Ident-No: ARALDITE AW 139

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

Product information

Trade name	:	ARALDITE AW 139
Use	:	Resin for adhesive systems
Company	:	Huntsman Advanced Materials (Europe)BVBA Everslaan 45 3078 Everberg / Belgium
Telephone	:	+41619661599
Telefax	:	+41619661589
Emergency telephone number	:	+32 35 751 234 (in France ORFILA : +33(0)145425959)

For further Product EHS related questions concerning this document or its contents, please contact:
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2. HAZARDS IDENTIFICATION

Irritating to eyes and skin.
May cause sensitization by skin contact.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
May cause heritable genetic damage.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature

Formulated bisphenol A/F epoxy resin preparation

Hazardous components

Chemical Name	CAS-No.	Symbol(s):	R-phrase(s)	Concentration [%]
barium sulphate, natural EC-No.: 231-784-4	7727-43-7			30.00 - 45.00
reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700)	25068-38-6	Xi, N	R36/38 R43 R51/53	30.00 - 45.00
bisphenol F-epoxy resin	9003-36-5	Xi, N	R36/38 R43 R51/53	5.00 - 15.00
butanedioldiglycidyl ether EC-No.: 219-371-7	2425-79-8	Xn	R20/21 R36/38 R43 R52/53	1.00 - 7.00
1,3,5-tris(oxyranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (TGIC) EC-No.: 219-514-3	2451-62-9	T	R23/25 R41 R43 R46 R48/22 R52/53	1.06

4. FIRST AID MEASURES

Inhalation	:	Move to fresh air. Call a physician immediately.
Eye contact	:	Rinse immediately with plenty of water for at least 15 minutes. If eye irritation persists, consult a specialist.
Skin contact	:	Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.
Ingestion	:	Do not induce vomiting. Immediately give plenty of water (if possible charcoal slurry). Obtain medical attention.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray. Dry powder. Carbon dioxide (CO2). Foam.
Extinguishing media which must not be used for safety reasons	:	High volume water jet.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus and protective suit.
Further information	:	Burning produces obnoxious and toxic fumes. Carbon oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Do not breathe vapours/dust. Avoid contact with skin, eyes and clothing. Keep away from sources of ignition - No smoking.
Environmental precautions	:	Prevent product from entering drains. Do not contaminate surface water. Avoid subsoil penetration.
Methods for cleaning up	:	Soak up with inert absorbent material and dispose of as hazardous waste.

7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	Provide sufficient air exchange and/or exhaust in work rooms. Handle and open container with care.

Storage

Further information on storage conditions	:	Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Keep at temperatures between 2 and 40°C.
Storage hazard class Huntsman Advanced Materials	:	Storage class 10, Environmentally hazardous liquids

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Control parameters	Update	Basis
barium sulphate, natural	7727-43-7	10 mg/m3 4 mg/m3		GB-MEL I GB-MEL R
1,3,5-tris(oxyranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (TGIC)	2451-62-9	0.1 mg/m3		GB-MEL I

Engineering measures

No special precautions required.

Personal protective equipment

Respiratory protection	:	In case of insufficient ventilation wear suitable respiratory equipment. Filter type AX-P2 (organic vapours, particles)
Eye protection	:	Tightly fitting safety goggles.
Hand protection	:	Material of gloves for long term application (BTT>480 min): Butyl rubber Ethyl Vinyl Alcohol Laminate (EVAL) Material of gloves for short term/splash application (10 min<BTT<480 min): Nitrile rubber Neoprene rubber Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers. Additonal information can be found for instance at www.gisbau.de
Skin and body protection	:	long sleeved clothing
Hygiene measures	:	Keep away from food, drink and animal feeding stuffs.

Wash hands before breaks and immediately after handling the product.

