

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 B

Version	Revision Date:	SDS Number:	Date of last issue: 02.03.2017
1.1	23.05.2017	400000005372	Date of first issue: 02.03.2017

### 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)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 : 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, Category 1B H314: Causes severe skin burns and eye damage.

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

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Skin sensitisation, Category 1      H317: May cause an allergic skin reaction.  
Specific target organ toxicity - repeated exposure, Category 2, Respiratory Tract      H373: May cause damage to organs through prolonged or repeated exposure if inhaled.

**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 (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements : **Prevention:**  
P260 Do not breathe mist or vapours.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face 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/shower.  
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:

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

4-methylcyclohexane-1,3-diamine

2-piperazin-1-ylethylamine

3-aminopropyltriethoxysilane

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### 2.3 Other hazards

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

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

#### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
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	13 - 30
4-METHYLCYCLOHEXANE-1,3-DIAMINE	13897-55-7 237-666-9	Acute Tox. 4; H302 Skin Corr. 1B; H314 Skin Sens. 1A; H317	13 - 30
2-METHYLCYCLOHEXANE-1,3-DIAMINE	13897-56-8 237-667-4	Acute Tox. 4; H302 Skin Corr. 1B; H314 Skin Sens. 1A; H317	3 - 7
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 Skin Sens. 1; H317 Repr. 2; H361 STOT RE 1; H372 Aquatic Chronic 3; H412	1 - 3
3-Aminopropyltriethoxysilane	919-30-2 213-048-4 612-108-00-0 01-2119480479-24	Acute Tox. 4; H302 Skin Corr. 1B; H314 Skin Sens. 1; H317	0,1 - 1

For explanation of abbreviations see section 16.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- If inhaled : Move to fresh air.  
Keep patient warm and at rest.  
If symptoms persist, call a physician.
- In case of skin contact : Take off contaminated clothing and shoes immediately.  
Wash off with soap and plenty of water.  
If symptoms persist, call a physician.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Seek medical advice.

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If swallowed : Rinse mouth with water.  
Do NOT induce vomiting.  
Consult a physician if necessary.

**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**

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

**5.2 Special hazards arising from the substance or mixture**

Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.  
Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : No data is available on the product itself.

**5.3 Advice for firefighters**

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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.  
Ensure adequate ventilation.

**6.2 Environmental precautions**

Environmental precautions : Prevent product from entering drains.  
Do not allow contact with soil, surface or ground water.

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**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**

None

**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 : Avoid contact with skin and eyes.  
For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
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 : Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or 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 containers tightly closed in a cool, well-ventilated place.  
Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510) : 8A, Combustible, corrosive hazardous materials

Other data : No decomposition if stored and applied as directed.

**7.3 Specific end use(s)**

**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	10,6 mg/m3

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			effects	
	Workers	Inhalation	Acute systemic effects	10,6 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	0,015 mg/m <sup>3</sup>
	Workers	Inhalation	Acute local effects	80 mg/m <sup>3</sup>

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

Substance name	Environmental Compartment	Value
Siloxanes and silicones, di-Me, reaction products with silica	Fresh water sediment	> 100 mg/kg
Remarks:	Assessment Factors	
	Soil	23 mg/kg
	Assessment Factors	
2-piperazin-1-ylethylamine	Fresh water	0,058 mg/l
	Assessment Factors	
	Marine water	0,0058 mg/l
	Assessment Factors	
	Freshwater - intermittent	0,58 mg/l
	Assessment Factors	
	Fresh water sediment	215 mg/kg
	Equilibrium method	
	Marine sediment	21,5 mg/kg
	Equilibrium method	
	Soil	1 mg/kg
	Equilibrium method	
	Sewage treatment plant	250 mg/l
	Assessment Factors	

**8.2 Exposure controls****Engineering measures**

Maintain air concentrations below occupational exposure standards.

**Personal protective equipment**

Eye protection : Safety glasses

Hand protection  
Material : butyl-rubberMaterial : Ethyl Vinyl Alcohol Laminate (EVAL)  
Break through time : > 8 hMaterial : Nitrile rubber  
Break through time : 10 - 480 min

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Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves. 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).

