XB 3473 HARDENER

Version	Revision Date:	SDS Number:	Date of last issue: 12.11.2018
1.1	02.11.2022	400001008182	Date of first issue: 12.11.2018

Print Date 17.05.2024

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

1.1 Product identifier

Trade name : XB 3473 HARDENER

Unique Formula Identifier (UFI) : 79RE-30H3-900E-4F3N

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

Use of the Substance/Mixture : Hardener

Recommended restrictions on use : For industrial use only.

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 : 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	H302: Harmful if swallowed.
Acute toxicity, Category 4	H312: Harmful in contact with skin.
Skin corrosion, Sub-category 1A	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very 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 : H302 + H312 Harmful if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P260 Do not breathe mist or vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing 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.

P391 Collect spillage.

Hazardous components which must be listed on the label:

diethylmethylbenzenediamine
cyclohex-1,2-ylenediamine

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
diethylmethylbenzenediamine	68479-98-1 270-877-4 612-130-00-0 01-2119486805-25	Acute Tox. 4; H302 Acute Tox. 4; H312 Eye Irrit. 2; H319 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1 Acute toxicity estimate Acute oral toxicity: 738 mg/kg Acute dermal toxicity: 1 128 mg/kg	>= 90 - <= 100
cyclohex-1,2-ylenediamine	694-83-7 211-776-7 01-2119976312-37	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Corr. 1A; H314 Eye Dam. 1; H318	>= 5 - < 10

		STOT SE 3; H335 (Respiratory system)	

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.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : 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.
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 : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

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

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)

5.3 Advice for firefighters

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

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

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).

Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling	:	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.
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. Keep in properly labelled containers.
Advice on common storage	:	For incompatible materials please refer to Section 10 of this SDS.
Further information on storage stability	:	Stable under normal conditions.
Recommended storage temperature	:	2 - 40 °C

7.3 Specific end use(s)

Specific use(s)	:	No data available

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
diethylmethylbenzene diamine	Workers	Inhalation	Long-term systemic effects	0,13 mg/m3
	Workers	Dermal	Long-term systemic effects	1 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,1 mg/m3
	Consumers	Dermal	Long-term systemic effects	1 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,1 mg/kg bw/day
cyclohex-1,2-ylenediamine	Workers	Inhalation	Long-term local effects	0,25 mg/m3
	Workers	Inhalation	Acute local effects	0,5 mg/m3
	Workers	Dermal	Long-term systemic effects	1,5 mg/kg bw/day
	Consumers	Inhalation	Long-term local effects	0,125 mg/m3
	Consumers	Inhalation	Acute local effects	0,25 mg/m3

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

Substance name	Environmental Compartment	Value
diethylmethylbenzenediamine	Fresh water	0,001 mg/l
	Remarks:Assessment Factors	
	Marine water	0 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	0,005 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	17 mg/l
	Remarks:Assessment Factors	
	Secondary Poisoning	2 mg/kg
	Remarks:Assessment Factors	
	Fresh water sediment	0,029 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,003 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,005 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
cyclohex-1,2-ylenediamine	Fresh water	0,42 mg/l
	Remarks:Assessment Factors	
	Marine water	0,042 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	1,25 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	1,82 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,0182 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

	Soil	0,117 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

8.2 Exposure controls

Personal protective equipment

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

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

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

Material : Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time : > 8 h

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : brown

Odour : amine-like

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

pH : substance/mixture is non-soluble (in water)

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

Boiling point	:	No data is available on the product itself.
Flash point	:	> 120 °C Method: Pensky-Martens closed cup
Flammability (solid, gas)	:	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	:	0,99 - 1,02 (20 °C)
Density	:	0,99 - 1,02 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	practically insoluble (20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
Viscosity		
Viscosity, dynamic	:	95 - 145 mPa.s (25 °C)

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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

Acute toxicity

Product:

Acute oral toxicity : Acute toxicity estimate: 760,46 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: 1 138 mg/kg
Method: Calculation method

Components:

diethylmethylbenzenediamine:

Acute oral toxicity : LD50 (Rat, male and female): 738 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate: 738 mg/kg
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate (Rat, male and female): 1 128 mg/kg
Assessment: The component/mixture is moderately toxic after single contact with skin.

cyclohex-1,2-ylenediamine:

Acute oral toxicity : LD50 (Rat, male): 1 690 mg/kg
Method: OECD Test Guideline 401
GLP: no
Assessment: The component/mixture is moderately toxic after single ingestion.
Remarks: Information given is based on data obtained from similar substances.

LD50 (Rat, male and female): 1 170 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity	:	LC50 (Rat, male and female): 4,9 mg/l Exposure time: 1 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Assessment: The component/mixture is moderately toxic after short term inhalation. Remarks: Information given is based on data obtained from similar substances.
Acute dermal toxicity	:	LD50 (Rat, male and female): 1 870 mg/kg Method: OECD Test Guideline 402 GLP: no Assessment: The component/mixture is moderately toxic after single contact with skin.

