1.1 Product identifier

Trade name : ARALDITE® 2019 B

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

Use of the Substance/Mixture : Hardener

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11
Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11
Erfurt: 0049 361 73 07 30
Freiburg: 0049 761 16 24 0
Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80
Homburg: 0049 6841 19 24 0
Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66
München: 0049 89 19 24 0
Nürnberg: 0049 911 39 8 2 45 1
EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Sub-category 1B	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.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements :

Prevention:

P260 Do not breathe mist or vapours.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + 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:

3,3'-oxybis(ethyleneoxy)bis(propylamine)
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated
2-piperazin-1-ylethylamine
3-aminopropyltriethoxysilane

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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Amines

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
3,3'-oxybis(ethyleneoxy)bis(propylamine)	4246-51-9 224-207-2 01-2119963377-26	Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317	>= 30 - < 50
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317	>= 10 - < 20
Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen	Not Assigned - 01-2119977080-39	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318	>= 10 - < 20
2-piperazin-1-ylethylamine	140-31-8 205-411-0 612-105-00-4 01-2119471486-30	Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 2; H361 STOT RE 1; H372 (Respiratory Tract) Aquatic Chronic 3; H412	>= 1 - < 2,5
3-aminopropyltriethoxysilane	919-30-2 213-048-4 612-108-00-0 01-2119480479-24	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1B; H317 Acute toxicity estimate Acute oral toxicity: 1 491 mg/kg	>= 1 - < 3

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Consult a physician.

Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

If inhaled : Consult a physician after significant exposure.
If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Risks : May cause an allergic skin reaction.
Causes serious eye damage.
May cause damage to organs through prolonged or repeated exposure.
Causes severe burns.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : Exercise caution when using a high volume water jet as it may scatter and spread fire

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : Carbon dioxide (CO2)
Carbon monoxide
Nitrogen oxides (NOx)

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Ensure adequate ventilation.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

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).

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures	:	Ensure that eyewash stations and safety showers are close to the workstation location.
Local/Total ventilation	:	Ensure adequate ventilation.
Advice on safe handling	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Observe label precautions. Keep in properly labelled containers.
Advice on common storage	:	For incompatible materials please refer to Section 10 of this SDS.
Storage class (TRGS 510)	:	8A
Further information on storage stability	:	Stable under normal conditions.
Recommended storage temperature	:	2 - 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 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:

Substance name	End Use	Exposure routes	Potential health effects	Value
2-piperazin-1-ylethylamine	Workers	Inhalation	Long-term systemic effects	10,6 mg/m3
	Workers	Inhalation	Acute systemic effects	10,6 mg/m3
	Workers	Inhalation	Long-term local effects	0,015 mg/m3
	Workers	Inhalation	Acute local effects	80 mg/m3
	Workers	Dermal	Long-term systemic effects	3,33 mg/kg bw/day
3,3'-oxybis(ethyleneoxy)bis(propylamine)	Workers	Inhalation	Long-term systemic effects	59 mg/m3
	Workers	Inhalation	Acute systemic effects	176 mg/m3
	Workers	Inhalation	Long-term local effects	1 mg/m3
	Workers	Dermal	Long-term systemic effects	8,3 mg/kg
	Consumers	Inhalation	Long-term systemic effects	17 mg/m3
	Consumers	Inhalation	Acute systemic effects	52 mg/m3
	Consumers	Inhalation	Long-term local effects	0,5 mg/m3
	Consumers	Inhalation	Acute local effects	6,5 mg/m3
	Consumers	Dermal	Long-term systemic effects	5 mg/kg
	Consumers	Oral	Long-term systemic effects	5 mg/kg
3-aminopropyltriethoxysilane	Workers	Inhalation	Long-term systemic effects	59 mg/m3
	Workers	Inhalation	Systemic effects, Short-term exposure	59 mg/m3
	Workers	Dermal	Long-term systemic effects	8,3 mg/kg bw/day
	Workers	Dermal	Systemic effects, Short-term exposure	8,3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	17,4 mg/m3
	Consumers	Inhalation	Systemic effects,	17,4 mg/m3