Protective measures : Avoid contact with skin, eyes and clothing.
Keep away from sources of ignition - No smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	paste
Colour	:	beige
Odour	:	slight
Boiling point	:	> 200 °C
Thermal decomposition	:	> 200 °C
Flash point	:	> 200 °C
Vapour pressure	:	< 0.2 Pa at 20 °C
Density	:	1.6 g/cm3 at 20 °C
Water solubility	:	at 20 °C Note: practically insoluble
Miscibility with water	:	immiscible at 20 °C
Viscosity, dynamic	:	150 - 350 Pa.s at 20 °C

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Note: Take necessary action to avoid static electricity discharge.
Materials to avoid	:	Strong acids and strong bases. Strong oxidizing agents.
Hazardous decomposition products	:	Carbon oxides. Burning produces obnoxious and toxic fumes.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50 rat Dose: > 5,000 mg/kg
Eye irritation	:	irritating rabbit

Skin irritation	:	irritating rabbit dermal
Sensitization	:	Causes sensitization. guinea pig dermal

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability	:	Result: Not readily biodegradable.

Ecotoxicity effects

Further information on ecology

Additional ecological information	:	Avoid subsoil penetration. Prevent product from entering drains. Do not contaminate surface water.

13. DISPOSAL CONSIDERATIONS

Product	:	Waste Key Number: 070208 Must be incinerated, when in compliance with local regulations.
Container	:	Empty containers can be landfilled after cleaning, when in compliance with the Environmental Protection (Duty of Care) Regulations 1991.

14. TRANSPORT INFORMATION

Land transport

ADR:

UN-No:	3082
Class:	9
Classification code:	M6
Packaging group:	III
Risk No.:	90
ADR/RID-Labels:	9
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
contains:	BISPHENOL A/F EPOXY RESIN

RID:

UN-No:	3082
Class:	9

Packaging group:	III
Risk No.:	90
ADR/RID-Labels:	9
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
contains:	BISPHENOL A/F EPOXY RESIN

Sea transport

IMDG:

UN-No:	3082
Class:	9
Packaging group:	III
ADR/RID-Labels:	9
MFAG:	
EmS:	F-A S-F
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
contains:	(BISPHENOL A/F EPOXY RESIN)

Air transport

IATA-DGR:

UN/ID No.:	UN 3082
Class:	9
Packaging group:	III
Packing instruction (cargo aircraft):	914
Max. Qty/Pack.: *(999.00 = No limit)*	450.00 L
Packing instruction (passenger aircraft):	914
Max. Qty/Pack.: *(999.00 = No limit)*	450.00 L
ADR/RID-Labels:	9
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
contains:	(BISPHENOL A/F EPOXY RESIN)

15. REGULATORY INFORMATION

Labelling according to EEC Directive

Labelling required

Symbol(s):	:	N	Dangerous for the environment
		T	Toxic
R-phrase(s)	:	R36/38	Irritating to eyes and skin.
		R43	May cause sensitization by skin contact.
		R46	May cause heritable genetic damage.
		R51/53	Toxic to aquatic organisms, may cause

			long-term adverse effects in the aquatic environment.
S-phrase(s)	:	S28	After contact with skin, wash immediately with plenty of soap and water.
		S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
		S45	In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).
		S61	Avoid release to the environment. Refer to special instructions/safety data sheets.
		S53	Avoid exposure - obtain special instructions before use.
Exceptional labelling of special preparations	:	Contains epoxy constituents. See information supplied by the manufacturer. Restricted to professional users.	
Hazardous components which must be listed on the label	:	butanedioldiglycidyl ether EC-No.: 219-371-7 reaction product: bisphenol A-(epichlorhydrin); epoxy resin (number average molecular weight < 700) bisphenol F-epoxy resin 1,3,5-tris(oxyranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (TGIC) EC-No.: 219-514-3	

National legislation

Notification status

: EINECS yes

: TSCA yes

: DSL yes

: AICS yes

: KECI (KR) no

: ENCS (JP) no

: INV (CN) yes

: PICCS (PH) no

16. OTHER INFORMATION

List of R-phrases (Section 3)

R20/21	Harmful by inhalation and in contact with skin.
R23/25	Toxic by inhalation and if swallowed.
R36/38	Irritating to eyes and skin.
R41	Risk of serious damage to eyes.
R43	May cause sensitization by skin contact.
R46	May cause heritable genetic damage.
R48/22	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

