

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® INSTANT 90 SEC HARDENER

Version	Revision Date:	SDS Number:	Date of last issue: 10.03.2021
2.1	01.12.2023	400001021212	Date of first issue: 28.01.2019

Print Date 10.10.2025

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

1.1 Product identifier

Trade name : ARALDITE® INSTANT 90 SEC HARDENER

Unique Formula Identifier (UFI) : 3K51-R0K7-2004-MX3T

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

Use of the Substance/Mixture : Hardener

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV
Address : Everslaan 45
3078 Everberg
Belgium

Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2 H319: Causes serious eye irritation.

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Skin sensitisation, Category 1
Long-term (chronic) aquatic hazard,
Category 3

H317: May cause an allergic skin reaction.
H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H412 Harmful 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:

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 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.	Classification	Concent
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	Index-No. Registration number		ration (% w/w)
Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide	Not Assigned - 01-2120118957-46	Skin Sens. 1B; H317 Aquatic Chronic 3; H412	>= 90 - <= 100
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
1,8-diazabicyclo[5.4.0]undec-7-ene	6674-22-2 229-713-7	Acute Tox. 3; H301 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.

4.2 Most important symptoms and effects, both acute and delayed

- Risks : May cause an allergic skin reaction.
Causes serious eye irritation.

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4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

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

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Carbon oxides
Sulphur oxides
Nitrogen oxides (NO_x)
Ammonia

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.
If the product contaminates rivers and lakes or drains inform

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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.

Storage class (TRGS 510) : 10

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
1,8-diazabicyclo[5.4.0]undec-7-ene	Workers	Inhalation	Long-term systemic effects	10,6 mg/m3
	Workers	Dermal	Long-term systemic effects	3 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2,6 mg/m3
	Consumers	Dermal	Long-term systemic effects	1,5 mg/kg bw/day
N,N,N',N'-tetramethyl-2,2'-oxybis(ethylamine)	Consumers	Oral	Long-term systemic effects	1,5 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	0,16 mg/m3
	Workers	Inhalation	Long-term local effects	0,08 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0,041 mg/m3
Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide	Consumers	Inhalation	Long-term local effects	0,013 mg/m3
	Consumers	Oral	Long-term systemic effects	0,047 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	22 mg/m3
	Workers	Dermal	Long-term systemic effects	2,7 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	6,52 mg/m3
	Consumers	Dermal	Long-term systemic effects	1,61 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	1,9 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
1,8-diazabicyclo[5.4.0]undec-7-ene	Fresh water	0,24 mg/l
	Remarks: Assessment Factors	
	Marine water	0,024 mg/l

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	Remarks:Assessment Factors	
	Sewage treatment plant	13 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	1,46 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,146 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,152 mg/kg dry weight (d.w.)
	Remarks: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.)
Reaction products of pentaerythritol, propoxylated and 1-chloro-2,3-epoxypropane with hydrogen sulfide	Fresh water	70 µg/l
	Remarks:Assessment Factors	
	Marine water	7 µg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	10 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	0,322 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,032 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,023 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

8.2 Exposure controls

Personal protective equipment

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

Hand protection

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

Material : Solvent-resistant gloves (butyl-rubber)

Material : Nitrile rubber

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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
Equipment should conform to EN 14387

Filter type : Combined particulates and organic vapour type (A-P)

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.

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

Boiling point/boiling range : > 200 °C

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

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

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

Flash point : 145 °C
Method: Pensky-Martens closed cup

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

Decomposition temperature : > 200 °C

pH : 8 - 9
Concentration: 50 %

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

Solubility(ies)

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Water solubility : practically 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.

Vapour pressure : 0,0001 hPa (20 °C)

Density : 1,14 g/cm³ (20 °C)

Relative density : 1,14 (20 °C)

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

Particle characteristics : No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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

Acute toxicity

Not classified due to lack of data.

Product:

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

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Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

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

Components:

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

Acute oral toxicity : LD50 (Rat, male and female): 2 600 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 0,1 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: no
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 10 200 mg/kg
Method: OECD Test Guideline 402
GLP: no
Assessment: The substance or mixture has no acute dermal toxicity

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

Acute oral toxicity : LD50 (Rat, male and female): 677 mg/kg
Method: OECD Test Guideline 401
GLP: yes
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): 4 mg/l
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: no
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit, male and female): 314 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The component/mixture is toxic after single contact with skin.

1,8-diazabicyclo[5.4.0]undec-7-ene:

Acute oral toxicity : LD50 (Rat, male and female): 300 mg/kg
Method: OECD Test Guideline 401

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GLP: no

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

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: No skin irritation

Components:

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

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

Species	: reconstructed human epidermis (RhE)
Assessment	: No skin irritation
Method	: OECD Test Guideline 439
Result	: No skin irritation

Species	: reconstructed human epidermis (RhE)
Method	: OECD Test Guideline 431
Result	: Not corrosive

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

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

1,8-diazabicyclo[5.4.0]undec-7-ene:

Assessment	: Causes burns.
Method	: In Vitro Membrane Barrier Test Method for Skin Corrosion - CORROSITEX
Result	: Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Species	: Rabbit
Method	: OECD Test Guideline 405
Result	: Irritating to eyes.

