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

1.1 Product identifier

Trade name : EPOCAST® 1635 B US

Unique Formula Identifier (UFI) : NRF5-S03X-300Q-KDWV

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) BV
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone number

Emergency telephone number : 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)

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P261 Avoid breathing mist or vapours.
P273 Avoid release to the environment.
P280 Wear protective gloves/ 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.

Hazardous components which must be listed on the label:

Amines, polyethylenepoly-, triethylenetetramine fraction
m-phenylenediamine

Additional Labelling

Restricted to professional users.

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)
Amines, polyethylenepoly-, triethylenetetramine fraction	90640-67-8 292-588-2 01-2119487919-13	Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Chronic 3; H412	>= 10 - < 20
m-phenylenediamine	108-45-2 203-584-7 612-147-00-3	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Eye Irrit. 2; H319 Skin Sens. 1; H317 Muta. 2; H341 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1 Acute toxicity estimate Acute oral toxicity: 450 mg/kg	>= 2,5 - < 10

For explanation of abbreviations see section 16.

The test data for this product do not support the official Annex VI classification according to Regulation (EC) No. 1272/2008 and amendments, therefore you may see inconsistencies between the official Annex VI classification as mentioned in section 2 and/or 3 and the other sections of the SDS.

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

Risks : May cause an allergic skin reaction.
Causes serious eye damage.
Causes severe burns.

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 : Metal oxides

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	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. 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.

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

aluminium	7429-90-5	VME	10 mg/m3	FR VLE
	Further information: Indicative exposure limits			
		VME (powder)	5 mg/m3	FR VLE
	Further information: Indicative exposure limits			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
m-phenylenediamine	Workers	Inhalation	Long-term systemic effects	0,24 mg/m3
	Workers	Dermal	Long-term systemic effects	0,12 mg/kg bw/day
	Workers	Dermal	Long-term local effects	0,0005 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	0,03 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,06 mg/kg bw/day
	Consumers	Dermal	Long-term local effects	0,0003 mg/cm2
	Consumers	Oral	Long-term systemic effects	0,06 mg/kg bw/day
Amines, polyethylenepoly-, triethylenetetramine fraction	Workers	Inhalation	Long-term systemic effects	0,54 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0,096 mg/m3
	Consumers	Oral	Long-term systemic effects	14 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
m-phenylenediamine	Fresh water	0,001 mg/l
	Marine water	0 mg/l
	Sewage treatment plant	1 mg/l
	Fresh water sediment	0,004 mg/kg dry weight (d.w.)
	Marine sediment	0 mg/kg dry weight (d.w.)
	Soil	0 mg/kg dry weight (d.w.)
Siloxanes and silicones, di-Me, reaction products with silica	Fresh water sediment	> 100 mg/kg
	Remarks:Assessment Factors	
	Soil	23 mg/kg
	Remarks:Assessment Factors	
Amines, polyethylenepoly-, triethylenetetramine fraction	Fresh water	0,027 mg/l
	Marine water	0,003 mg/l
	Sewage treatment plant	0,13 mg/l
	Fresh water sediment	8,572 mg/kg dry weight (d.w.)
	Marine sediment	0,857 mg/kg dry

		weight (d.w.)
	Soil	1,25 mg/kg dry weight (d.w.)

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 : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
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 : W A R N I N G ! This product contains quartz, which has been classified by IARC as carcinogenic for humans (Group 1), and which can cause silicosis and lung cancer following exposure to respirable dust. It is therefore important to take particular care to avoid inhalation exposure when mechanically processing cured material (e.g. grinding, sanding, sawing).

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : paste

Colour	:	grey
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
Melting point/freezing point	:	No data available
Boiling point/boiling range	:	No data available
Flammability (solid, gas)	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Flash point	:	99 °C Method: Pensky-Martens closed cup
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	No data is available on the product itself.
pH	:	substance/mixture is non-soluble (in water)
Viscosity		
Viscosity, dynamic	:	82 000 mPa.s (20 °C)
Solubility(ies)		
Water solubility	:	insoluble
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Vapour pressure	:	< 1,33 hPa (20 °C)
Density	:	1,7 g/cm3 (20 °C)
Relative density	:	1,7
Relative vapour density	:	No data is available on the product itself.
Particle characteristics	:	No data is available on the product itself.