			Short-term exposure	
	Consumers	Dermal	Long-term systemic effects	5 mg/kg bw/day
	Consumers	Dermal	Systemic effects, Short-term exposure	5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2-piperazin-1-ylethylamine	Fresh water	0,058 mg/l
	Remarks:Assessment Factors	
	Marine water	0,006 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	0,58 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	215 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	21,51 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Sewage treatment plant	250 mg/l
	Remarks:Assessment Factors	
	Soil	1 mg/kg dry weight (d.w.)
	Remarks:Assessment Factors	
3,3'-oxybis(ethyleneoxy)bis(propylamine)	Fresh water	0,22 mg/l
	Marine water	0,022 mg/l
	Intermittent use/release	2,2 mg/l
	Sewage treatment plant	125 mg/l
	Fresh water sediment	1,1 mg/kg
	Marine sediment	0,11 mg/kg
	Soil	0,091 mg/kg
Siloxanes and silicones, di-Me, reaction products with silica	Fresh water sediment	> 100 mg/kg
	Remarks:Assessment Factors	
	Soil	23 mg/kg
	Remarks:Assessment Factors	
3-aminopropyltriethoxysilane	Fresh water	0,33 mg/l
	Remarks:Assessment Factors	
	Marine water	0,033 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	13 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	1,2 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,12 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,05 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Hand protection
Material : butyl-rubber
Break through time : > 8 h

Material : Nitrile rubber
Break through time : 10 - 480 min

Material : Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time : > 8 h

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
Recommended Filter type:
Combined particulates and organic vapour type

In the case of vapour formation use a respirator with an approved filter.

Filter type : Filter type A-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour	:	yellow
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	> 100 °C
Flammability (solid, gas)	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Flash point	:	> 100 °C Method: closed cup
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	No data is available on the product itself.
pH	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	10 Pas (20 °C) thixotropic
Solubility(ies)		
Water solubility	:	No data is available on the product itself.
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Vapour pressure	:	No data is available on the product itself.
Density	:	No data is available on the product itself.
Relative density	:	1 (23 °C)
Relative vapour density	:	No data is available on the product itself.
Particle characteristics	:	No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Strong oxidizing agents

None known.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products : carbon dioxide
carbon monoxide
Nitrogen oxides (NOx)

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2 000 mg/kg
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2 000 mg/kg
Method: Calculation method

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Acute oral toxicity : LD50 (Rat, male and female): 2 850 - 3 160 mg/kg
Method: OECD Test Guideline 401

Assessment: The component/mixture is low toxic after single ingestion.

Acute dermal toxicity : LD50 (Rat, male and female): > 2 150 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is low toxic after single contact with skin.

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Acute oral toxicity : LD50 (Rat): > 15.4 g/kg

Acute dermal toxicity : LD50 (Rabbit): > 3 g/kg

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Acute oral toxicity : LD50 Oral (Rat, male): ca. 1 276,1 mg/kg
Method: No information available.
GLP: no
Remarks: Information given is based on data obtained from similar substances.

Acute inhalation toxicity : LC50 (Rat, male): Exposure time: 8 h
Test atmosphere: vapour
Method: Information given is based on data obtained from similar substances.
Remarks: Information given is based on data obtained from similar substances.

Acute dermal toxicity : LD50 Dermal (Rat, male and female): > 3 420 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

2-piperazin-1-ylethylamine:

Acute oral toxicity : LD50 (Rabbit, male): 2 097 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute dermal toxicity : LD50 (Rabbit, male): 866 mg/kg
Assessment: The component/mixture is toxic after single contact with skin.

3-aminopropyltriethoxysilane:

Acute oral toxicity : LD50 (Rat, male and female): 1 491 - 2 688 mg/kg
Method: Acute Oral Toxicity

Acute toxicity estimate: 1 491 mg/kg
Method: Calculation method

Acute inhalation toxicity	:	LC50 (Rat, male): > 5 ppm Exposure time: 6 h Test atmosphere: vapour Method: OECD Test Guideline 403
Acute dermal toxicity	:	LD50 (Rabbit, male and female): 4 075 mg/kg Method: Acute Dermal Toxicity Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes severe burns.

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Species	:	Rabbit
Method	:	Other guidelines
Result	:	Corrosive after 3 minutes to 1 hour of exposure

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Species	:	Rabbit
Assessment	:	Moderate skin irritant
Result	:	Irritating to skin.

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Species	:	synthetic macromolecular bio-barrier
Assessment	:	Causes burns.
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 3 minutes to 1 hour of exposure
GLP	:	yes

2-piperazin-1-ylethylamine:

Species	:	Rabbit
Assessment	:	Causes burns.
Result	:	Causes burns.

3-aminopropyltriethoxysilane:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Causes burns.

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Result	:	Risk of serious damage to eyes.

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Species	:	Rabbit
Assessment	:	Mild eye irritant
Result	:	slight irritation

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Result	:	Corrosive
GLP	:	no
Remarks	:	Information given is based on data obtained from similar substances.

