

# SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® STANDARD ULTRA HARDENER

Version 2.3      Revision Date: 10.09.2021      SDS Number: 400001021218      Date of last issue: 25.01.2021  
Date of first issue: 20.07.2018

Print Date 29.12.2022

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

#### 1.1 Product identifier

Trade name : ARALDITE® STANDARD ULTRA HARDENER

#### 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)BVBA  
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 : 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)

Serious eye damage, Category 1      H318: Causes serious eye damage.  
Skin sensitisation, Category 1      H317: May cause an allergic skin reaction.  
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)

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Hazard pictograms :



Signal word : Danger

Hazard statements : H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
P261 Avoid breathing mist or vapours.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
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.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P391 Collect spillage.

Hazardous components which must be listed on the label:

Reaction products of fatty acid dimers and trimers, C18 (unsaturated) alkyl and fatty acids, C18 (unsaturated) alkyl with amines, polyethylenepoly-, triethylenetetramine fraction

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine

Amines, polyethylenepoly-, tetraethylenepentamine fraction

Amines, polyethylenepoly-, triethylenetetramine fraction

### 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.

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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Reaction products of fatty acid dimers and trimers, C18 (unsaturated), alkyl and fatty acids, C18 (unsaturated) alkyl with amines,, polyethylenepoly-, triethylenetetramine fraction,	Not Assigned -	Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Chronic 2; H411	>= 50 - < 70
Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine	68154-62-1 Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 30 - < 50
Amines, polyethylenepoly-, tetraethylenepentamine fraction	90640-66-7 292-587-7	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 2; H411  Acute toxicity estimate  Acute oral toxicity: 1,716.2 mg/kg Acute dermal toxicity: 1,260 mg/kg	>= 5 - < 10
Amines, polyethylenepoly-, triethylenetetramine fraction	90640-67-8 292-588-2	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412 EUH071	>= 0.25 - < 1

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.

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- 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 : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : If skin irritation persists, call a physician.  
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.  
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

None known.

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

Treatment : Treat symptomatically.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical

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

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### 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 : Ammonia  
Carbon oxides  
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 : No data is available on the product itself.

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.  
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

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

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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. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.

Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Recommended storage temperature : 2 - 40 °C

Further information on storage stability : Stable under normal conditions.

### 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
Amines, polyethylenepoly-, tetraethylenepentamine fraction	Workers	Inhalation	Long-term systemic effects	0.82 mg/m3
	Workers	Dermal	Long-term local effects	0.25 mg/cm2

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	Consumers	Inhalation	Long-term systemic effects	0.14 mg/m3
	Consumers	Dermal	Long-term local effects	0.021 mg/cm2
	Consumers	Oral	Long-term systemic effects	0.21 mg/kg bw/day
Amines, polyethylenepoly-, triethylenetetramine fraction	Workers	Inhalation	Long-term systemic effects	0.54 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0.096 mg/m3
	Consumers	Oral	Long-term systemic effects	14 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Amines, polyethylenepoly-, tetraethylenepentamine fraction	Fresh water	0.01 mg/l
Remarks:	Assessment Factors	
	Marine water	0.001 mg/l
	Assessment Factors	
	Freshwater - intermittent	0.068 mg/l
	Assessment Factors	
	Sewage treatment plant	4.6 mg/l
	Assessment Factors	
	Fresh water sediment	3.198 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	0.32 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	2.5 mg/kg dry weight (d.w.)
	Assessment Factors	
Amines, polyethylenepoly-, triethylenetetramine fraction	Fresh water	0.027 mg/l
	Marine water	0.003 mg/l
	Sewage treatment plant	0.13 mg/l
	Fresh water sediment	8.572 mg/kg dry weight (d.w.)
	Marine sediment	0.857 mg/kg dry weight (d.w.)

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	Soil	1.25 mg/kg dry weight (d.w.)
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### 8.2 Exposure controls

#### Personal protective equipment

Eye 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

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



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Odour : No data is available on the product itself.

Odour Threshold : No data is available on the product itself.

pH : 11  
Concentration: 500 g/l

Melting point/freezing point : No data is available on the product itself.

Boiling point : No data is available on the product itself.

Flash point : > 150 °C  
Method: Pensky-Martens closed cup

Evaporation rate : No data is available on the product itself.

Flammability (solid, gas) : No data is available on the product itself.

Burning rate : No data is available on the product itself.

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

Lower explosion limit / Lower flammability limit : No data is available on the product itself.

Vapour pressure : No data is available on the product itself.

Relative vapour density : No data is available on the product itself.

Relative density : No data is available on the product itself.

Density : No data is available on the product itself.

Solubility(ies)  
Water solubility : insoluble (20 °C)

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.

Auto-ignition temperature : No data is available on the product itself.

Decomposition temperature : No data is available on the product itself.