Skin and body protection : Protective suit

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**

Appearance : liquid

Colour : yellow

Odour : amine-like

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

pH : No data is available on the product itself.

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

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

Boiling point : > 100 °C

Flash point : > 100 °C  
Method: 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 : No data is available on the product itself.

Lower explosion 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.

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Relative density : 1 (23 °C)

Density : No data is available on the product itself.

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.

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

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

Viscosity

Viscosity, dynamic : 10 Pas (20 °C)  
thixotropic

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

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

**9.2 Other information**

No data available

**SECTION 10: Stability and reactivity**

**10.1 Reactivity**

Stable under recommended storage conditions.

**10.2 Chemical stability**

No decomposition if stored and applied as directed.

**10.3 Possibility of hazardous reactions**

Hazardous reactions : Stable under normal conditions.

**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**

Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
Burning produces noxious and toxic fumes.



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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

##### Acute toxicity

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

##### Components:

3-aminopropyltriethoxysilane:

Acute inhalation toxicity : LC50 (Rat, male): > 5 ppm  
Exposure time: 6 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403

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

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

##### Skin corrosion/irritation

##### Components:

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.

4-methylcyclohexane-1,3-diamine:

Species: human skin

Assessment: Corrosive

Method: OECD Test Guideline 435

Result: Corrosive

2-methylcyclohexane-1,3-diamine:

Species: human skin

Assessment: Corrosive

Method: OECD Test Guideline 435

Result: Corrosive

2-piperazin-1-ylethylamine:

Species: Rabbit

Result: Causes burns.

3-aminopropyltriethoxysilane:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Causes burns.

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### Serious eye damage/eye irritation

#### Components:

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

2-piperazin-1-ylethylamine:

Species: Rabbit

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

#### Components:

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.

4-methylcyclohexane-1,3-diamine:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: Causes sensitisation.

2-methylcyclohexane-1,3-diamine:

Exposure routes: Skin

Species: Mouse

Method: OECD Test Guideline 429

Result: Causes sensitisation.

Aminoethylpiperazine:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: May cause sensitisation by skin contact.

3-aminopropyltriethoxysilane:

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: The product is a skin sensitiser, sub-category 1B.

Assessment: No data available

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### Germ cell mutagenicity

#### Components:

2-piperazin-1-ylethylamine:

Genotoxicity in vitro

: Concentration: 5000 ug/plate  
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: negative  
Method: OECD Test Guideline 482  
Result: negative

3-aminopropyltriethoxysilane:

Genotoxicity in vitro

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

#### Components:

2-piperazin-1-ylethylamine:

Genotoxicity in vivo

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

3-aminopropyltriethoxysilane:

Genotoxicity in vivo

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

### Carcinogenicity

No data available

Carcinogenicity -  
Assessment

: No data available

### Reproductive toxicity

#### Components:

4-methylcyclohexane-1,3-diamine:

Effects on fertility

: Application Route: Oral  
Method: OECD Test Guideline 422

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2-methylcyclohexane-1,3-diamine:

Application Route: Oral  
Method: OECD Test Guideline 422

### Components:

4-methylcyclohexane-1,3-diamine:

Effects on foetal development : Application Route: Oral  
Method: OECD Test Guideline 422  
Result: No teratogenic effects

2-methylcyclohexane-1,3-diamine:

Application Route: Oral  
Method: OECD Test Guideline 422  
Result: No teratogenic effects

### Components:

2-piperazin-1-ylethylamine:

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

### **STOT - single exposure**

No data available

### **STOT - 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:

2-piperazin-1-ylethylamine:

Species: Rat, male and female

NOAEL: 152

Application Route: Oral

Exposure time: 28 dMethod: OECD Test Guideline 422

Species: Rat, male and female

NOAEL: > 1000

Application Route: Skin contact

Exposure time: 29 dNumber of exposures: 6h/application, 5d/week

Method: OECD Test Guideline 410

Species: Rat, male and female

: 0,2

Application Route: Inhalation

Exposure time: 90 dNumber of exposures: 6h/d, 5d/week

Method: OECD Test Guideline 413

Target Organs: Respiratory Tract

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Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