2-piperazin-1-ylethylamine:

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Result	:	Risk of serious damage to eyes.

3-aminopropyltriethoxysilane:

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

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Exposure routes	:	Skin
Species	:	Other
Result	:	May cause sensitisation by skin contact.
Assessment	:	May be harmful if swallowed or in contact with skin., Causes severe skin burns and eye damage. May cause an allergic skin reaction.

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitisation by skin contact.

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin contact
Species	:	Mouse
Assessment	:	Does not cause skin sensitisation.
Method	:	OECD Test Guideline 442B
Result	:	Not a skin sensitizer.
GLP	:	yes

2-piperazin-1-ylethylamine:

Test Type	:	Maximisation Test
Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Probability or evidence of low to moderate skin sensitisation rate in humans

3-aminopropyltriethoxysilane:

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Not classified due to lack of data.

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Genotoxicity in vitro	:	Test Type: Ames test Test system: Salmonella typhimurium Concentration: 5000 ug/plate Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: Micronucleus test Test system: Chinese hamster fibroblasts Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 487 Result: negative Test Type: In vitro mammalian cell gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
Germ cell mutagenicity-Assessment	:	In vitro tests did not show mutagenic effects

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster fibroblasts
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

2-piperazin-1-ylethylamine:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Metabolic activation: negative
Result: negative

Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 490
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)

Application Route: Intraperitoneal injection
Dose: 175 - 560 mg/kg
Method: OECD Test Guideline 474
Result: negative

3-aminopropyltriethoxysilane:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Not classified due to lack of data.

Reproductive toxicity

Not classified due to lack of data.

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 100,300,1000 (600 day7) mg/kg
Frequency of Treatment: 7 days/week
General Toxicity - Parent: NOAEL: 600 mg/kg body weight
Fertility: NOAEL: 600 mg/kg body weight
Early Embryonic Development: NOAEL: 600 mg/kg body weight
Method: OECD Test Guideline 422

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: wistar
Application Route: Oral
Dose: 25/100/200/250 milligram per kilogram
Duration of Single Treatment: 38 - 52 d
Frequency of Treatment: 7 days/week
Developmental Toxicity: NOAEL: 100 mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes

Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Strain: wistar
Application Route: Oral
Dose: 25/100/200/250 milligram per kilogram
Duration of Single Treatment: 38 - 52 d

Frequency of Treatment: 7 days/week
Developmental Toxicity: NOAEL F1: 200 mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes

2-piperazin-1-ylethylamine:

Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 500/2000/8000 ppm
Duration of Single Treatment: 28 d
General Toxicity - Parent: NOAEC: 8 000 ppm
General Toxicity F1: NOEL: 8 000 ppm
Method: OECD Test Guideline 422

Effects on foetal development : Test Type: reproductive and developmental toxicity study
Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: LOAEC: 8 000 ppm
Developmental Toxicity: NOEL: 8 000 ppm
Method: OECD Test Guideline 422

Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Duration of Single Treatment: 14 d
General Toxicity Maternal: NOAEL: 1 000 mg/kg body weight
Developmental Toxicity: NOEL: 1 000 mg/kg body weight
Method: OECD Test Guideline 414

Test Type: Pre-natal
Species: Rabbit, female
Application Route: Oral
Duration of Single Treatment: 23 d
General Toxicity Maternal: NOAEL: 75 mg/kg body weight
Developmental Toxicity: NOAEL: 75 mg/kg body weight
Method: OECD Test Guideline 414

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT - single exposure

Not classified due to lack of data.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Components:

2-piperazin-1-ylethylamine:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Species	:	Rat, male and female
NOAEL	:	< 100 mg/kg
Application Route	:	oral (gavage)
Number of exposures	:	daily
Dose	:	100, 300, 1000(600,day7)mg/kg
Control Group	:	yes
Method	:	OECD Test Guideline 422
Repeated dose toxicity - Assessment	:	May be harmful if swallowed or in contact with skin., Causes severe skin burns and eye damage. No adverse effect has been observed in chronic toxicity tests.