Viscosity  
Viscosity, dynamic : 25,000 - 30,000 mPa.s (25 °C)

Explosive properties : No data is available on the product itself.

Oxidizing properties : No data is available on the product itself.

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### 9.2 Other information

No data available

## 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

### 10.6 Hazardous decomposition products

Hazardous decomposition products : ammonia, anhydrous  
Aldehydes  
Nitrogen oxides (NO<sub>x</sub>)  
carbon monoxide  
carbon dioxide  
Ketones

## SECTION 11: Toxicological information

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

#### Acute toxicity

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

#### Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Acute inhalation toxicity : (Rat, male and female): Exposure time: 8 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

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

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

### Skin corrosion/irritation

**Product:**

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

### Serious eye damage/eye irritation

**Product:**

Species: Rabbit  
Assessment: Corrosive  
Method: OECD Test Guideline 405  
Result: Irreversible effects on the eye  
GLP: yes

Remarks: May cause irreversible eye damage.

### Respiratory or skin sensitisation

**Product:**

Assessment: No data available

### Germ cell mutagenicity

**Components:**

Reaction products of fatty acid dimers and trimers, C18 (unsaturated) alkyl and fatty acids, C18 (unsaturated) alkyl with amines, polyethylenepoly-, triethylenetetramine fraction

:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

: Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

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

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Result: positive

: Test Type: sister chromatid exchange assay  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 479  
Result: positive

: Test Type: gene mutation test  
Test system: Chinese hamster ovary cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: positive

Amines, polyethylenepoly-, triethylenetetramine fraction:

Genotoxicity in vitro : 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: positive

### Components:

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Test species: Mouse (male and female)  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Dose: 185/370/600 mg/kg  
Method: OECD Test Guideline 474  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

Amines, polyethylenepoly-, triethylenetetramine fraction:

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Test species: Mouse (male and female)  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Dose: 0 - 600 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

Germ cell mutagenicity-Assessment : No data available

### **Carcinogenicity**

### Components:

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Amines, polyethylenepoly-, triethylenetetramine fraction:

Species: Mouse, male

Dose: 42 mg/kg

Frequency of Treatment: 3 daily

No observed adverse effect level:  $\geq$  50 mg/kg bw/day

Method: OECD Test Guideline 451

Result: negative

Species: Mouse, male

Application Route: Dermal

Exposure time: 104 weeks

Dose: 16.8 mg/kg

Frequency of Treatment: 3 daily

No observed adverse effect level:  $\geq$  20 mg/kg bw/day

Method: OECD Test Guideline 451

Carcinogenicity - Assessment : No data available

### Reproductive toxicity

#### Components:

Reaction products of fatty acid dimers and trimers, C18 (unsaturated) alkyl and fatty acids, C18 (unsaturated) alkyl with amines, polyethylenepoly-, triethylenetetramine fraction

:

Effects on fertility : Species: Rat, male and female  
Application Route: Oral  
Method: OECD Test Guideline 422  
Result: Animal testing did not show any effects on fertility.

#### Components:

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Effects on foetal development

: Test Type: Pre-natal  
Species: Rabbit, female  
Application Route: Dermal  
Dose: 5/50/125 mg/kg bw/d  
Duration of Single Treatment: 13 d  
General Toxicity Maternal: No-observed-effect level: 50 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level:  $\geq$  125 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects  
Remarks: Information given is based on data obtained from similar substances.

Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral  
Dose: 75/325/750 mg/kg bw/d  
Duration of Single Treatment: 10 d  
General Toxicity Maternal: No observed adverse effect level:  $\geq$  750 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level:  $\geq$

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750 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects  
Remarks: Information given is based on data obtained from similar substances.

Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral  
Dose: 200/400/800 mg/kg bw(d)  
Duration of Single Treatment: 14 d  
General Toxicity Maternal: No-observed-effect level: 200 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level: >= 400 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects  
Remarks: Information given is based on data obtained from similar substances.

Amines, polyethylenepoly-, triethylenetetramine fraction:

Test Type: Pre-natal  
Species: Rat  
Application Route: Oral  
Dose: 75/325/750 mg/kg bw/day  
Duration of Single Treatment: 10 d  
General Toxicity Maternal: No observed adverse effect level: >= 750 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level: >= 750 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Test Type: Pre-natal  
Species: Rabbit  
Application Route: Dermal  
Dose: 5/50/125 mg/kg bw/day  
Duration of Single Treatment: 13 d  
General Toxicity Maternal: No observed adverse effect level: 50 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level: >= 125 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

### Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Reproductive toxicity - Assessment : The reprotoxic effects of Triethylenetetramine (TETA) are under further evaluation as part of the EU REACH program due in part to the aminoethyl ethanolamine (AEEA) content.

