

**ARALDITE® INSTANT 90 SEC HARDENER**

Version	Revision Date:	SDS Number:	Date of last issue: 28.01.2019
2.0	10.03.2021	400001021212	Date of first issue: 28.01.2019

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Trade name : ARALDITE® INSTANT 90 SEC 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 (Switzerland) GmbH  
 Address : Klybeckstrasse 200  
 CH-4057 Basel  
 Switzerland  
 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  
 Swiss Toxicologic Information Centre - Emergency Phone 145  
 (24 h)  
 +41 44 251 5151 (from outside Switzerland)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****Classification (REGULATION (EC) No 1272/2008)**


Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 3	H412: Harmful 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	:	Warning	
Hazard statements	:	H317 H319 H412	May cause an allergic skin reaction. Causes serious eye irritation. Harmful to aquatic life with long lasting effects.
Precautionary statements	:	<b>Prevention:</b> P261 P273 P280  <b>Response:</b> P333 + P313  P337 + P313  P362 + P364	Avoid breathing mist or vapours. Avoid release to the environment. Wear protective gloves/ eye protection/ face protection.  If skin irritation or rash occurs: Get medical advice/ attention. If eye irritation persists: Get medical advice/ attention. Take off contaminated clothing and wash it before reuse.

Hazardous components which must be listed on the label:

Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide

**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****Hazardous components**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)
Reaction products of pentaerythritol, propoxylated	Not Assigned -	Skin Sens. 1B; H317	>= 90 - <= 100

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and 1-chloro-2,3-epoxypropane with hydrogen sulfide	01-2120118957-46	Aquatic Chronic 3; H412	
Pyrimido[1,2-a]zazepine, 2,3,4,6,7,8,9,10-octahydro-	6674-22-2 229-713-7 01-2119977097-24	Acute Tox. 3; H301 Skin Corr. 1B; H314 Eye Dam. 1; H318	>= 1 - < 3
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	3033-62-3 221-220-5 01-2119972935-21	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318	>= 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.  
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 : If inhaled, remove to fresh air.  
Get medical attention if symptoms occur.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Immediately flush eye(s) with plenty of water.  
Remove contact lenses.  
Keep eye wide open while rinsing.  
If eye irritation persists, consult a specialist.
- If swallowed : Induce vomiting immediately and call a physician.  
Keep respiratory tract clear.  
Never give anything by mouth to an unconscious person.  
If symptoms persist, call a physician.

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**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.

**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

**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 : No hazardous combustion products are known

**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.  
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.

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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 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.  
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.

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

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**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
Pyrimido[1,2-a]zepine, 2,3,4,6,7,8,9,10- octahydro-	Workers	Inhalation	Long-term systemic effects	10,6 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2,6 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	1,5 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	1,5 mg/kg bw/day
N,N,N',N'-tetramethyl- 2,2'-oxybis(ethylamine)	Workers	Inhalation	Long-term systemic effects	0,16 mg/m <sup>3</sup>
	Workers	Inhalation	Long-term local effects	0,08 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term systemic effects	0,041 mg/m <sup>3</sup>
	Consumers	Inhalation	Long-term local effects	0,013 mg/m <sup>3</sup>
	Consumers	Oral	Long-term systemic effects	0,047 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Pyrimido[1,2-a]zepine, 2,3,4,6,7,8,9,10-octahydro-	Fresh water	0,24 mg/l
Remarks:	Assessment Factors	
	Marine water	0,024 mg/l
	Assessment Factors	
	Sewage treatment plant	13 mg/l
	Assessment Factors	
	Fresh water sediment	1,46 mg/kg dry weight (d.w.)
	Equilibrium method	

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	Marine sediment	0,146 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	0,152 mg/kg dry weight (d.w.)
	Equilibrium method	
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	Fresh water	0,023 mg/l
	Marine water	0,002 mg/l
	Sewage treatment plant	7,2 mg/l
	Fresh water sediment	0,099 mg/kg dry weight (d.w.)
	Marine sediment	0,01 mg/kg dry weight (d.w.)
	Soil	0,007 mg/kg dry weight (d.w.)

**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 : Solvent-resistant gloves (butyl-rubber)

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

Remarks : 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

Filter type : Organic vapour type (A)

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**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties**

Physical state	: liquid
Colour	: light yellow
Odour	: slight
Odour Threshold	: No data is available on the product itself.
pH	: 8 - 9 Concentration: 50 %
Melting point/freezing point	: No data is available on the product itself.
Boiling point/boiling range	: > 200 °C
Flash point	: 145 °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	: 0,0001 hPa (20 °C)
Relative vapour density	: No data is available on the product itself.
Relative density	: 1,14 (20 °C)
Density	: 1,14 g/cm <sup>3</sup> (20 °C)
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	: > 200 °C



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Viscosity  
Viscosity, dynamic            : 10 000 - 20 000 mPa.s (25 °C)

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

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

**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**

No hazardous decomposition products are known.

