

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

HUNTSMAN

Enriching lives through innovation

ARALDITE® 2014-2 HARDENER

Version	Revision Date:	SDS Number:	Date of last issue: 01.06.2016
1.1	25.07.2018	400001014968	Date of first issue: 01.06.2016

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

1.1 Product identifier

Trade name : ARALDITE® 2014-2 HARDENER

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

Use of the Substance/Mixture : Adhesives

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe)BVBA
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone number

Emergency telephone number : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/ eye protection/ face protection.
Response:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P391 Collect spillage.

Hazardous components which must be listed on the label:

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

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine

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

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine

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)

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Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine (UVCB)	68154-62-1 614-339-2 01-2119972322-40	Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Chronic 2; H411	>= 30 - < 50
2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine	25513-64-8 247-063-2 01-2119560598-25	Acute Tox. 4; H302 Skin Corr. 1A; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317	>= 5 - < 10
Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine	68154-62-1 - Polymer	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 2.5 - < 10
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	10563-29-8 234-148-4 01-2119970376-29	Acute Tox. 4; H302 Skin Corr. 1A; H314 Skin Sens. 1B; H317	>= 3 - < 5

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 : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

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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 : 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 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 : No data is available on the product itself.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

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

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6.3 Methods and material for containment and cleaning up

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

6.4 Reference to other sections

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

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 or spray mist.
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 : When using do not eat or drink. When using do not smoke.
Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers.

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

Recommended storage temperature : 2 - 40 °C

Further information on storage stability : Stable under normal conditions.

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7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
barium sulfate	7727-43-7	TWA (inhalable dust)	10 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Respirable dust)	4 mg/m3	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m-3 8-hour TWA of inhalable dust or 4 mg.m-3 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system			

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	and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
Silicon dioxide	7631-86-9	TWA (inhalable dust)	6 mg/m ³ (Silica)	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (Respirable dust)	2.4 mg/m ³ (Silica)	GB EH40
Further information	For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected when sampling is undertaken in accordance with the methods described in MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust, The COSHH definition of a substance hazardous to health includes dust of any kind when present at a concentration in air equal to or greater than 10 mg.m ⁻³ 8-hour TWA of inhalable dust or 4 mg.m ⁻³ 8-hour TWA of respirable dust. This means that any dust will be subject to COSHH if people are exposed above these levels. Some dusts have been assigned specific WELs and exposure to these must comply with the appropriate limit., Most industrial dusts contain particles of a wide range of sizes. The behaviour, deposition and fate of any particular particle after entry into the human respiratory system and the body response that it elicits, depend on the nature and size of the particle. HSE distinguishes two size fractions for limit-setting purposes termed 'inhalable' and 'respirable'. Inhalable dust approximates to the fraction of airborne material that enters the nose and mouth during breathing and is			

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therefore available for deposition in the respiratory tract. Respirable dust approximates to the fraction that penetrates to the gas exchange region of the lung. Fuller definitions and explanatory material are given in MDHS14/3., Where dusts contain components that have their own assigned WEL, all the relevant limits should be complied with., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used

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

Substance name	End Use	Exposure routes	Potential health effects	Value
barium sulfate	Workers	Inhalation	Long-term systemic effects	10 mg/m ³
	Workers	Inhalation	Long-term local effects	10 mg/m ³
	Consumer use	Inhalation	Long-term systemic effects	10 mg/m ³
	Consumer use	Oral	Long-term systemic effects	13000 mg/kg
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	Workers	Inhalation	Long-term systemic effects	3.7 mg/m ³
	Workers	Inhalation	Acute systemic effects	7.5 mg/m ³
	Workers	Inhalation	Long-term local effects	3.7 mg/m ³
	Workers	Inhalation	Acute local effects	7.5 mg/m ³
	Workers	Dermal	Long-term systemic effects	0.67 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.65 mg/m ³
	Consumers	Inhalation	Long-term local effects	0.65 mg/m ³
Silicon dioxide	Workers	Inhalation	Long-term systemic effects	4 mg/m ³
	Consumers	Oral	Long-term systemic effects	0.2 mg/kg
		Oral	Long-term systemic effects	0.05 mg/kg

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

Substance name	Environmental Compartment	Value
barium sulfate	Fresh water	115 µg/l
	Sewage treatment plant	62.2 mg/l
Remarks:	Assessment Factors	
	Fresh water sediment	600.4 mg/kg
	Assessment Factors	