Species: Rat, male and female  
: 53,3

Application Route: Inhalation

Exposure time: 90 dNumber of exposures: 6h/d, 5d/week

Method: OECD Test Guideline 413

3-aminopropyltriethoxysilane:

Species: Rat, male and female

NOAEL: 200 mg/kg

Application Route: Ingestion

Exposure time: 2 160 hMethod: Subchronic toxicity

Repeated dose toxicity - : No data available  
Assessment

### Aspiration toxicity

No data available

### 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

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### SECTION 12: Ecological information

#### 12.1 Toxicity

##### Components:

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

4-methylcyclohexane-1,3-diamine:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 120 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 34,1 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 220 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 3,2 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

2-methylcyclohexane-1,3-diamine:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 120 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 34,1 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): > 220 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates : NOEC: 3,2 mg/l  
Exposure time: 21 d

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- (Chronic toxicity) Species: *Daphnia magna* (Water flea)  
Method: OECD Test Guideline 211
- 2-piperazin-1-ylethylamine:  
Toxicity to fish : LC50 : 2 190 mg/l  
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  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202  
Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Toxicity to algae : EC50 (*Selenastrum capricornutum* (green algae)): > 1 000 mg/l  
Exposure time: 72 h  
Test substance: Fresh water  
Method: OECD Test Guideline 201
- 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 : EC50 (*Desmodesmus subspicatus* (*Scenedesmus subspicatus*)): > 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

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**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® 2019 B

Version	Revision Date:	SDS Number:	Date of last issue: 02.03.2017
1.1	23.05.2017	400000005372	Date of first issue: 02.03.2017

Test substance: Fresh water

### 12.2 Persistence and degradability

#### Components:

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.

4-methylcyclohexane-1,3-diamine:

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: < 3 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

2-methylcyclohexane-1,3-diamine:

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: < 3 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

2-piperazin-1-ylethylamine:

Biodegradability : 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 %

Test Type: Water

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:

2-piperazin-1-ylethylamine:

Bioaccumulation : Species: Fish  
Remarks: Does not bioaccumulate.



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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:

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 Other adverse effects

No data available

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : Can be landfilled or incinerated, when in compliance with local regulations.  
Where possible recycling is preferred to disposal or incineration.  
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

## SECTION 14: Transport information

#### IATA

14.1 UN number : UN 2735

14.2 UN proper shipping name : Amines, liquid, corrosive, n.o.s.

(4-METHYLCYCLOHEXANE-1, 3-DIAMINE)

14.3 Transport hazard : 8

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### class(es)

**14.4 Packing group** : II  
Labels : Corrosive  
Packing instruction (cargo aircraft) : 855  
Packing instruction (passenger aircraft) : 851

### IMDG

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(4-METHYLCYCLOHEXANE-1, 3-DIAMINE)

**14.3 Transport hazard class(es)** : 8

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

**14.5 Environmental hazards**  
Marine pollutant : no

### ADR

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(4-METHYLCYCLOHEXANE-1, 3-DIAMINE)

**14.3 Transport hazard class(es)** : 8

**14.4 Packing group** : II  
Labels : 8

**14.5 Environmental hazards**  
Environmentally hazardous : no

### RID

**14.1 UN number** : UN 2735  
**14.2 UN proper shipping name** : AMINES, LIQUID, CORROSIVE, N.O.S.  
(4-METHYLCYCLOHEXANE-1, 3-DIAMINE)

**14.3 Transport hazard class(es)** : 8

**14.4 Packing group** : II  
Labels : 8

**14.5 Environmental hazards**  
Environmentally hazardous : no

### Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

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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).

Water contaminating class (Germany) : WGK 2 water endangering  
Remarks: Classification according VwVwS, Annex 4.

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.

AICS : Not in compliance with the inventory

NZIoC : Not in compliance with the inventory

ENCS : Low volume exemption

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Low volume exemption

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

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

### Inventories

AICS (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

## SECTION 16: Other information

### Full text of H-Statements

H302 : Harmful if swallowed.

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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.
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	: Chronic aquatic toxicity
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:

Skin Corr. 1B	H314
Eye Dam. 1	H318
Skin Sens. 1	H317
STOT RE 2	H373

#### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

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