9.2 Other information

Miscibility with water : immiscible

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

Materials to avoid : None known.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products : aluminium oxide
ammonia, anhydrous
Aldehydes
Nitrogen oxides (NOx)
carbon monoxide
carbon dioxide
Ketones

SECTION 11: Toxicological information

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

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2 000 mg/kg
Method: Expert judgement

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

Method: Calculation method

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

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Acute oral toxicity : LD50 (Rat, male and female): 1 716,2 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute dermal toxicity : LD50 (Rabbit, male and female): 1 465,4 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is moderately toxic after single contact with skin.

m-phenylenediamine:

Acute oral toxicity : LD50 (Rat, male): 450 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate (Rat, male): 450 mg/kg

Acute inhalation toxicity : LC50 (Rat, male): 3,2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : see user defined free text (Rabbit, male): 1 500 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is moderately toxic after single contact with skin.
Remarks: Information given is based on data obtained from similar substances.

Skin corrosion/irritation

Causes severe burns.

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Species : reconstructed human epidermis (RhE)
Assessment : Causes burns.
Method : OECD Test Guideline 435
Result : Corrosive after 3 minutes to 1 hour of exposure

Species : Rabbit
Assessment : Causes burns.
Method : OECD Test Guideline 404
Result : Corrosive after 3 minutes to 1 hour of exposure

m-phenylenediamine:

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

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Method	:	OECD Test Guideline 405
Result	:	Irreversible effects on the eye

m-phenylenediamine:

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

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Exposure routes	:	Skin
Species	:	Guinea pig
Assessment	:	Probability or evidence of skin sensitisation in humans
Method	:	OECD Test Guideline 406
Result	:	Probability or evidence of skin sensitisation in humans

m-phenylenediamine:

Test Type	:	Local lymph node assay (LLNA)
Exposure routes	:	Skin
Species	:	Mouse
Assessment	:	May cause sensitisation by skin contact.
Method	:	OECD Test Guideline 429
Result	:	May cause sensitisation by skin contact.

Germ cell mutagenicity

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

Product:

Germ cell mutagenicity-	:	Animal testing did not show any mutagenic effects.

Assessment

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: positive
GLP: yes

Test Type: Micronucleus test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Dose: 0 - 600 mg/kg
Method: OECD Test Guideline 474
Result: negative

m-phenylenediamine:

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

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Application Route: Oral
Dose: 16, 33, 65 mg/kg/day
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Germ cell mutagenicity-Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Not classified due to lack of data.

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Species : Mouse, male
Application Route : Dermal
NOAEL : >= 50 mg/kg bw/day
Method : OECD Test Guideline 451

Result	:	negative
Species	:	Mouse, male
Application Route	:	Dermal
Exposure time	:	104 weeks
NOAEL	:	>= 20 mg/kg bw/day
Method	:	OECD Test Guideline 451
Result	:	negative

Reproductive toxicity

Not classified due to lack of data.

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Effects on foetal development	:	Test Type: Pre-natal Species: Rat Application Route: Oral Dose: 75/325/750 mg/kg bw/day Duration of Single Treatment: 10 d General Toxicity Maternal: NOAEL: >= 750 mg/kg body weight Developmental Toxicity: NOAEL: >= 750 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects Test Type: Pre-natal Species: Rabbit Application Route: Dermal Dose: 5/50/125 mg/kg bw/day Duration of Single Treatment: 13 d General Toxicity Maternal: NOAEL: 50 mg/kg body weight Developmental Toxicity: NOAEL: >= 125 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects
Reproductive toxicity - Assessment	:	The reprotoxic effects of Triethylenetetramine (TETA) are under further evaluation as part of the EU REACH program due in part to the aminoethyl ethanolamine (AEEA) content.

STOT - single exposure

Not classified due to lack of data.

STOT - repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Species	:	Rat, male and female
NOAEL	:	350 mg/kg
Application Route	:	Oral
Exposure time	:	28 d
Number of exposures	:	7 d
Dose	:	100/350/1000 mg/kg bw/day

Method	:	OECD Test Guideline 407
Target Organs	:	Lungs
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Dog, male and female
NOAEL	:	125 mg/kg
Application Route	:	Oral
Target Organs	:	Lungs
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Dog, male and female
NOAEL	:	50 mg/kg
Application Route	:	Oral
Method	:	Subchronic toxicity
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Rat, male and female
NOAEL	:	50 mg/kg
Application Route	:	Oral
Exposure time	:	26 weeks
Dose	:	50/175/600 mg/kg bw/day
Method	:	OECD Test Guideline 408
Target Organs	:	Lungs
Remarks	:	Information given is based on data obtained from similar substances.

Species	:	Mouse, male and female
NOAEL	:	92 mg/kg, 600 ppm
Application Route	:	Oral
Exposure time	:	120/600/3000 ppm
Method	:	OECD Test Guideline 408
Remarks	:	Information given is based on data obtained from similar substances.

m-phenylenediamine:

Species	:	Rat, male and female
NOAEL	:	6 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	90 d
Number of exposures	:	daily
Dose	:	2/6/18 mg/kg bw/day
Method	:	OECD Test Guideline 408

Aspiration toxicity

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components

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

Experience with human exposure

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

Product:

Ecotoxicology Assessment

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

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): 570 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: Directive 67/548/EEC, Annex V, C.1.