### **STOT - single exposure**

No data available

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### STOT - repeated exposure

No data available

### Repeated dose toxicity

#### Components:

Reaction products of fatty acid dimers and trimers, C18 (unsaturated) alkyl and fatty acids, C18 (unsaturated) alkyl with amines, polyethylenepoly-, triethylenetetramine fraction

:

Species: Rat, male and female

NOAEL: 1000 mg/kg

Application Route: Ingestion

Exposure time: 6 Weeks Number of exposures: 7 d

Method: Subacute toxicity

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Species: Rat, male and female

NOAEL: 350 mg/kg

Application Route: Oral

Target Organs: Lungs

Remarks: Information given is based on data obtained from similar substances.

Species: Dog, male and female

NOAEL: 125 mg/kg

Application Route: Oral

Target Organs: Lungs

Remarks: Information given is based on data obtained from similar substances.

Species: Rat, male and female

NOAEL: 350 mg/kg

Application Route: Oral

Exposure time: 4 weeks Number of exposures: daily

Dose: 100/350/1200 mg/kg bw/d

Method: OECD Test Guideline 408

Remarks: Information given is based on data obtained from similar substances.

Species: Rat, male and female

NOAEL: 600

Application Route: oral (drinking water)

Exposure time: 92 days Dose: 120/600/3000 ppm

Method: OECD Test Guideline 408

Remarks: Information given is based on data obtained from similar substances.

Species: Mouse, male and female

NOAEL: 600

Application Route: oral (drinking water)

Exposure time: 92 days Dose: 120/600/3000 ppm

Method: OECD Test Guideline 408

Remarks: Information given is based on data obtained from similar substances.

Species: Rabbit, male and female

NOEL: >= 200 mg/kg

Application Route: Dermal

Exposure time: 20 days 6 h Number of exposures: 5 days/week

Dose: 50/100/200 mg/kg bw/day

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Method: OECD Test Guideline 410

Amines, polyethylenepoly-, triethylenetetramine fraction:

Species: Rat, male and female

NOAEL: 350 mg/kg

Application Route: Oral

Exposure time: 28 d Number of exposures: 7 d

Dose: 100/350/1000 mg/kg bw/day

Method: OECD Test Guideline 407

Target Organs: Lungs

Remarks: Information given is based on data obtained from similar substances.

Species: Dog, male and female

NOAEL: 125 mg/kg

Application Route: Oral

Remarks: Information given is based on data obtained from similar substances.

Species: Dog, male and female

NOAEL: 50 mg/kg

Application Route: Oral

Method: Subchronic toxicity

Remarks: Information given is based on data obtained from similar substances.

Species: Rat, male and female

NOAEL: 50 mg/kg

Application Route: Oral

Exposure time: 26 weeks Dose: 50/175/600 mg/kg bw/day

Method: OECD Test Guideline 408

Target Organs: Lungs

Remarks: Information given is based on data obtained from similar substances.

Species: Mouse, male and female

NOAEL: 92 mg/kg, 600 ppm

Application Route: Oral

Exposure time: 120/600/3000 ppm Method: OECD Test Guideline 408

Remarks: Information given is based on data obtained from similar substances.

Repeated dose toxicity - Assessment : No data available

### Aspiration toxicity

No data available

## 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.



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### Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

### Toxicology, Metabolism, Distribution

No data available

### Neurological effects

No data available

### Further information

Ingestion: No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

Reaction products of fatty acid dimers and trimers, C18 (unsaturated) alkyl and fatty acids, C18 (unsaturated) alkyl with amines, polyethylenepoly-, triethylenetetramine fraction

:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 7.07 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)): 5.18 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 (Selenastrum capricornutum (green algae)): 2.43 mg/l  
Exposure time: 72 h

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Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 (activated sludge): 421 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 209

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:  
Ecotoxicology Assessment  
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 420 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24.1 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Tested according to Annex V of Directive 67/548/EEC.

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 6.8 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : 97.3 mg/l  
Exposure time: 2 h  
Test Type: static test  
Test substance: Fresh water

NOEC : 500 mg/l  
Exposure time: 28 d  
Method: OECD Test Guideline 216

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 1.9 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test substance: Fresh water  
Method: OECD Test Guideline 202  
Remarks: Information given is based on data obtained from similar substances.