Skin corrosion/irritation

Components:

diethylmethylbenzenediamine:

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

cyclohex-1,2-ylenediamine:

Species	:	Rabbit
Assessment	:	Causes severe burns.
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 3 minutes or less of exposure
GLP	:	no
Remarks	:	Information given is based on data obtained from similar substances.

Serious eye damage/eye irritation

Components:

diethylmethylbenzenediamine:

Species	:	Rabbit
Assessment	:	Irritant
Result	:	Irritating to eyes.

Species	:	Rabbit
Assessment	:	Irritating to eyes.
Method	:	Other guidelines
Result	:	Irritation to eyes, reversing after 7 to 21 days

cyclohex-1,2-ylenediamine:

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Result	:	Risk of serious damage to eyes.
GLP	:	no

Remarks : Information given is based on data obtained from similar substances.

Respiratory or skin sensitisation

Components:

diethylmethylbenzenediamine:

Exposure routes	:	Intradermal
Species	:	Guinea pig
Assessment	:	Did not cause sensitisation on laboratory animals.
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	no

Germ cell mutagenicity

Components:

diethylmethylbenzenediamine:

Genotoxicity in vitro : Metabolic activation: no
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: Not classified due to inconclusive data.
GLP: yes

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: Oral
Dose: 125/250/500 mg/kg bw/d
Method: OECD Test Guideline 474
Result: negative
GLP: yes

cyclohex-1,2-ylenediamine:

Genotoxicity in vitro : Test Type: gene mutation test
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: no
Remarks: Information given is based on data obtained from similar substances.

Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes
Remarks: Information given is based on data obtained from

similar substances.

Test Type: Chromosome aberration test in vitro
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Remarks: Information given is based on data obtained from similar substances.

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

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Application Route: inhalation (dust/mist/fume)
Exposure time: 13 Weeks
Dose: 0, 1.6, 5, 16, 50, 160 mg/m3
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Carcinogenicity

Components:

diethylmethylbenzenediamine:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	24 month(s)
Dose	:	10/35/70 ppm
Frequency of Treatment	:	7 daily
LOAEL	:	1,4 - 3,8 mg/kg body weight
Method	:	OECD Test Guideline 451
Result	:	negative
GLP	:	yes

Reproductive toxicity

Components:

diethylmethylbenzenediamine:

Effects on foetal development : Test Type: Pre-natal
Species: Rat, female
Application Route: Oral
Dose: 0/50/150/500 mg/kg bw/d
Duration of Single Treatment: 20 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: NOEL: 2,63 mg/kg body weight
Developmental Toxicity: NOAEL: 7,83 mg/kg body weight
Method: OECD Test Guideline 414
Result: No data available
GLP: yes

cyclohex-1,2-ylenediamine:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 50, 150, 500 mg/kg b.w.
General Toxicity - Parent: NOAEL: 500 mg/kg body weight
Method: OECD Test Guideline 416
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Effects on foetal development : Test Type: Pre-natal
Species: Rat, females
Application Route: Oral
Dose: 0, 112, 184, 300 mg/kg b.w
Duration of Single Treatment: 10 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: NOAEL: ca. 184 mg/kg body weight
Developmental Toxicity: NOAEL: ca. 300 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: no
Remarks: Information given is based on data obtained from similar substances.

STOT - single exposure

Components:

cyclohex-1,2-ylenediamine:

Exposure routes : Inhalation
Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

STOT - repeated exposure

Components:

diethylmethylbenzenediamine:

Exposure routes : Ingestion
Target Organs : Pancreas
Assessment : May cause damage to organs through prolonged or repeated exposure., The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity

Components:

diethylmethylbenzenediamine:

Species : Rat, male and female
NOAEL : 8 - 10 mg/kg
Application Route : oral (feed)

Exposure time	:	90 d
Number of exposures	:	daily
Dose	:	0/50/125/320 ppm
Method	:	OECD Test Guideline 408
GLP	:	yes

Species	:	Rabbit, male and female
NOAEL	:	> 100 mg/kg
Application Route	:	Skin contact
Exposure time	:	21 d
Number of exposures	:	5 days/week
Dose	:	1/10/100 mg/kg bw/d
Method	:	Subchronic toxicity
GLP	:	yes

cyclohex-1,2-ylenediamine:

Species	:	Rat, male and female
NOAEL	:	581,3 - 617 mg/kg
Application Route	:	Oral
Exposure time	:	28 d
Number of exposures	:	daily
Dose	:	0, 300, 3000, 10000 ppm
Method	:	OECD Test Guideline 407
GLP	:	yes
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Rat, male and female
NOAEL	:	150 mg/kg
Application Route	:	Oral
Number of exposures	:	daily
Dose	:	0, 50, 150, and 500 mg/kg bw/d
Method	:	OECD Test Guideline 422
GLP	:	yes

Species	:	Rat, male and female
	:	16 mg/m3
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	13 weeks 6 h
Number of exposures	:	daily
Dose	:	0, 1.0, 3.1, 10, 31, 100 mg/m3
Method	:	OECD Test Guideline 413
GLP	:	yes
Remarks	:	Information given is based on data obtained from similar substances.