LC50 (Leuciscus idus (Golden orfe)): 200 - 500 mg/l
Exposure time: 96 h

LC50 (Pimephales promelas (fathead minnow)): 330 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: Fish Acute Toxicity Test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31,1 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.

Toxicity to algae/aquatic plants : 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

EC10 (Selenastrum capricornutum (green algae)): 1,34 mg/l
Exposure time: 72 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Bacteria): >= 100 mg/l
Exposure time: 28 d
Method: OECD Test Guideline 216

EC50 (Bacteria): > 100 mg/l
Exposure time: 28 h
Method: OECD Test Guideline 216

EC50 (Bacteria): 15,7 mg/l
Exposure time: 2 h
Test Type: static test
Test substance: Fresh water

NOEC (Bacteria): 1,3 mg/l
Exposure time: 2 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

Toxicity to soil dwelling organisms : NOEC: ca. 62,5 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222

EC50: > 1 000 mg/kg
Exposure time: 56 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 222

Ecotoxicology Assessment

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

m-phenylenediamine:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 512 mg/l
Exposure time: 96 h
Test Type: flow-through test
Test substance: Fresh water
Method: Fish Acute Toxicity Test

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Gammarus fasciatus (freshwater shrimp)): 7,8 mg/l Exposure time: 48 h Test Type: flow-through test Test substance: Fresh water GLP: yes
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): 5,63 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 NOEC (Selenastrum capricornutum (green algae)): 0,915 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (activated sludge): 100 mg/l Exposure time: 0,5 h Test substance: Fresh water Method: OECD Test Guideline 209 Remarks: Information given is based on data obtained from similar substances.
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,05 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: flow-through test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 211 GLP: yes
M-Factor (Chronic aquatic toxicity)	:	1

Ecotoxicology Assessment

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

12.2 Persistence and degradability

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

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

Inoculum: activated sludge
Result: Not inherently biodegradable.
Biodegradation: 20 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 84 d
Method: OECD Test Guideline 302A
Test substance: Fresh water

m-phenylenediamine:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 2 mg/l
Result: Not biodegradable
Biodegradation: 30 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes
Remarks: Based on data from similar materials

Photodegradation : Test Type: Water
Method: Indirect Photolysis Screening Test: Sunlight
Photolysis in Waters Containing Dissolved Humic Substances

12.3 Bioaccumulative potential

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Partition coefficient: n-octanol/water : log Pow: -2,08 - 2,90 (20 °C)
Method: QSAR

m-phenylenediamine:

Partition coefficient: n-octanol/water : log Pow: -0,39 (25 °C)
pH: 7
Method: QSAR
GLP: no

12.4 Mobility in soil

Components:

Amines, polyethylenepoly-, triethylenetetramine fraction:

Distribution among environmental compartments : Koc: 3162,28, log Koc: 3,5
Method: 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 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.
Harmful to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 2735

ADR : UN 2735

RID : UN 2735

IMDG : UN 2735

IATA : UN 2735

14.2 UN proper shipping name

ADN : AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE)

ADR : AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE)

RID : AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE)

IMDG : AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE)

IATA : Amines, liquid, corrosive, n.o.s. (TRIETHYLENE TETRAMINE)

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 : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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.
REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 75, 3 If you intend to use this product as tattoo ink, please contact your vendor. 2-(2-aminoethylamino)ethanol (Number on list 30)
Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.		Not applicable
Occupational Illnesses (R-461-3, France)	:	43, 4 bis, 84

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

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	:	This product contains one or several components listed in the Canadian NDSL.
AIIC	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
ENCS	:	Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	Notified. Allowed to be imported / manufactured only by the notifiers. Please contact your Huntsman sales representative for more information.
TCSI	:	Not 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

H301	:	Toxic if swallowed.
H302	:	Harmful if swallowed.
H311	:	Toxic in contact with skin.

H312	:	Harmful in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H331	:	Toxic if inhaled.
H341	:	Suspected of causing genetic defects.
H400	:	Very toxic to aquatic life.
H410	:	Very 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 Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Muta.	:	Germ cell mutagenicity
Skin Corr.	:	Skin corrosion
Skin Sens.	:	Skin sensitisation
FR VLE	:	France. Occupational Exposure Limits
FR VLE / VME	:	Time Weighted Average

Further information

Classification of the mixture:		**Classification procedure:**
Skin Corr. 1B	H314	Calculation method
Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
Aquatic Chronic 3	H412	Based on product data or assessment

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.