The provision of Safety Data Sheets comes under Regulation 6 of CHIP (CHIP is the recognised abbreviation for the Chemicals Hazard Information and Packaging Regulations). This is an addition to the Health and Safety at Work Act 1974.Users of products supplied by Huntsman Advanced Materials should take appropriate measures to ensure working practices are in accordance with the Control of Substances Hazardous to Health Regulations (COSHH).
All information is based on results gained from experience and tests and is believed to be accurate but is given without acceptance of liability for loss or damage attributable to reliance thereon as conditions of use lie outside our control. Users should always carry out sufficient tests to establish the suitability of any products for their intended applications. No statements shall be incorporated in any contract unless expressly agreed in writing nor construed as recommending the use of any product in conflict of any patent. All goods are supplied subject to Huntsman Advanced Materials General Conditions of Sale.

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

1.1 Product identifier

Trade name : HARDENER HV 5309-1

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

Use of the Substance/Mixture : Hardener

1.3 Details of the supplier of the safety data sheet

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

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

1.4 Emergency telephone number

Emergency telephone number : 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.
Skin corrosion, Category 1B	H314: Causes severe skin burns and eye damage.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Chronic aquatic toxicity, Category 2	H411: Toxic 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	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H332	Harmful if inhaled.
H411	Toxic 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/ 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/shower.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disposal:

P501	Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazardous components which must be listed on the label:

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

Diethylenetriamine

Aminoethylpiperazine

2,4,6-tris(dimethylaminomethyl)phenol

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.
No information available.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)
2-Propenenitrile, polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated	68683-29-4	Skin Sens. 1; H317 Skin Irrit. 2; H315	13 - 30
Bis(isopropyl)naphthalene	38640-62-9 254-052-6 -	Asp. Tox. 1; H304 Aquatic Chronic 1; H410	7 - 13
2,2'-Iminodi(ethylamine)	111-40-0 203-865-4 01-2119473793-27	Acute Tox. 4; H302 Acute Tox. 2; H330 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 STOT SE 3; H335	3 - 7
2-Piperazin-1-ylethylamine	140-31-8 205-411-0 01-2119471486-30	Acute Tox. 4; H302 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412	1 - 3
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2 202-013-9 01-2119560597-27	Acute Tox. 4; H302 Skin Corr. 1C; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412 Skin Sens. 1B; H317	1 - 3
4,4'-Isopropylidenediphenol	80-05-7 201-245-8 01-2119457856-23	Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 2; H361f STOT SE 3; H335 Aquatic Chronic 2; H411	0.1 - 1
Amines, polyethylenepoly-, triethylenetetramine fraction	90640-67-8 01-2119487919-13	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Skin Sens. 1; H317 Aquatic Chronic 3; H412	0.1 - 1

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.
Do not leave the victim unattended.

If inhaled : Consult a physician after significant exposure.
If unconscious place in recovery position and seek medical advice.

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 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.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
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

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 data is available on the product itself.

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. 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

None

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	Avoid formation of aerosol. 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.

Provide sufficient air exchange and/or exhaust in work rooms. 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. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Recommended storage temperature : 2 - 40 °C