Aspiration toxicity

No data available

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components

considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

diethylmethylbenzenediamine:

Toxicity to fish	:	LC50 (Leuciscus idus (Golden orfe)): 200 mg/l End point: mortality Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: DIN 38412 GLP: no
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,5 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: Directive 67/548/EEC, Annex V, C.2. GLP: no
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): ca. 104 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes ErC10 (Desmodesmus subspicatus (green algae)): ca. 54 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes

M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): > 170 mg/l Exposure time: 24 h Test Type: static test Analytical monitoring: no Test substance: Fresh water GLP: no
M-Factor (Chronic aquatic toxicity)	:	1

cyclohex-1,2-ylenediamine:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 1 825 mg/l End point: mortality Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203 GLP: no Remarks: Information given is based on data obtained from similar substances.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 19,8 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202 GLP: no Remarks: Information given is based on data obtained from similar substances. EC50 (Daphnia magna (Water flea)): 50 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Test substance: Fresh water GLP: no Remarks: Information given is based on data obtained from similar substances.
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes Remarks: Information given is based on data obtained from similar substances.

EC10 (Pseudokirchneriella subcapitata (green algae)): 118 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Toxicity to microorganisms : EC10 (Pseudomonas putida): 12 500 mg/l
Exposure time: 20 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
GLP: no
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 4,16 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 211
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

12.2 Persistence and degradability

Components:

diethylmethylbenzenediamine:

Biodegradability : Result: Not readily biodegradable.
Method: QSAR
GLP: no

Photodegradation : Test Type: Air
Rate constant: < .00001

cyclohex-1,2-ylenediamine:

Biodegradability : Test Type: aerobic
Inoculum: Sewage (STP effluent)
Concentration: 1,1 mg/l
Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Test substance: Fresh water
GLP: yes
Remarks: Information given is based on data on the components and the ecotoxicology of similar products.

Test Type: aerobic
Inoculum: activated sludge, adapted
Concentration: 6,7 mg/l
Result: Readily biodegradable.
Biodegradation: 82 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Test substance: Fresh water
GLP: yes
Remarks: Information given is based on data on the components and the ecotoxicology of similar products.

Test Type: aerobic
Inoculum: Sewage (STP effluent)
Concentration: 1,13 mg/l
Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Test substance: Fresh water
GLP: yes

Stability in water : Method: No information available.
GLP: No information available.
Remarks: see user defined free text

Photodegradation : Rate constant: < .001
GLP: no

12.3 Bioaccumulative potential

Components:

diethylmethylbenzenediamine:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 2,75
GLP: no
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 1,17 (25 °C)
Method: OECD Test Guideline 107
GLP: yes

cyclohex-1,2-ylenediamine:

Partition coefficient: n-octanol/water : log Pow: < -0,9 (20 °C)
pH: 7
Method: OECD Test Guideline 107
GLP: yes

12.4 Mobility in soil

Components:

diethylmethylbenzenediamine:

Distribution among environmental compartments : Koc: 31,72 - 551

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

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

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 2735

ADR : UN 2735

RID : UN 2735

IMDG : UN 2735

IATA : UN 2735

14.2 UN proper shipping name

ADN	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
ADR	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
RID	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
IMDG	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)
IATA	:	Polyamines, liquid, corrosive, n.o.s. (1,2-DIAMINO CYCLOHEXANE, DIETHYLTOLUENEDIAMINE)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADN	:	8	
ADR	:	8	
RID	:	8	
IMDG	:	8	
IATA	:	8	

14.4 Packing group

ADN

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8

ADR

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8
Tunnel restriction code	:	(E)

RID

Packing group	:	II
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8

IMDG

Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B

IATA (Cargo)

Packing instruction (cargo aircraft)	:	855
Packing instruction (LQ)	:	Y840
Packing group	:	II
Labels	:	Corrosive

IATA (Passenger)

Packing instruction (passenger aircraft)	:	851
Packing instruction (LQ)	:	Y840
Packing group	:	II
Labels	:	Corrosive

14.5 Environmental hazards

ADN
Environmentally hazardous : no

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : no

IMDG
Marine pollutant : yes(DIETHYLTOLUENEDIAMINE)

14.6 Special precautions for user

Not applicable

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	ENVIRONMENTAL HAZARDS
Occupational Illnesses (R-461-3, France)	:	49, 51, 15 ter, 15, 15 bis

Installations classified for the protection of the environment (Environment Code R511-9) : 4510

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

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

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

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

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 : On the inventory, or in compliance with the inventory

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

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

TSCA : All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (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.
H312 : Harmful in contact with skin.

H314	:	Causes severe skin burns and eye damage.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Skin Corr.	:	Skin corrosion
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure

Further information

Classification of the mixture:		**Classification procedure:**
Acute Tox. 4	H302	Calculation method
Acute Tox. 4	H312	Calculation method
Skin Corr. 1A	H314	Calculation method
Eye Dam. 1	H318	Calculation method
STOT RE 2	H373	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

The information and recommendations in this publication are to the best of our knowledge, information and belief accurate at the date of publication, NOTHING HEREIN IS TO BE CONSTRUED AS A WARRANTY, EXPRESS OR OTHERWISE.

IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.