**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 methodAcute inhalation toxicity -    : Acute toxicity estimate : > 20 mg/l  
Product                            Exposure time: 4 h  
Test atmosphere: vapour  
Method: Calculation methodAcute dermal toxicity -        : Acute toxicity estimate : > 2 000 mg/kg  
Product                            Method: Calculation methodAcute toxicity (other routes of   : No data available  
administration)



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

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

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: negative

: Test Type: Ames test  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

: Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster fibroblasts  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 487  
Result: negative

: Test Type: comet assay  
Test system: Human lymphocytes  
Result: negative

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

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: negative

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

: 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: Not classified due to inconclusive data.

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: Test Type: unscheduled DNA synthesis assay  
Test system: rat hepatocytes  
Metabolic activation: negative  
Method: OECD Test Guideline 482  
Result: negative

**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Test species: Mouse (male and female)  
Cell type: Bone marrow  
Application Route: Intraperitoneal injection  
Dose: 45 - 145 mg/kg  
Method: OECD Test Guideline 474  
Result: negative  
GLP: yes

Germ cell mutagenicity-  
Assessment : No data available

**Carcinogenicity**

No data available

Carcinogenicity -  
Assessment : No data available

**Reproductive toxicity****Components:**

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

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: 0, 15, 50, 150 mg/kg bw/day  
Duration of Single Treatment: 28 d  
General Toxicity - Parent: No observed adverse effect level:  
50 mg/kg body weight  
Fertility: No observed adverse effect level: 150 mg/kg body  
weight  
Early Embryonic Development: No observed adverse effect  
level: 150 mg/kg body weight  
Method: OECD Test Guideline 422  
GLP: yes

**Components:**

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

Effects on foetal  
development : Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral  
Dose: 0/15/50/150 mg/kg bw/day  
Duration of Single Treatment: 14 d

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General Toxicity Maternal: No observed adverse effect level:  
150 mg/kg body weight  
Developmental Toxicity: No observed adverse effect level:  
150 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: yes

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Test Type: Pre-natal  
Species: Rabbit  
Application Route: Dermal  
Dose: 0, 1, 5 and 10 %  
Duration of Single Treatment: 13 d  
General Toxicity Maternal: No observed adverse effect level:  
12 mg/kg body weight  
Method: OECD Test Guideline 414  
GLP: no

Reproductive toxicity - Assessment : No data available

**STOT - single exposure**

No data available

**STOT - repeated exposure**

No data available

**Repeated dose toxicity****Components:**

Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide:

Species: Rat, male and female  
NOAEL: 75 mg/kg  
Application Route: Oral  
Dose: 75, 250 and 1000 mg/kg bw/d  
Method: OECD Test Guideline 408

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

Species: Rat, male and female  
NOAEL: 50 mg/kg  
Application Route: Oral  
Exposure time: 28 d Dose: 0,15,50,150 mg/kg bw/day  
Method: OECD Test Guideline 422  
GLP: yes

Species: Rat, male and female  
NOAEL: 120 mg/kg  
Application Route: Oral  
Exposure time: 90 d Dose: 0/15/40/120 mg/kg bw/day  
Method: OECD Test Guideline 408  
GLP: yes

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

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Species: Rat, male and female  
NOEC: 8,2  
Application Route: Inhalation  
Test atmosphere: vapour  
Exposure time: 14 weeks 6 h Number of exposures: 5 days/week  
Dose: 1.5/1/8.2/38 mg/m<sup>3</sup>  
Method: OECD Test Guideline 413  
GLP: yes

Species: Rabbit, male and female  
NOAEL: 8 mg/kg  
Application Route: Dermal  
Exposure time: 90 days 6 h Number of exposures: 5 days/week  
Method: OECD Test Guideline 411  
GLP: yes

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.

**Experience with human exposure**

General Information: No data available

Inhalation: No data available

Skin contact: No data available

**Components:**

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Eye contact:

Ingestion:                      Symptoms:                      Blurred vision  
No data available

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**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 pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide:

- |  |   |
|--|---|
| Toxicity to fish   | : LC50 (Danio rerio (zebra fish)): 87 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203  |
| Toxicity to daphnia and other aquatic invertebrates                    | : EC50 (Daphnia magna (Water flea)): 12 mg/l<br>Exposure time: 48 h<br>Test Type: static test<br>Method: OECD Test Guideline 202  |
| Toxicity to algae/aquatic plants                                       | : EC50 (Desmodesmus subspicatus (green algae)): > 733 mg/l<br>Exposure time: 72 h<br>Test Type: static test<br>Method: OECD Test Guideline 201<br>GLP: yes                                    |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : NOEC: 3,5 mg/l<br>Exposure time: 21 d<br>Species: Daphnia magna (Water flea)<br>Method: OECD Test Guideline 211   |
| Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:                   |   |
| Toxicity to fish   | : LC50 (Leuciscus idus (Golden orfe)): 100 - 220 mg/l<br>End point: mortality<br>Exposure time: 96 h<br>Test Type: static test<br>Test substance: Fresh water<br>Method: DIN 38412<br>GLP: no |
| Toxicity to daphnia and other aquatic invertebrates                    | : EC50 (Daphnia magna (Water flea)): 50 mg/l<br>End point: Immobilization<br>Exposure time: 48 h<br>Test Type: static test<br>Analytical monitoring: yes                                      |