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

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Diethylenetriamine	111-40-0	TWA	1 ppm 4.3 mg/m3	GB EH40
Further information	Can be absorbed through skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity., Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
4,4'-isopropylidenediphenol	80-05-7	TWA (inhalable dust)	10 mg/m3	GB EH40
Further information	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used			
		TWA (inhalable dust)	10 mg/m3	2009/161/EU
Further information	Indicative			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Diethylenetriamine	Workers	Inhalation	Systemic effects, Short-term exposure	92.1 mg/m3
	Workers	Inhalation	Local effects, Short-term exposure	2.6 mg/m3
	Workers	Dermal	Systemic effects, Long-term exposure	11.4 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Long-term exposure	15.4 mg/m3
	Workers	Dermal	Local effects, Long-term exposure	1.1 mg/cm2
	Workers	Inhalation	Local effects, Long-term exposure	0.87 mg/m3
	Consumers	Oral	Local effects, Short-term exposure	4.88 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Short-term exposure	27.5 mg/m3
	Consumers	Dermal	Systemic effects, Long-term exposure	4.88 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	4.6 mg/m3
2,4,6-tris(dimethylaminomethyl)phenol	Workers	Inhalation	Systemic effects, Long-term exposure	0.31 mg/m3
naphthalene, bis(1-methylethyl)-	Workers	Inhalation	Systemic effects, Long-term exposure	30 mg/m3
	Workers	Dermal	Systemic effects, Long-term exposure	4.3 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	7.4 mg/m3
	Consumers	Dermal	Systemic effects, Long-term exposure	2.1 mg/kg bw/day
	Consumers	Oral	Systemic effects, Long-term exposure	2.1 mg/kg bw/day
Aminoethylpiperazine	Workers	Dermal	Systemic effects, Short-term exposure	20 mg/kg bw/day
	Workers	Dermal	Local effects, Short-term exposure	0.04 mg/cm2
	Workers	Dermal	Systemic effects, Long-term exposure	3.3 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Long-term exposure	3.6 mg/m3
	Workers	Dermal	Local effects, Long-term exposure	0.006 mg/cm2
	Consumers	Dermal	Systemic effects, Long-term exposure	1.7 mg/kg

				bw/day
	Consumers	Inhalation	Systemic effects, Short-term exposure	5.3 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	0.3 mg/kg bw/day
	Consumers	Dermal	Local effects, Short-term exposure	0.02 mg/cm2
	Consumers	Dermal	Systemic effects, Short-term exposure	10 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	0.9 mg/m3
	Consumers	Oral	Systemic effects, Short-term exposure	1.5 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Short-term exposure	21.4 mg/m3
	Consumers	Dermal	Local effects, Long-term exposure	0.003 mg/cm2
triethylenetetramine	Workers	Inhalation	Systemic effects, Short-term exposure	5380 mg/m3
	Workers	Dermal	Systemic effects, Long-term exposure	0.57 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Long-term exposure	1 mg/m3
	Workers	Dermal	Local effects, Long-term exposure	0.028 mg/m3
	Consumers	Dermal	Systemic effects, Short-term exposure	8 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Short-term exposure	1600 mg/m3
	Consumers	Oral	Systemic effects, Short-term exposure	20 mg/kg bw/day
	Consumers	Dermal	Local effects, Short-term exposure	1 mg/cm2
	Consumers	Dermal	Local effects, Short-term exposure	0.25 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	0.29 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	0.41 mg/kg bw/day
	Consumers	Dermal	Local effects, Long-term exposure	0.43 mg/cm2

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

Substance name	Environmental Compartment	Value
Diethylenetriamine	Fresh water	0.56 mg/l
Remarks:	Assessment Factors	

	Marine water	0.056 mg/l
	Assessment Factors	
	Fresh water sediment	1072 mg/kg
	Equilibrium method	
	Marine sediment	107.2 mg/kg
	Equilibrium method	
	Soil	7.97 mg/kg
	Equilibrium method, Assessment Factors	
	Freshwater - intermittent	0.32 mg/l
	Assessment Factors	
2,4,6-tris(dimethylaminomethyl)phenol	Fresh water	0.084 mg/l
	Assessment Factors	
	Marine water	0.0084 mg/l
	Assessment Factors	
	Freshwater - intermittent	0.84 mg/l
	Assessment Factors	
	Sewage treatment plant	0.2 mg/l
	Assessment Factors	
naphthalene, bis(1-methylethyl)-	Fresh water	0.26 µg/l
	Assessment Factors	
	Marine water	0.026 µg/l
	Assessment Factors	
	Sewage treatment plant	0.15 mg/l
	Assessment Factors	
	Fresh water sediment	0.94 mg/kg
	Equilibrium method	
	Marine sediment	0.094 mg/kg
	Equilibrium method	
	Soil	0.1872 mg/kg
	Equilibrium method	
	Secondary Poisoning	25 mg/kg
	Assessment Factors	
Aminoethylpiperazine	Fresh water	0.058 mg/l
	Assessment Factors	

