

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARADUR® 3486 BD

Version	Revision Date:	SDS Number:	Date of last issue: 08.09.2016
1.1	10.10.2018	400001014180	Date of first issue: 08.09.2016

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

1.1 Product identifier

Trade name : ARADUR® 3486 BD

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

Use of the : Hardener
Substance/Mixture

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 : Global_Product_EHS_AdMat@huntsman.com
responsible for the SDS

1.4 Emergency telephone number

Emergency telephone number : Centres Antipoison et de Toxicovigilance:
ANGERS: 02 41 48 21 21
BORDEAUX: 05 56 96 40 80
LILLE: 0 825 812 822
LYON: 04 72 11 69 11
MARSEILLE 04 91 75 25 25
NANCY: 03 83 32 36 36
PARIS: 01 40 05 48 48
RENNES: 02 99 59 22 22
STRASBOURG: 03 88 37 37 37
TOULOUSE: 05 61 77 74 47
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)

Acute toxicity, Category 4 H332: Harmful if inhaled.

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Skin corrosion, Sub-category 1A	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 3	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms

:



Signal word

: Danger

Hazard statements

:

H314
H317
H332
H412

Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Harmful if inhaled.
Harmful to aquatic life with long lasting effects.

Precautionary statements

:

Prevention:

P261
P273
P280

Avoid breathing mist or vapours.
Avoid release to the environment.
Wear protective gloves/ protective clothing/
eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.

Hazardous components which must be listed on the label:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia

3-Aminomethyl-3,5,5-trimethylcyclohexylamine

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine)

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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)
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia	- - 01-2119557899-12	Skin Corr. 1C; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 60 - < 100
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	2855-13-2 220-666-8 612-067-00-9 01-2119514687-32	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 13 - < 30
2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine)	6864-37-5 229-962-1 612-110-00-1 01-2119497829-12	Acute Tox. 4; H302 Acute Tox. 3; H311 Acute Tox. 2; H330 Skin Corr. 1A; H314 Aquatic Chronic 2; H411 STOT RE 2; H373	>= 7 - < 13

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible

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tissue damage and blindness.

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Continue rinsing eyes during transport to hospital.

Remove contact lenses.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed

: Keep respiratory tract clear.

Do NOT induce vomiting.

Never give anything by mouth to an unconscious person.

If symptoms persist, call a physician.

Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

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

Unsuitable extinguishing media : High volume water jet

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.

5.3 Advice for firefighters

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

Specific extinguishing methods : No data is available on the product itself.

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

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel,
acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

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

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 : Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the
application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national
regulations.
Persons susceptible to skin sensitisation problems or asthma,
allergies, chronic or recurrent respiratory disease should not
be employed in any process in which this mixture is being
used.

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.

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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.

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. Observe label precautions. 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 : No decomposition if stored and applied as directed.

Recommended storage temperature : 2 - 40 °C

Stable under normal conditions.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Workers	Inhalation	Long-term systemic effects	0,6 mg/m3
	Workers	Inhalation	Long-term local effects	0,96 mg/m3
	Workers	Dermal	Long-term systemic effects	0,06 mg/kg
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Workers	Inhalation	Systemic effects, Short-term exposure	20,1 mg/m3
	Workers	Inhalation	Local effects, Short-term exposure	20,1 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	0,526 mg/kg bw/day
Reaction products of di-, tri- and tetra-propoxylated propane-	Workers	Inhalation	Long-term systemic effects	1,36 mg/m3

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1,2-diol with ammonia				
	Workers	Dermal	Long-term systemic effects	2,5 mg/kg bw/day
2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine)	Workers	Inhalation	Long-term systemic effects	0,6 mg/m3
	Workers	Inhalation	Long-term local effects	0,96 mg/m3
	Workers	Dermal	Long-term systemic effects	0,06 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Workers	Inhalation	Systemic effects, Short-term exposure	20,1 mg/m3
	Workers	Inhalation	Local effects, Short-term exposure	20,1 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	0,526 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	Fresh water	0,4 mg/l
	Marine water	0,04 mg/l
	Freshwater - intermittent	0,046 mg/l
	Sewage treatment plant	1,6 mg/l
	Fresh water sediment	17,4 mg/kg
	Marine sediment	17,4 mg/kg
	Soil	4,56 mg/kg
3-aminomethyl-3,5,5-trimethylcyclohexylamine	Fresh water	0,06 mg/l
Remarks:	Assessment Factors	
	Marine water	0,006 mg/l
	Assessment Factors	
	Freshwater - intermittent	0,23 mg/l
	Assessment Factors	
	Sewage treatment plant	3,18 mg/l
	Assessment Factors	
	Fresh water sediment	5,784 mg/kg
	Assessment Factors	
	Marine sediment	0,578 mg/kg
	Assessment Factors	
	Soil	1,121 mg/kg