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- Test substance: Fresh water  
 Method: Other guidelines  
 GLP: yes
- Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 GLP: yes
- ErC10 (Desmodesmus subspicatus (green algae)): Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 GLP: yes
- NOEC (Desmodesmus subspicatus (green algae)): > 100 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 GLP: yes
- Toxicity to microorganisms : EC20 (activated sludge): 650 mg/l  
 Exposure time: 0,5 h  
 Test Type: static test  
 Analytical monitoring: no  
 Test substance: Fresh water  
 Method: ISO 8192  
 GLP: no
- EC10 (Pseudomonas putida): 210 mg/l  
 Exposure time: 17 h  
 Test substance: Fresh water  
 Method: DIN 38 412 Part 8
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: >= 12 mg/l  
 Exposure time: 21 d  
 Species: Daphnia magna (Water flea)  
 Test Type: semi-static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 Method: OECD Test Guideline 211  
 GLP: yes
- Ecotoxicology Assessment  
 Chronic aquatic toxicity : This product has no known ecotoxicological effects.
- N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):  
 Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): ca. 131,2 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: semi-static test  
 Analytical monitoring: yes



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Test substance: Fresh water  
 Method: OECD Test Guideline 203  
 GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 102 mg/l  
 End point: Immobilization  
 Exposure time: 48 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 Method: OECD Test Guideline 202  
 GLP: yes

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 23 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Analytical monitoring: yes  
 Test substance: Fresh water  
 Method: OECD Test Guideline 201  
 GLP: yes

NOECr (Selenastrum capricornutum (green algae)): 1,83 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 : EC20 (activated sludge): > 720 mg/l  
 Exposure time: 0,5 h  
 Test Type: static test  
 Test substance: Fresh water  
 Method: OECD Test Guideline 209  
 GLP: no

Ecotoxicology Assessment  
 Chronic aquatic toxicity : This product has no known ecotoxicological effects.

**12.2 Persistence and degradability****Components:**

Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide:

Biodegradability : Test Type: aerobic  
 Inoculum: activated sludge  
 Result: Not biodegradable  
 Biodegradation: 5 %  
 Exposure time: 28 d  
 Method: OECD Test Guideline 301B

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

Biodegradability : Result: Not readily biodegradable.

Result: Not inherently biodegradable.

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Stability in water : Hydrolysis: 0 %(162 h)

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Biodegradability : Test Type: aerobic  
Inoculum: activated sludge  
Concentration: 400 mg/l  
Result: Not biodegradable  
Biodegradation: < 10 %  
Related to: Dissolved organic carbon (DOC)  
Exposure time: 28 d  
Method: OECD Test Guideline 302B  
GLP: no

Test Type: aerobic  
Inoculum: activated sludge  
Concentration: 100 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 2 %  
Related to: Theoretical oxygen demand  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
GLP: no

**12.3 Bioaccumulative potential****Components:**

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

Bioaccumulation : Bioconcentration factor (BCF): < 0,4  
Remarks: Does not bioaccumulate.Partition coefficient: n-  
octanol/water : log Pow: < -2,2 (25 °C)  
pH: 7  
Method: QSAR  
GLP: no

log Pow: -0,43  
pH: 12,4  
Method: QSAR  
GLP: no

N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine):

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-  
octanol/water : log Pow: -0,34 (20 °C)  
pH: 5 - 9  
Method: Partition coefficient  
GLP: yes

log Pow: -0,54

**12.4 Mobility in soil****Components:**

Pyrimido[1,2-a]azepine, 2,3,4,6,7,8,9,10-octahydro-:

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Distribution among environmental compartments : log Koc: Calculation method 3,75

**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.  
Harmful to aquatic life with long lasting effects.

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

**SECTION 14: Transport information****IATA**

Not regulated as dangerous goods

**IMDG**

Not regulated as dangerous goods

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**ADR**

Not regulated as dangerous goods

**RID**

Not regulated as dangerous goods

**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).

PIC Ordinance, ChemPICO (814.82) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.  
Not applicable

Ordinance on Protection against Major Accidents  
Threshold quantity according to Major Accidents Ordinance (MAO 814.012) : Not applicable

## Other regulations:

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2): Young people undergoing basic vocational training may only work with this product if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not completing any basic vocational training are not permitted to work with this product. Employees of either sex who are under 18 years old are classed as young people.

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

ENCS : Not in compliance with the inventory

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

PICCS : On the inventory, or 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), AIIIC (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**

H301 : Toxic if swallowed.

H302 : Harmful if swallowed.

H311 : Toxic in contact with skin.

H314 : Causes severe skin burns and eye damage.

H317 : May cause an allergic skin reaction.

H318 : Causes serious eye damage.

H332 : Harmful 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 Dam. : Serious eye damage

Skin Corr. : Skin corrosion

Skin Sens. : Skin sensitisation

**Classification of the mixture:**

Eye Irrit. 2	H319
Skin Sens. 1	H317
Aquatic Chronic 3	H412

**Classification procedure:**

Based on product data or assessment
Calculation method
Calculation method

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