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Species	:	Rat, male and female
NOEL	:	25 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	38 - 52 d
Number of exposures	:	7 d/w
Dose	:	25/100/200/250
Control Group	:	yes
Method	:	OECD Test Guideline 422
GLP	:	yes

Species	:	Rat, male
NOAEL	:	100 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	38 - 52 d
Number of exposures	:	7 d/w
Dose	:	25/100/200/250
Control Group	:	yes
Method	:	OECD Test Guideline 422
GLP	:	yes

2-piperazin-1-ylethylamine:

Species	:	Rat, male and female
NOAEL	:	152 mg/kg/d
Application Route	:	oral (drinking water)
Exposure time	:	28 d
Method	:	OECD Test Guideline 422

Species	:	Rat, male and female
NOAEL	:	> 1000 mg/kg/d
Application Route	:	Dermal
Exposure time	:	29 d
Number of exposures	:	6h/d, 5d/w
Method	:	OECD Test Guideline 410

Species	:	Rat, male and female

NOEC	:	0,2 mg/m3
Application Route	:	Inhalation
Exposure time	:	90 d
Number of exposures	:	6h/d, 5d/w
Method	:	OECD Test Guideline 413
Target Organs	:	Respiratory Tract
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Species	:	Rat, male and female
NOEC	:	53,3 mg/m3
Application Route	:	Inhalation
Exposure time	:	90 d
Number of exposures	:	6h/d, 5d/w
Method	:	OECD Test Guideline 413

3-aminopropyltriethoxysilane:

Species	:	Rat, male and female
NOAEL	:	200 mg/kg
Application Route	:	Ingestion
Exposure time	:	2 160 h
Method	:	Subchronic toxicity

Aspiration toxicity

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): > 1 000 mg/l
Exposure time: 96 h
Test Type: static test
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 218,16 mg/l
Exposure time: 48 h
Test Type: static test
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
Test Type: static test
Method: DIN 38412

Toxicity to microorganisms : (Pseudomonas putida): 221,9 mg/l
End point: Growth rate
Exposure time: 17 h
Test Type: static test
Method: DIN 38412

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1 000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (No information available.): > 1 000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): >= 120 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203
GLP: yes

NOEC (Danio rerio (zebra fish)): 120 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 203

GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 34,2 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

EC0 (Daphnia magna (Water flea)): 10 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

EC100 (Daphnia magna (Water flea)): 100 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
GLP: yes

NOEC (Daphnia magna (Water flea)): 3,2 mg/l
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Lowest Observed Effect Concentration (Daphnia magna (Water flea)): 10 mg/l
Exposure time: 21 d
Test Type: semi-static test
Analytical monitoring: yes
Method: OECD Test Guideline 211
GLP: yes

Toxicity to algae/aquatic plants : NOEC (Desmodesmus subspicatus (green algae)): 22 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

EC50 (Desmodesmus subspicatus (green algae)): > 220 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

GLP: yes

Toxicity to microorganisms : EC10 (activated sludge): 77 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

EC50 (activated sludge): 870 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition
Analytical monitoring: no
Method: OECD Test Guideline 209
GLP: yes

2-piperazin-1-ylethylamine:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 2 190 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 58 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): > 1 000 mg/l
Exposure time: 72 h
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (Bacteria): > 100 mg/l, mg/kg
Exposure time: 28 d
Method: OECD Test Guideline 216

EC50 (activated sludge): 511 mg/l
Exposure time: 2 h
Test Type: static test
Test substance: Fresh water
Method: ISO Method, other

Toxicity to soil dwelling organisms : LC50: 712 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222

NOEC: 500 mg/kg

Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222

3-aminopropyltriethoxysilane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 934 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 331 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): > 1 000 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.3.

Toxicity to microorganisms : EC50 (Pseudomonas putida): 43 mg/l
Exposure time: 5,75 h
Test Type: static test
Test substance: Fresh water

12.2 Persistence and degradability

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Biodegradability : Inoculum: activated sludge
Concentration: 30 mg/l
Result: Not readily biodegradable.
Biodegradation: < 10 %
Exposure time: 60 d
Method: OECD Test Guideline 301B

2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated:

Biodegradability : Result: Not readily biodegradable.

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Biodegradability : Test Type: aerobic
Inoculum: Mixture
Result: Not readily biodegradable.
Biodegradation: < 10 %
Related to: see user defined free text
Exposure time: 28 d
Method: OECD Test Guideline 301C

GLP: yes

Test Type: aerobic
Inoculum: Mixture
Result: Not readily biodegradable.
Biodegradation: <= 3 %
Related to: see user defined free text
Exposure time: 28 d
Method: OECD Test Guideline 301C
GLP: yes

2-piperazin-1-ylethylamine:

Biodegradability	:	Test Type: aerobic Inoculum: activated sludge Result: Not readily biodegradable. Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 301F
Biochemical Oxygen Demand (BOD)	:	5 mg/l Incubation time: 5 d
Chemical Oxygen Demand (COD)	:	560 mg/l
Photodegradation	:	Test Type: Air Degradation (direct photolysis): 50 %

3-aminopropyltriethoxysilane:

Biodegradability	:	Inoculum: activated sludge Concentration: 8,95 mg/l Result: Not readily biodegradable. Biodegradation: 67 % Exposure time: 28 d Method: Directive 67/548/EEC Annex V, C.4.A.

