XB 2253-1 HARDENER BD

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

1.1 Product identifier

Trade name : XB 2253-1 HARDENER BD

Unique Formula Identifier (UFI) : 58QE-107A-M00G-6C3V

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) 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 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.
H411 Toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : EUH071 Corrosive to the respiratory tract.

Precautionary statements :

Prevention:

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:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine
m-phenylenebis(methylamine)
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia
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.

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)
Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine	- - 01-2119972321-42	Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Chronic 2; H411	>= 50 - < 70
m-phenylenebis(methylamine)	1477-55-0 216-032-5 01-2119480150-50	Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1B; H317 Aquatic Chronic 3; H412 EUH071 Acute toxicity estimate Acute oral toxicity: 930 mg/kg Acute inhalation toxicity (dust/mist): 1,34 mg/l	>= 25 - < 30
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia	- - 01-2119557899-12	Skin Corr. 1C; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 10 - < 20
Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol	445498-00-0 Polymer -	Acute Tox. 4; H302 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 2,5 - < 10

		Acute toxicity estimate Acute oral toxicity: 300,03 mg/kg	
2,4,6-tris(dimethylaminomethyl)phenol	90-72-2 202-013-9 603-069-00-0 01-2119560597-27	Acute Tox. 4; H302 Skin Corr. 1C; H314 Eye Dam. 1; H318	>= 1 - < 3

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 : Consult a physician after significant exposure.
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 dioxide (CO2)
Carbon monoxide
Carbon oxides
Nitrogen oxides (NOx)
Ammonia

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.

Ensure adequate ventilation.
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.
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.

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.

Recommended storage temperature : 2 - 40 °C

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
m-phenylenebis(methylamine)	1477-55-0	VLCT (VLE)	0,1 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
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia	Workers	Inhalation	Long-term systemic effects	5,29 mg/m3
	Workers	Dermal	Long-term systemic effects	2,5 mg/kg bw/day
m-phenylenebis(methylamine)	Workers	Inhalation	Long-term systemic effects	1,2 mg/m3
	Workers	Inhalation	Long-term local effects	0,2 mg/m3
	Workers	Dermal	Long-term systemic effects	0,33 mg/kg
2,4,6-tris(dimethylaminomethyl)phenol	Workers	Inhalation	Long-term systemic effects	0,53 mg/m3
	Workers	Inhalation	Acute systemic effects	2,1 mg/m3
	Workers	Dermal	Long-term systemic effects	0,150 mg/kg
	Workers	Dermal	Acute systemic effects	0,600 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0,130 mg/m3

	Consumers	Inhalation	Acute systemic effects	0,130 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,075 mg/kg
	Consumers	Dermal	Acute systemic effects	0,075 mg/kg
	Consumers	Oral	Long-term systemic effects	0,075 mg/kg

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

Substance name	Environmental Compartment	Value
Reaction products of di-, tri- and tetra-propoxylated propane-1,2-diol with ammonia	Fresh water	0,015 mg/l
	Remarks:Assessment Factors	
	Marine water	0,014 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	0,132 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	0,125 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Sewage treatment plant	7,5 mg/l
	Remarks:Assessment Factors	
	Secondary Poisoning	6,93 mg/kg
	Remarks:Assessment Factors	
	Freshwater - intermittent	0,15 mg/l
	Remarks:Assessment Factors	
	Soil	0,018 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
2,4,6-tris(dimethylaminomethyl)phenol	Fresh water	0,046 mg/l
	Marine water	0,005 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	0,262 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	0,46 mg/l
	Soil	0,025 mg/kg
m-phenylenebis(methylamine)	Fresh water	0,094 mg/l
	Remarks:Assessment Factors	
	Marine water	0,009 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	0,152 mg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	10 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	12,4 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Marine sediment	1,24 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

	Soil	2,44 mg/kg
	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 : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
Equipment should conform to EN 14387

Filter type : Combined particulates, ammonia/amines and organic vapour type (AK-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : Clear

Odour : slight

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	:	> 200 °C Method: estimated
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	:	No data is available on the product itself.
Density	:	0,97 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	insoluble, immiscible
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	50 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

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

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: > 2 000 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