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	Assessment Factors	
	Secondary Poisoning	
	Assessment Factors	
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia	Fresh water	0,015 mg/l
	Marine water	0,014 mg/l
	Fresh water sediment	0,132 mg/kg dry weight (d.w.)
	Marine sediment	0,125 mg/kg dry weight (d.w.)
	Sewage treatment plant	7,5 mg/l
	Secondary Poisoning	6,93 mg/kg
	Freshwater - intermittent	0,15 mg/l
	Soil	0,018 mg/kg dry weight (d.w.)
2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine)	Fresh water	0,4 mg/l
	Marine water	0,04 mg/l
	Freshwater - intermittent	0,046 mg/l
	Sewage treatment plant	1,6 mg/l
	Fresh water sediment	17,4 mg/kg
	Marine sediment	17,4 mg/kg
	Soil	4,56 mg/kg
3-Aminomethyl-3,5,5-trimethylcyclohexylamine	Fresh water	0,06 mg/l
	Assessment Factors	
	Marine water	0,006 mg/l
	Assessment Factors	
	Freshwater - intermittent	0,23 mg/l
	Assessment Factors	
	Sewage treatment plant	3,18 mg/l
	Assessment Factors	
	Fresh water sediment	5,784 mg/kg
	Assessment Factors	
	Marine sediment	0,578 mg/kg
	Assessment Factors	
	Soil	1,121 mg/kg

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	Assessment Factors	
	Secondary Poisoning	
	Assessment Factors	

8.2 Exposure controls

Engineering measures

Maintain air concentrations below occupational exposure standards.

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

Material : Ethyl Vinyl Alcohol Laminate (EVAL)

Break through time : > 8 h

Material : Nitrile rubber

Break through time : 10 - 480 min

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

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

Filter type : Filter type A-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : colourless

Odour : ammoniacal

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

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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	: No data is available on the product itself.
Flash point	: 123 °C Method: Pensky-Martens closed cup
Evaporation rate	: No data is available on the product itself.
Flammability (solid, gas)	: No data is available on the product itself.
Burning rate	: No data is available on the product itself.
Upper explosion limit / Upper flammability limit	: No data is available on the product itself.
Lower explosion limit / Lower flammability limit	: No data is available on the product itself.
Vapour pressure	: No data is available on the product itself.
Relative vapour density	: No data is available on the product itself.
Relative density	: 0,94
Density	: 0,94 - 0,95 g/cm ³ (20 °C)
Solubility(ies) Water solubility	: > 100 g/l partly soluble (20 °C)
Solubility in other solvents	: No data is available on the product itself.
Partition coefficient: n-octanol/water	: No data is available on the product itself.
Auto-ignition temperature	: No data is available on the product itself.
Decomposition temperature	: No data is available on the product itself.
Viscosity Viscosity, dynamic	: 10 - 20 mPa.s (20 °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

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SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.
No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

No decomposition if stored and applied as directed.
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Stable under normal conditions.

No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

None known.

10.5 Incompatible materials

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

None known.

10.6 Hazardous decomposition products

Carbon oxides
Nitrogen oxides (NO_x)
Burning produces noxious and toxic fumes.
No hazardous decomposition products are known.

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

Acute inhalation toxicity - Product : Acute toxicity estimate : 4,48 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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

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

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Skin corrosion/irritation

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Species: Rabbit

Method: OECD Test Guideline 404

Result: Corrosive after 1 to 4 hours of exposure

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Species: Rabbit

Result: Causes burns.

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Species: Rabbit

Method: OECD Test Guideline 404

Result: Causes burns.

Serious eye damage/eye irritation

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Species: Rabbit

Assessment: Corrosive

Method: OECD Test Guideline 405

Result: Irreversible effects on the eye

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Species: Rabbit

Exposure time: 24 h

Assessment: Corrosive

Method: OECD Test Guideline 405

Result: Corrosive

Respiratory or skin sensitisation

Components:

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Exposure routes: Skin

Species: Guinea pig

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 406

Result: Causes sensitisation.

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Test Type: Maximisation Test

Exposure routes: Skin

Species: Guinea pig

Method: OECD Test Guideline 406

Result: Does not cause skin sensitisation.

Assessment: No data available

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Germ cell mutagenicity

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Genotoxicity in vitro : Concentration: 0 - 10000 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

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

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

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

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

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Genotoxicity in vivo : Application Route: Oral
Dose: 500 mg/kg
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

No data available

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

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Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Effects on fertility : Species: Rat, male and female
Application Route: Dermal
Method: OECD Test Guideline 421
Result: Animal testing did not show any effects on fertility.

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Species: Rat, male and female
Application Route: Oral
Dose: 0, 15, 50 and 100 mg/kg/day
Frequency of Treatment: 7 days/week
General Toxicity - Parent: No observed adverse effect level:
15 mg/kg body weight
General Toxicity F1: No observed adverse effect level: 15
mg/kg body weight
Method: OECD Test Guideline 422

Components:

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No-observed-effect level: 50 mg/kg
body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Species: Rat
Application Route: Oral
Dose: 5, 15 and 45 mg/kg bw /day
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level: 5
mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 45
mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

Components:

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Exposure routes: Ingestion

Target Organs: Liver, Kidney, Adrenal gland, Heart, Blood

Assessment: May cause damage to organs through prolonged or repeated exposure.