12.3 Bioaccumulative potential

Components:

3,3'-oxybis(ethyleneoxy)bis(propylamine):

Partition coefficient: n-octanol/water	:	log Pow: -1,25 (25 °C) pH: 11,1 Method: OECD Test Guideline 107

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Partition coefficient: n-octanol/water	:	log Pow: 0,12 (23 °C) pH: 12 Method: OECD Test Guideline 107 GLP: yes

2-piperazin-1-ylethylamine:

Bioaccumulation : Species: Fish
Remarks: Does not bioaccumulate.

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

3-aminopropyltriethoxysilane:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 3,4
Remarks: Does not bioaccumulate.

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

12.4 Mobility in soil

Components:

Reaction product of 2,4-Dinitrotoluene and 2,6-Dinitrotoluene and hydrogen:

Distribution among environmental compartments : OECD Test Guideline 121
Medium: Sludge
log Koc: 1,2
Method: OECD Test Guideline 121

OECD Test Guideline 121
Medium: Sludge
log Koc: > 5,63
Method: OECD Test Guideline 121

2-piperazin-1-ylethylamine:

Distribution among environmental compartments : Koc: ca. 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 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	:	Dispose of contents and container in accordance with all local, regional, national and international regulations. Do not dispose of waste into sewer. Do not contaminate ponds, waterways or ditches with chemical or used container.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADN	:	UN 2735
ADR	:	UN 2735
RID	:	UN 2735
IMDG	:	UN 2735
IATA	:	UN 2735

14.2 UN proper shipping name

ADN	:	AMINES, LIQUID, CORROSIVE, N.O.S. (TRIOXATRIDECANEDIAMINE, 4-METHYLCYCLOHEXANE-1, 3-DIAMINE)
ADR	:	AMINES, LIQUID, CORROSIVE, N.O.S. (TRIOXATRIDECANEDIAMINE, 4-METHYLCYCLOHEXANE-1, 3-DIAMINE)
RID	:	AMINES, LIQUID, CORROSIVE, N.O.S. (TRIOXATRIDECANEDIAMINE, 4-METHYLCYCLOHEXANE-1, 3-DIAMINE)
IMDG	:	AMINES, LIQUID, CORROSIVE, N.O.S. (TRIOXATRIDECANEDIAMINE, 4-METHYLCYCLOHEXANE-1, 3-DIAMINE)
IATA	:	Amines, liquid, corrosive, n.o.s. (TRIOXATRIDECANEDIAMINE, 4-METHYLCYCLOHEXANE-1, 3-DIAMINE)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADN	:	8	
ADR	:	8	
RID	:	8	
IMDG	:	8	

IATA : 8

14.4 Packing group

ADN

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8

ADR

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8
Tunnel restriction code	:	(E)

RID

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8

IMDG

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

IATA (Cargo)

Packing instruction (cargo aircraft)	:	855
Packing instruction (LQ)	:	Y840
Packing group	:	II
Labels	:	Corrosive

IATA (Passenger)

Packing instruction (passenger aircraft)	:	851
Packing instruction (LQ)	:	Y840
Packing group	:	II
Labels	:	Corrosive

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data

Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

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 - List of substances subject to authorisation (Annex XIV)	:	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.
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 75, 3 If you intend to use this product as tattoo ink, please contact your vendor.
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.		Not applicable
Water hazard class (Germany)	:	WGK 2 obviously hazardous to water Classification according to AwSV, Annex 1 (5.2)

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

DSL	:	This product contains one or several components listed in the Canadian NDSL.
AIIC	:	All components are listed on the inventory, regulatory obligations/restrictions apply. Please contact your sales representative for more information before import into Australia
ENCS	:	Notified. Allowed to be imported / manufactured only by the

notifiers. Please contact your Huntsman sales representative for more information.

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.

TCSI : On the inventory, or in compliance with the inventory

TSCA : All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
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.
H361	:	Suspected of damaging fertility or the unborn child.
H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.
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
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

Further information

Classification of the mixture:		**Classification procedure:**
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
STOT RE 2	H373	Calculation method

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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