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Components:

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

Species	: Rabbit
Assessment	: No eye irritation
Method	: OECD Test Guideline 405
Result	: No eye irritation
GLP	: no

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

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

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Components:

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

Test Type	: Local lymph node assay (LLNA)
Exposure routes	: Skin
Species	: Mouse
Assessment	: Probability or evidence of low to moderate skin sensitisation rate in humans
Method	: OECD Test Guideline 429
Result	: Probability or evidence of low to moderate skin sensitisation rate in humans

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

Test Type	: Buehler Test
Exposure routes	: Skin
Species	: Guinea pig
Assessment	: Did not cause sensitisation on laboratory animals.
Method	: OECD Test Guideline 406
Result	: Did not cause sensitisation on laboratory animals.
GLP	: yes

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Germ cell mutagenicity

Not classified due to lack of data.

Components:

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

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

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

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

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.

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

Genotoxicity in vivo : Test Type: In vivo micronucleus test

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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

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

Carcinogenicity

Not classified due to lack of data.

Reproductive toxicity

Not classified due to lack of data.

Components:

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

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

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

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Dose: 0, 15, 50, 150 mg/kg bw/day
Duration of Single Treatment: 28 d
General Toxicity - Parent: NOAEL: 50 mg/kg body weight
Fertility: NOAEL: 150 mg/kg body weight
Early Embryonic Development: NOAEL: 150 mg/kg body weight
Method: OECD Test Guideline 422
GLP: yes

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
General Toxicity Maternal: NOAEL: 150 mg/kg body weight
Developmental Toxicity: NOAEL: 150 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

STOT - single exposure

Not classified due to lack of data.

STOT - repeated exposure

Not classified due to lack of data.

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 (gavage)
Dose : 75, 250 and 1000 mg/kg bw/d
Method : OECD Test Guideline 408
GLP : yes

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

Species : Rat, male and female
NOEC : 8,2 mg/m³
Application Route : Inhalation
Test atmosphere : vapour
Exposure time : 14 weeks 6 h
Number of exposures : 5 days/week
Dose : 1.51/8.2/38 mg/m³
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

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GLP : yes

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

Aspiration toxicity

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

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

Experience with human exposure

Components:

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

Eye contact : Symptoms: Blurred vision

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

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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
End point: mortality
Exposure time: 96 h
Test substance: Fresh water
Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 12 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | EC50 (Desmodesmus subspicatus (green algae)): > 733 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes |
| Toxicity to microorganisms | : | EC50 (activated sludge): > 1 000 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: yes |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 3,5 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
GLP: yes |

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
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 |

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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.

1,8-diazabicyclo[5.4.0]undec-7-ene:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 100 - 220 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38412
GLP: no

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 50 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
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

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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.

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

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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

1,8-diazabicyclo[5.4.0]undec-7-ene:

Biodegradability : Result: Not readily biodegradable.
Result: Not inherently biodegradable.

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

12.3 Bioaccumulative potential

Components:

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

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

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GLP: no

12.4 Mobility in soil

Components:

1,8-diazabicyclo[5.4.0]undec-7-ene:

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

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as dangerous goods

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ADR	:	Not regulated as dangerous goods
RID	:	Not regulated as dangerous goods
IMDG	:	Not regulated as dangerous goods
IATA	:	Not regulated as dangerous goods

14.2 UN proper shipping name

UNRTDG	:	Not regulated as dangerous goods
ADN	:	Not regulated as dangerous goods
ADR	:	Not regulated as dangerous goods
RID	:	Not regulated as dangerous goods
IMDG	:	Not regulated as dangerous goods
IATA	:	Not regulated as dangerous goods

14.3 Transport hazard class(es)

ADN	:	Not regulated as dangerous goods
ADR	:	Not regulated as dangerous goods
RID	:	Not regulated as dangerous goods
IMDG	:	Not regulated as dangerous goods
IATA	:	Not regulated as dangerous goods

14.4 Packing group

ADN	:	Not regulated as dangerous goods
ADR	:	Not regulated as dangerous goods
RID	:	Not regulated as dangerous goods
IMDG	:	Not regulated as dangerous goods
IATA (Cargo)	:	Not regulated as dangerous goods
IATA (Passenger)	:	Not regulated as dangerous goods

14.5 Environmental hazards

Not regulated as dangerous goods

14.6 Special precautions for user

Remarks	:	Not classified as dangerous in the meaning of transport regulations.
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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	:	Not applicable
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(Annex XIV)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Number on list 75, 3

If you intend to use this product as tattoo ink, please contact your vendor.

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

Water hazard class (Germany) : WGK 1 slightly hazardous to water
Classification according to AwSV, Annex 1 (5.2)

Other regulations:

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

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

DSL : All components of this product are on the Canadian DSL

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

ENCS : Not in compliance with the inventory

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 : On or in compliance with the active portion of the TSCA inventory

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Inventories

AICS (Australia), AICC (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	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Skin Corr.	: Skin corrosion
Skin Sens.	: Skin sensitisation

Further information

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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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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