		Marine water	0.0058 mg/l
	Assessment Factors		
		Freshwater - intermittent	0.58 mg/l
	Assessment Factors		
		Fresh water sediment	215 mg/kg
	Equilibrium method		
		Marine sediment	21.5 mg/kg
	Equilibrium method		
		Soil	42.9 mg/kg
	Equilibrium method		
		Sewage treatment plant	250 mg/l
	Assessment Factors		
triethylenetetramine		Fresh water	190 µg/l
	Assessment Factors		
		Fresh water sediment	95.9 mg/kg
	Equilibrium method		
		Marine water	38 µg/l
	Assessment Factors		
		Freshwater - intermittent	200 µg/l
	Assessment Factors		
		Marine sediment	19.2 mg/kg
	Equilibrium method		
		Soil	19.1 mg/kg
	Equilibrium method		
		Sewage treatment plant	4.25 mg/l
	Assessment Factors		
		Secondary Poisoning	0.18 mg/kg
	Assessment Factors		

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
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	:	In the case of vapour formation use a respirator with an approved filter. No personal respiratory protective equipment normally required.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	paste
Colour	:	light cream
Odour	:	amine-like
Boiling point	:	> 200 °C
Flash point	:	> 100 °C Method: Pensky-Martens closed cup, closed cup
Vapour pressure	:	< 0.49 hPa (20 °C)
Density	:	1.4 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	practically insoluble (20 °C)
Decomposition temperature	:	> 200 °C
Viscosity		
Viscosity, dynamic	:	thixotropic

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : No decomposition if stored and applied as directed.

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

10.6 Hazardous decomposition products

Burning produces noxious and toxic fumes.
Nitrogen oxides (NOx)
Carbon oxides

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 : 3.12 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

Skin corrosion/irritation

Components:

2-propenenitrile polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated**:**
Species: Rabbit

Assessment: Moderate skin irritant
Result: Irritating to skin.

Diethylenetriamine**:**
Species: Rabbit
Result: Causes burns.

Aminoethylpiperazine**:**
Species: Rabbit
Result: Causes burns.

2,4,6-tris(dimethylaminomethyl)phenol**:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: Corrosive after 1 to 4 hours of exposure

4,4'-isopropylidenediphenol**:**
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Triethylenetetramine**:**
Species: Rabbit
Method: OECD Test Guideline 405
Result: Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation

Components:

2-propenenitrile polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated**:**
Species: Rabbit
Assessment: Mild eye irritant
Result: slight irritation

Diethylenetriamine**:**
Species: Rabbit
Assessment: Corrosive
Result: Corrosive

Aminoethylpiperazine**:**
Species: Rabbit
Result: Risk of serious damage to eyes.

2,4,6-tris(dimethylaminomethyl)phenol**:**
Species: Rabbit
Assessment: Corrosive
Result: Irreversible effects on the eye

4,4'-isopropylidenediphenol**:**
Species: Rabbit
Method: OECD Test Guideline 405
Result: Irreversible effects on the eye

Triethylenetetramine**:**
Species: Rabbit
Assessment: Corrosive
Method: OECD Test Guideline 404
Result: Corrosive

Respiratory or skin sensitisation

Components:

2-propenenitrile polymer with 1,3-butadiene, 1-cyano-1-methyl-4-oxo-4-[[2-(1-piperazinyl)ethyl]amino]butyl-terminated**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

naphthalene, bis(1-methylethyl)-**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

Diethylenetriamine**:**
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.
Remarks: Causes sensitisation.

Exposure routes: Respiratory Tract
Species: Mouse
Result: Does not cause respiratory sensitisation.

Aminoethylpiperazine**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

2,4,6-tris(dimethylaminomethyl)phenol**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

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

4,4'-isopropylidenediphenol**:**
Exposure routes: Skin
Species: Mouse
Method: OECD Test Guideline 429
Result: Does not cause skin sensitisation.

Exposure routes: Skin
Species: Humans
Assessment: May cause sensitisation by skin contact.
Result: Causes sensitisation.

Triethylenetetramine**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: May cause sensitisation by skin contact.