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Repeated dose toxicity

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Species: Rat, male and female

NOAEL: 250

Application Route: Skin contact

Exposure time: 2 160 h Number of exposures: 5 d

Method: Subchronic toxicity

Species: Rat, male and female

NOAEL: 239

Application Route: Ingestion

Exposure time: 744 h Method: Subchronic toxicity

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Species: Rat, male and female

NOEC: 60 mg/kg, 200

Application Route: Ingestion

Test atmosphere: dust/mist

Exposure time: 216 h Number of exposures: 6 h

Method: Subchronic toxicity

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Species: Rat, male and female

NOEC: 12

Application Route: Inhalation

Test atmosphere: vapour

Number of exposures: 5 days/week

Method: OECD Test Guideline 413

Species: Rat, male and female

NOAEL: 2,5 mg/kg

Application Route: oral (gavage)

Exposure time: 3 months Number of exposures: 5 days/week

Dose: 2.5, 12, 60 mg/kg bw/day

Method: OECD Test Guideline 408

Target Organs: Liver, Blood, Kidney, Adrenal gland, Heart

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

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Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Toxicity to fish : EC50 (Oncorhynchus mykiss (rainbow trout)): > 15 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

LC50 : 772,14 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Marine water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 80 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

EC50 (Acartia tonsa): 418,34 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Marine water

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 15 mg/l

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Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

ErC10 (Selenastrum capricornutum (green algae)): 1,4 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Ecotoxicology Assessment

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 110 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

Toxicity to daphnia and other aquatic invertebrates : EC50 : 23 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae : EC50 : 37 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 : EC10 : 1 120 mg/l
Exposure time: 18 h
Method: Measured

(Pseudomonas putida): 1 120 mg/l
Exposure time: 18 h
Test Type: static test
Test substance: Fresh water

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Toxicity to fish : LC50 (Oryzias latipes (Orange-red killifish)): 22,4 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 4,57 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae : EC50 (Other): 7,9 mg/l

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Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC20 (activated sludge): 160 mg/l
Exposure time: 30 min
Test Type: static test
Method: ISO 8192

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 4 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211

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

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Biodegradability : Inoculum: Mixture
Result: Not biodegradable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Stability in water : Degradation half life (DT50): 12 Months (25 °C)
pH: 6,5
Method: No information available.
Remarks: Fresh water

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Biodegradability : Inoculum: activated sludge
Concentration: 6,9 mg/l
Result: Not readily biodegradable.
Biodegradation: 8 %
Exposure time: 28 d
Method: Directive 67/548/EEC Annex V, C.4.A.

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Inoculum: activated sludge
Result: Not biodegradable

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Biodegradation: < 1 %
Exposure time: 28 d
Method: OECD Test Guideline 302B

12.3 Bioaccumulative potential

Components:

Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia:

Partition coefficient: n-octanol/water : log Pow: 1,34 (25 °C)

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Partition coefficient: n-octanol/water : log Pow: 0,99 (23 °C)
pH: 6,34

Method: OECD Test Guideline 107

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 28 d
Bioconcentration factor (BCF): < 60
Test substance: Fresh water
Method: flow-through test
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 2,3 (23 °C)
pH: 10

Method: OECD Test Guideline 107

12.4 Mobility in soil

Components:

3-Aminomethyl-3,5,5-trimethylcyclohexylamine:

Distribution among environmental compartments : Koc: 928

2,2'-Dimethyl-4,4'-methylenebis(cyclohexylamine):

Distribution among environmental compartments : Koc: 1195

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

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.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	: Empty remaining contents. 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	: Polyamines, liquid, corrosive, n.o.s. (ISOPHORONE DIAMINE, cycloaliphatic polyamine)
14.3 Transport hazard class(es)	: 8
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	: POLYAMINES, LIQUID, CORROSIVE, N.O.S. (ISOPHORONE DIAMINE, cycloaliphatic polyamine)
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	: POLYAMINES, LIQUID, CORROSIVE, N.O.S.

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(ISOPHORONE DIAMINE, cycloaliphatic polyamine)

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 : POLYAMINES, LIQUID, CORROSIVE, N.O.S.

(ISOPHORONE DIAMINE, cycloaliphatic polyamine)

14.3 Transport hazard class(es) : 8

14.4 Packing group : II

Labels : 8

14.5 Environmental hazards

Environmentally hazardous : no

14.7 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

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).

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - List of substances subject to authorisation - Future sunset date : Not applicable

Occupational Illnesses (R-461-3, France) : 49, 49 bis

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

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

NZIoC : Not in compliance with the inventory

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

Inventories

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

15.2 Chemical safety assessment

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

SECTION 16: Other information

Full text of H-Statements

H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H312	: Harmful in contact with skin.
H314	: Causes severe skin burns and eye damage.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H330	: Fatal if inhaled.
H373	: May cause damage to organs through prolonged or repeated exposure if swallowed.
H411	: Toxic to aquatic life with long lasting effects.
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
STOT RE	: Specific target organ toxicity - repeated exposure

Further information

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Classification of the mixture:

Acute Tox. 4	H332
Skin Corr. 1A	H314
Eye Dam. 1	H318
Skin Sens. 1	H317
Aquatic Chronic 3	H412

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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