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	Soil	207.7 mg/kg
Assessment Factors		
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	Fresh water	9.2 µg/l
Assessment Factors		
	Marine water	0.92 µg/l
Assessment Factors		
	Freshwater - intermittent	92 µg/l
Assessment Factors		
	Sewage treatment plant	18.1 mg/l
Assessment Factors		
	Fresh water sediment	0.0336 mg/kg
Equilibrium method		
	Marine sediment	0.00336 mg/kg
Equilibrium method		
	Soil	0.00132 mg/kg
Equilibrium method		
2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine	Fresh water	0.102 mg/l
Assessment Factors		
	Marine water	0.01 mg/l
Assessment Factors		
	Sewage treatment plant	72 mg/l
Assessment Factors		
	Fresh water sediment	0.662 mg/kg
	Marine sediment	0.062 mg/kg

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

Material : Ethyl Vinyl Alcohol Laminate (EVAL)

Break through time : > 8 h

Material : Nitrile rubber

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

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

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

Filter type : Filter type A-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : paste

Colour : black

Odour : amine-like

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

pH : No data is available on the product itself.

Melting point/freezing point : No data available

Boiling point : > 200 °C

Flash point : > 100 °C
Method: closed cup

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

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

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

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

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

Vapour pressure : 0.001 hPa

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

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

Density : ca. 1.6 g/cm³

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 : > 200 °C

Decomposition temperature : > 200 °C

Viscosity
Viscosity, dynamic : 75 - 150 Pas (20 °C)
Method: DIN, Other

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

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

9.2 Other information

Molecular weight : 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

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Materials to avoid : None known.

10.6 Hazardous decomposition products

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 : No data available

Components:

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

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Acute dermal toxicity : LD50 (Rat): Assessment: The substance or mixture has no acute dermal toxicity

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

Skin corrosion/irritation

Product:

Species: reconstructed human epidermis (RhE)

Assessment: Irritating to skin.

Method: OECD Test Guideline 435

Result: Non-corrosive

Serious eye damage/eye irritation

Components:

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

Species: Rabbit

Method: OECD Test Guideline 405

Result: Corrosive

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:

Species: Rabbit

Method: OECD Test Guideline 405

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Result: Corrosive

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Assessment: Irritating to eyes.

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Assessment: Severe eye irritation
Result: Corrosive

Respiratory or skin sensitisation

Components:

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: The product is a skin sensitiser, sub-category 1A.

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: The product is a skin sensitiser, sub-category 1A.

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Assessment: May cause sensitisation by skin contact.

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: The product is a skin sensitiser, sub-category 1B.

Assessment: No data available

Germ cell mutagenicity

Components:

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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

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

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2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:

Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella typhimurium
Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: Directive 67/548/EEC, Annex, B.13/14
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: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Concentration: 2 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

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

: 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

Components:

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:

Genotoxicity in vivo : Test species: Chinese hamster (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 825 - 1000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Test Type: In vivo micronucleus test

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Test species: Mouse (male and female)
Application Route: Oral
Dose: 850 - 1000 mg/kg
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Components:

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Mouse, male
Application Route: Dermal
Exposure time: 20 month(s)
Frequency of Treatment: 3 daily
Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: Animal testing did not show any effects on fertility.

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:
Species: Rat, male and female
Application Route: Oral
Dose: 10, 60, 120 mg/kg bw/day
Method: OECD Test Guideline 416
Result: No effects on fertility and early embryonic development were detected.

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: Animal testing did not show any effects on fertility.

Components:

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:
Effects on foetal development : Species: Rabbit, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 50,000 ppm
Result: No teratogenic effects

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Rat, male and female

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Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 15 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: 15 mg/kg body weight
Embryo-foetal toxicity: No observed adverse effect level: 15 mg/kg body weight
Method: OECD Test Guideline 422
Result: No effects on fertility and early embryonic development were detected.

Components:

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Species: Rat, male and female
NOAEL: 1000 mg/kg
Application Route: Ingestion
Exposure time: 6 Weeks Number of exposures: 7 d
Method: Subacute toxicity

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:
Species: Rat, male and female
NOAEL: 10
Application Route: Ingestion
Exposure time: 13 Weeks Number of exposures: Daily
Dose: 10, 60, 180mg/kg bw
Target Organs: Liver

Species: Rat, male and female
LOAEL: 60
Application Route: Ingestion
Exposure time: 13 Weeks Number of exposures: Daily
Dose: 10, 60, 180mg/kg bw
Target Organs: Liver

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Rat, male and female
NOEC: 550
Application Route: Ingestion