Assessment: No data available

Germ cell mutagenicity

Components:

naphthalene, bis(1-methylethyl)-**:**
Genotoxicity in vitro : Concentration: 92 mg/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Concentration: 40 - 60 mg/ml
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Aminoethylpiperazine**:**
Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

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

: Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

2,4,6-tris(dimethylaminomethyl)phenol**:**
Genotoxicity in vitro : Concentration: 5000 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

: Concentration: 2500 ug/plate
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

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

4,4'-isopropylidenediphenol**:**
Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Result: negative

Triethylenetetramine**:**
Genotoxicity in vitro : Concentration: 0 - 200 µg/L
Metabolic activation: negative
Method: OECD Test Guideline 482
Result: negative

Components:

naphthalene, bis(1-methylethyl)-**:**
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 1.92 g/kg
Method: OECD Test Guideline 474
Result: negative

Diethylenetriamine**:**
Genotoxicity in vivo : Cell type: Somatic
Application Route: Oral
Dose: 85 - 850 mg/kg
Method: OECD Test Guideline 474
Result: negative

Application Route: Oral
Result: negative

Aminoethylpiperazine**:**
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 175 - 560 mg/kg
Method: OECD Test Guideline 474
Result: negative

4,4'-isopropylidenediphenol**:**
Genotoxicity in vivo : Method: OECD Test Guideline 474
Result: negative

Triethylenetetramine**:**
Genotoxicity in vivo : Application Route: Intraperitoneal injection
Dose: 0 - 600 mg/kg
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Components:

Diethylenetriamine**:**
Species: Mouse, (male)
Application Route: Dermal
Dose: 56.3 mg/kg
Frequency of Treatment: 3 daily
Result: negative

4,4'-isopropylidenediphenol**:**
Species: Rat, (male and female)
Application Route: Oral
Exposure time: 103 weeks
Frequency of Treatment: 7 daily
Result: negative

Triethylenetetramine**:**
Species: Mouse, (male)
Application Route: Dermal
Dose: 42 mg/kg
Frequency of Treatment: 3 daily
Method: OECD Test Guideline 451
Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

Diethylenetriamine**:**
Effects on fertility : Species: Rat, male and female
Application Route: Oral
General Toxicity - Parent: No observed adverse effect level: 30 mg/kg wet weight
Method: OECD Test Guideline 421

Aminoethylpiperazine**:**

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: No effects on fertility and early embryonic development were detected.

2,4,6-tris(dimethylaminomethyl)phenol**:**

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Remarks: No significant adverse effects were reported

4,4'-isopropylidenediphenol**:**

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.

Components:

naphthalene, bis(1-methylethyl)-**:**

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: Lowest observed adverse effect level: 250 mg/kg body weight
Method: Directive 67/548/EEC, Annex V, B.31.
Result: No teratogenic effects

Diethylenetriamine**:**

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 100 mg/kg body weight
Method: OECD Test Guideline 421

Aminoethylpiperazine**:**

Species: Rat, male and female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: 224 - 285 mg/kg body weight
Method: OECD Test Guideline 422
Result: No teratogenic effects

4,4'-isopropylidenediphenol**:**

Species: Rat, female
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: < 160 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

Triethylenetetramine**:**

Species: Rat
Application Route: Oral
General Toxicity Maternal: No observed adverse effect level: > 750 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Species: Rabbit
Application Route: Dermal
General Toxicity Maternal: No observed adverse effect level: 125 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects

Components:

4,4'-isopropylidenediphenol**:**
Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT - single exposure

Components:

Diethylenetriamine**:**
Target Organs: Respiratory Tract
Assessment: May cause respiratory irritation.