Toxicity to soil dwelling organisms : NOEC: 125 mg/kg  
Exposure time: 55 d

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Species: Eisenia fetida (earthworms)  
Method: OECD Test Guideline 222

Amines, polyethylenepoly-, triethylenetetramine fraction:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 330 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: EPA OTS 797.1400

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.1 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l  
Exposure time: 72 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

EC10 (Selenastrum capricornutum (green algae)): 1.34 mg/l  
Exposure time: 72 h  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Bacteria):  $\geq$  100 mg/l  
Exposure time: 28 d  
Method: OECD Test Guideline 216

EC50 (Bacteria):  $>$  100 mg/l  
Exposure time: 28 h  
Method: OECD Test Guideline 216

EC50 (Bacteria): 15.7 mg/l  
Exposure time: 2 h  
Test Type: static test  
Test substance: Fresh water

NOEC (Bacteria): 1.3 mg/l  
Exposure time: 2 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 1.9 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

Toxicity to soil dwelling organisms : NOEC: ca. 1,000 mg/kg  
Exposure time: 56 d

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Species: Eisenia fetida (earthworms)  
Method: OECD Test Guideline 222

EC50: > 1,000 mg/kg  
Exposure time: 56 d  
Species: Eisenia fetida (earthworms)  
Method: OECD Test Guideline 222

Ecotoxicology Assessment  
Acute aquatic toxicity : This product has no known ecotoxicological effects.  
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

### 12.2 Persistence and degradability

#### Components:

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Biodegradability : Inoculum: activated sludge  
Result: Not inherently biodegradable.  
Biodegradation: 17 %  
Exposure time: 84 d  
Method: OECD Test Guideline 302 A

Test Type: aerobic  
Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 162 d  
Method: OECD Test Guideline 301D

Amines, polyethylenepoly-, triethylenetetramine fraction:

Biodegradability : Inoculum: activated sludge  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 162 d  
Method: OECD Test Guideline 301D

Test Type: aerobic  
Inoculum: activated sludge  
Result: Not inherently biodegradable.  
Biodegradation: 20 %  
Related to: Dissolved organic carbon (DOC)  
Exposure time: 84 d  
Method: OECD Test Guideline 302A

Chemical Oxygen Demand (COD) : 1,940 mg/g

### 12.3 Bioaccumulative potential

#### Components:

Amines, polyethylenepoly-, tetraethylenepentamine fraction:

Partition coefficient: n-octanol/water : log Pow: -2.6 (20 °C)

Amines, polyethylenepoly-, triethylenetetramine fraction:

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Partition coefficient: n-octanol/water : log Pow: -2.08 - 2.90 (20 °C)  
Method: QSAR

### 12.4 Mobility in soil

#### Components:

Amines, polyethylenepoly-, tetraethylenepentamine fraction:  
Distribution among environmental compartments : Koc: 3.2 - 3.7  
Method: OECD Test Guideline 106

Amines, polyethylenepoly-, triethylenetetramine fraction:  
Distribution among environmental compartments : Koc: 1584.9 - 5012  
Method: OECD Test Guideline 106

### 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

#### Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.  
Toxic to aquatic life with long lasting effects.

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.  
Dispose of as hazardous waste in compliance with local and national regulations.  
Dispose of contents/ container to an approved waste disposal plant.

Contaminated packaging : Empty remaining contents.

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Dispose of as unused product.  
Do not re-use empty containers.

### SECTION 14: Transport information

#### 14.1 UN number or ID number

ADR : UN 3082  
RID : UN 3082  
IMDG : UN 3082  
IATA : UN 3082

#### 14.2 UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(POLYAMIDE RESIN)  
RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(POLYAMIDE RESIN)  
IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
(POLYAMIDE RESIN)  
IATA : Environmentally hazardous substance, liquid, n.o.s.  
(POLYAMIDE RESIN)

#### 14.3 Transport hazard class(es)

ADR : 9  
RID : 9  
IMDG : 9  
IATA : 9

#### 14.4 Packing group

**ADR**  
Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9  
Tunnel restriction code : (-)

**RID**  
Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

**IMDG**  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F

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### IATA (Cargo)

Packing instruction (cargo aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### 14.5 Environmental hazards

#### ADR

Environmentally hazardous : yes

#### RID

Environmentally hazardous : yes

#### IMDG

Marine pollutant : yes

#### IATA (Passenger)

Environmentally hazardous : yes

#### IATA (Cargo)

Environmentally hazardous : yes

### 14.6 Special precautions for user

Not applicable

### 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 (Regulation (EC) No 1907/2006 (REACH), Article 57).

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

E2 ENVIRONMENTAL HAZARDS

Other regulations:

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

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

DSL	: All components of this product are on the Canadian DSL
AIIC	: On the inventory, or in compliance with the inventory
NZIoC	: Not in compliance with the inventory
ENCS	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
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), NZIOIC (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.

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## SECTION 16: Other information

### Full text of H-Statements

H302	: Harmful if swallowed.
H312	: Harmful 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.
H411	: Toxic to aquatic life with long lasting effects.
H412	: Harmful to aquatic life with long lasting effects.
EUH071	: Corrosive to the respiratory tract.



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### 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
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation

### Further information

#### Classification of the mixture:

Eye Dam. 1	H318
Skin Sens. 1	H317
Aquatic Chronic 2	H411

#### Classification procedure:

Based on product data or assessment
Calculation method
Calculation method

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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.

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