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Test atmosphere: vapour
Exposure time: 3 Weeks Number of exposures: 7 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL: ≥ 56.3
Application Route: Skin contact
Exposure time: 20 h Number of exposures: 3 d
Method: Chronic toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

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SECTION 12: Ecological information

12.1 Toxicity

Components:

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

- Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 7.07 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5.18 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2.43 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
- Toxicity to microorganisms : EC50 (activated sludge): 421 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
- 2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:
- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 174 mg/l
Exposure time: 48 h
Method: DIN 38412
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.5 mg/l
Exposure time: 24 h
Method: DIN 38412
- Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (algae)): 43.5 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- EC50 (Pseudokirchneriella subcapitata (algae)): 37.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (algae)): 16 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to microorganisms : IC50 (Pseudomonas putida): 89 mg/l
Exposure time: 17 h

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- Toxicity to fish (Chronic toxicity) : NOEC: 10.9 mg/l
Exposure time: 30 d
Species: Brachydanio rerio (zebrafish)
Method: OECD Test Guideline 210
- Lowest Observed Effect Concentration: 10.9 mg/l
Exposure time: 30 d
Species: Brachydanio rerio (zebrafish)
Method: OECD Test Guideline 210
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 1.02 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
- Lowest Observed Effect Concentration: 1.02 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
- Toxicity to soil dwelling organisms : NOEC: \geq 1,000 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222
- EC50: \geq 1,000 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222
- Fatty acids, C18-unsatd., dimers, polymers with oleic acid and triethylenetetramine:
Ecotoxicology Assessment
Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.
- N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 9.2 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
- Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 21 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

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Toxicity to microorganisms : EC50 (Pseudomonas putida): 181 mg/l
Exposure time: 16 h
Test Type: static test
Test substance: Fresh water
Method: DIN 38 412 Part 8

12.2 Persistence and degradability

Components:

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:

Biodegradability : Inoculum: activated sludge
Concentration: 11.4 mg/l
Result: Not readily biodegradable.
Biodegradation: 7 %
Exposure time: 28 d

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: ISO

12.3 Bioaccumulative potential

Components:

2,2,4(or 2,4,4)-Trimethylhexane-1,6-diamine:

Partition coefficient: n- : log Pow: -0.3 (25 °C)
octanol/water Method: OECD Test Guideline 117

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:

Partition coefficient: n- : log Pow: 0.5
octanol/water

log Pow: -0.56 (25 °C)
pH: 11.6
Method: OECD Test Guideline 107

12.4 Mobility in soil

No data available

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 : An environmental hazard cannot be excluded in the event of

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information unprofessional handling or disposal.
Toxic 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

14.1 UN number : UN 3082
14.2 UN proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(POLYAMIDE RESIN)
14.3 Transport hazard class(es) : 9
14.4 Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG

14.1 UN number : UN 3082
14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(POLYAMIDE RESIN)
14.3 Transport hazard class(es) : 9
14.4 Packing group : III
Labels : 9
EmS Code : F-A, S-F
14.5 Environmental hazards
Marine pollutant : yes

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ADR

14.1 UN number : UN 3082
14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (POLYAMIDE RESIN)
14.3 Transport hazard class(es) : 9
14.4 Packing group : III
Labels : 9
14.5 Environmental hazards
Environmentally hazardous : yes

RID

14.1 UN number : UN 3082
14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (POLYAMIDE RESIN)
14.3 Transport hazard class(es) : 9
14.4 Packing group : III
Labels : 9
14.5 Environmental hazards
Environmentally hazardous : yes

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

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

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

NZIoC : Not in compliance with the inventory

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

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

PICCS : Not in compliance with the inventory

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

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

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

Inventories

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

15.2 Chemical safety assessment

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.

H314 : Causes severe skin burns and eye damage.

H315 : Causes skin irritation.

H317 : May cause an allergic skin reaction.

H318 : Causes serious eye damage.

H319 : Causes serious eye irritation.

H411 : Toxic to aquatic life with long lasting effects.

H412 : Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox. : Acute toxicity

Aquatic Chronic : Long-term (chronic) aquatic hazard

Eye Dam. : Serious eye damage

Eye Irrit. : Eye irritation

Skin Corr. : Skin corrosion

Skin Irrit. : Skin irritation

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Skin Sens.	:	Skin sensitisation
GB EH40	:	UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA	:	Long-term exposure limit (8-hour TWA reference period)

Further information

Classification of the mixture:

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Aquatic Chronic 2	H411

Classification procedure:

Based on product data or assessment
Calculation method
Calculation method
Calculation method

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