4,4'-isopropylidenediphenol**:**
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

naphthalene, bis(1-methylethyl)-**:**
Species: Rat, male and female
NOAEL: 170 mg/kg
Application Route: Ingestion
Exposure time: 4,320 hNumber of exposures: 7 d
Method: Subchronic toxicity

Diethylenetriamine**:**
Species: Rat, male and female
: 70 - 80
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 360 hNumber of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
NOAEL: 114
Application Route: Skin contact
Exposure time: 9,600 hNumber of exposures: 6 d
Method: Chronic toxicity

Aminoethylpiperazine**:**
Species: Rat, male and female
NOAEL: 151 - 285
Application Route: Ingestion
Exposure time: 672 hMethod: Subacute toxicity

Species: Rat, male and female
NOAEL: > 1000
Application Route: Skin contact
Exposure time: 696 hNumber of exposures: 5 d
Method: Subacute toxicity

2,4,6-tris(dimethylaminomethyl)phenol**:**
Species: Rat, male and female
NOEL: 15 mg/kg
Application Route: Ingestion
Exposure time: 1,032 hNumber of exposures: 7 d
Method: Subacute toxicity

4,4'-isopropylidenediphenol**:**
Species: Dog, male and female
: 75 mg/kg, 10
Application Route: Ingestion
Test atmosphere: dust/mist
Exposure time: 2,160 hNumber of exposures: 7 d
Method: Subchronic toxicity

Species: Rat, male and female
LOAEL: 600 mg/kg
Application Route: Ingestion
Exposure time: 672 hNumber of exposures: 7 d
Method: Subchronic toxicity

Triethylenetetramine**:**
Species: Rat, male and female
NOAEL: 50 mg/kg
Application Route: Ingestion
Exposure time: 26 WeeksNumber of exposures: 7 d
Method: Subchronic 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

SECTION 12: Ecological information

12.1 Toxicity

Product:

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

Components:

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

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

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

naphthalene, bis(1-methylethyl)-**:**

Toxicity to fish : LC50 : > 0.5 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water

Method: Directive 67/548/EEC, Annex V, C.1.
Remarks: Aquatic toxicity is unlikely due to low solubility.

Toxicity to daphnia and other aquatic invertebrates : EC50 : > 0.16 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Marine water
Method: OECD Test Guideline 202
Remarks: Aquatic toxicity is unlikely due to low solubility.

EL50 (Daphnia magna (Water flea)): 1.7 mg/l
Exposure time: 48 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Toxicity to algae : NOECr (Desmodesmus subspicatus (Scenedesmus subspicatus)): ca. 0.15 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Remarks: Aquatic toxicity is unlikely due to low solubility.

M-Factor (Acute aquatic toxicity) : 1

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.013 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

Diethylenetriamine**:**

Toxicity to fish : LC50 : 430 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 (Daphnia magna (Water flea)): 32 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Toxicity to algae : EbC50 (Selenastrum capricornutum (green algae)): 1,164 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 28 d

Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 5.6 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.20

Toxicity to soil dwelling organisms : EC50: > 1,000 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222

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

Aminoethylpiperazine**:**

Toxicity to fish : LC50 : 2,190 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 58 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
Remarks: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): > 1,000 mg/l
Exposure time: 72 h
Test substance: Fresh water
Method: OECD Test Guideline 201

2,4,6-tris(dimethylaminomethyl)phenol**:**

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 175 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : LC50 : 718 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Marine water

Toxicity to algae : ErC50 (Desmodesmus subspicatus (Scenedesmus subspicatus)): 84 mg/l

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

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

4,4'-isopropylidenediphenol**:**

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 : 3.9 - 10.2 mg/l
Exposure time: 48 h

(Ceriodaphnia dubia (Water flea)):

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 2.5 - 3.1 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : NOEC: 0.016 mg/l
Exposure time: 444 d
Species: Pimephales promelas (fathead minnow)
Test Type: flow-through test
Test substance: Fresh water
Method: EPA OPPTS 850.1500
Remarks: Toxic to aquatic organisms.

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

Triethylenetetramine**:**

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 330 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: EPA OTS 797.1400

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.1 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): 20 mg/l
Exposure time: 72 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to bacteria : EC50 (activated sludge): 800 mg/l
Exposure time: 0.5 h

Test Type: static test
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC10: 1.9 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 202

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

12.2 Persistence and degradability

Components:

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

Biodegradability : Result: Not readily biodegradable.

naphthalene, bis(1-methylethyl)-**:**

Biodegradability : Inoculum: activated sludge
Concentration: 0.2 mg/l
Result: Not readily biodegradable.
Biodegradation: 30 - 35 %
Exposure time: 56 d
Method: OECD Test Guideline 310

Diethylenetriamine**:**

Biodegradability : Inoculum: activated sludge
Result: Readily biodegradable
Biodegradation: 87 %
Exposure time: 21 d
Method: OECD Test Guideline 301D

Photodegradation : Test Type: Air
Rate constant: 500000
Degradation (direct photolysis): 50 %

Aminoethylpiperazine**:**

Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Biochemical Oxygen Demand (BOD) : 5 mg/l
Incubation time: 5 d

Chemical Oxygen Demand (COD) : 560 mg/l

Photodegradation : Test Type: Air

Degradation (direct photolysis): 50 %

Test Type: Water

2,4,6-tris(dimethylaminomethyl)phenol**:**

Biodegradability : Inoculum: activated sludge
Concentration: 2 mg/l
Result: Not readily biodegradable.
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

4,4'-isopropylidenediphenol**:**

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1 - 2 %
Exposure time: 28 d

Triethylenetetramine**:**

Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 162 d
Method: OECD Test Guideline 301D

Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 20 %
Exposure time: 84 d
Method: OECD Test Guideline 302 A

12.3 Bioaccumulative potential

Components:

naphthalene, bis(1-methylethyl)-**:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 60 d
Bioconcentration factor (BCF): 770 - 6,400
Test substance: Fresh water
Method: flow-through test

Partition coefficient: n-octanol/water : log Pow: 6.081
Method: QSAR

Diethylenetriamine**:**

Bioaccumulation : Species: Cyprinus carpio (Carp)
Exposure time: 42 d
Bioconcentration factor (BCF): 0.3 - 6.3
Test substance: Fresh water
Method: flow-through test
Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : log Pow: -1.58 (20 °C)
pH: 7

Aminoethylpiperazine**:**
Bioaccumulation : Species: Fish
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -1.48 (20 °C)

2,4,6-tris(dimethylaminomethyl)phenol**:**
Partition coefficient: n-octanol/water : log Pow: 0.219 (21.5 °C)
Method: OPPTS 830.7550

Triethylenetetramine**:**
Partition coefficient: n-octanol/water : log Pow: -2.65 (20 °C)
Method: OECD Test Guideline 117

12.4 Mobility in soil

Components:

naphthalene, bis(1-methylethyl)-**:**
Distribution among environmental compartments : Koc: 36108Method: QSAR

Diethylenetriamine**:**
Distribution among environmental compartments : Koc: 19111

Aminoethylpiperazine**:**
Distribution among environmental compartments : Koc: ca. 37000

Triethylenetetramine**:**
Distribution among environmental compartments : Koc: 1584.9 - 5012Method: OECD Test Guideline 106

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.
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.
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. (DIETHYLENE TRIAMINE, DIISOPROPYLNAPHTHALENE)
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. (DIETHYLENE TRIAMINE, DIISOPROPYLNAPHTHALENE)
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	:	yes

ADR

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (DIETHYLENE TRIAMINE, DIISOPROPYLNAPHTHALENE)
14.3 Transport hazard class(es)	:	8

14.4 Packing group : II
Labels : 8
14.5 Environmental hazards
Marine pollutant : no

RID
14.1 UN number : UN 2735
14.2 UN proper shipping name : POLYAMINES, LIQUID, CORROSIVE, N.O.S.
(DIETHYLENE TRIAMINE, DIISOPROPYLNAPHTHALENE)
14.3 Transport hazard class(es) : 8
14.4 Packing group : II
Labels : 8
14.5 Environmental hazards
Marine pollutant : no

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

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

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

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

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

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

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

IECSC : 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), TSCA (United States of America)

15.2 Chemical safety assessment

SECTION 16: Other information

Full text of H-Statements

H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H311	:	Toxic in contact with skin.
H312	:	Harmful in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H330	:	Fatal if inhaled.
H335	:	May cause respiratory irritation.
H361f	:	Suspected of damaging fertility.
H410	:	Very toxic to aquatic life with long lasting effects.
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	:	Chronic aquatic toxicity
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Repr.	:	Reproductive toxicity
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure

Further information

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