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Acute oral toxicity : LD50 (Rat, female): > 2 000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

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

m-phenylenebis(methylamine):

Acute oral toxicity : LD50 (Rat, male and female): 930 mg/kg
Method: OECD Test Guideline 401

Acute toxicity estimate: 930 mg/kg
Method: Calculation method

Acute inhalation toxicity : LC50 (Rat, male and female): ca. 1,34 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes

Acute toxicity estimate: 1,34 mg/l
Test atmosphere: dust/mist
Method: Calculation method

Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : LD50 (Rat, male and female): > 3 100 mg/kg
Method: Other guidelines
Symptoms: Necrosis, Erythema
Assessment: The substance or mixture has no acute dermal toxicity

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

Acute oral toxicity : LD50 (Rat, male and female): 2 885 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is low toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 0,74 mg/l
Exposure time: 8 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, male and female): 2 980 mg/kg
Method: OECD Test Guideline 402
Assessment: The component/mixture is low toxic after single contact with skin.

Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol:

Acute oral toxicity : LD50 (Rat, female): > 300 - < 2 000 mg/kg
Method: OECD Test Guideline 423
GLP: yes

Acute toxicity estimate: 300,03 mg/kg
Method: Calculation method

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

Acute oral toxicity : LD50 (Rat, male and female): 2 169 mg/kg
Method: OECD Test Guideline 401
Assessment: The component/mixture is low toxic after single ingestion.

Acute dermal toxicity : LD50 (Rat, male): > 1 ml/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Species	:	human skin
Assessment	:	Irritant
Method	:	OECD Test Guideline 439
Result	:	Irritating to skin.

m-phenylenebis(methylamine):

Species	:	Rat
Assessment	:	Causes burns.
Method	:	Directive 67/548/EEC, Annex V, B.4.
Result	:	Corrosive after 3 minutes to 1 hour of exposure

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

Species	:	Rabbit
Assessment	:	Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure

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

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 1 to 4 hours of exposure
Species	:	synthetic macromolecular bio-barrier
Method	:	OECD Test Guideline 435
Result	:	Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Species	:	Rabbit
Assessment	:	Severe eye irritation
Method	:	OECD Test Guideline 405
Result	:	Irreversible effects on the eye

m-phenylenebis(methylamine):

Assessment	:	Risk of serious damage to eyes.
Result	:	Risk of serious damage to eyes.

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

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.

Method	:	OECD Test Guideline 405
Result	:	Irreversible effects on the eye

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

Species	:	Rabbit
Assessment	:	Corrosive
Method	:	Other guidelines
Result	:	Corrosive

Respiratory or skin sensitisation

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Exposure routes	:	Skin
Species	:	Mouse
Assessment	:	The product is a skin sensitiser, sub-category 1A.
Method	:	OECD Test Guideline 429
Result	:	Causes sensitisation.

m-phenylenebis(methylamine):

Exposure routes	:	Skin
Species	:	Mouse
Assessment	:	Probability or evidence of low to moderate skin sensitisation rate in humans
Method	:	OECD Test Guideline 429
Result	:	Probability or evidence of low to moderate skin sensitisation rate in humans
GLP	:	yes

Assessment	:	Harmful if swallowed or if inhaled., Causes severe skin burns and eye damage., Corrosive to the respiratory tract. May cause an allergic skin reaction.

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

Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Genotoxicity in vitro	:	Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476
Result: negative

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

m-phenylenebis(methylamine):

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

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

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Exposure time: single dose
Dose: 750 mg/kg body weight
Method: OECD Test Guideline 474
Result: negative
GLP: yes

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects., Animal testing did not show any mutagenic effects.

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

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: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476

Result: negative

Test Type: gene mutation test
Result: negative
GLP: yes

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 125/250/500 mg/kg bw/day
Method: OECD Test Guideline 474
Result: negative

Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol:

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
GLP: yes

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

Carcinogenicity

No data available

Reproductive toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422

m-phenylenebis(methylamine):

Effects on fertility	:	Test Type: Reproduction / Developmental Toxicity Screening Test Species: Rat, male and female Application Route: Oral Dose: 0, 50, 150 and 450 mg/kg General Toxicity - Parent: NOEL: 50 - 150 mg/kg body weight General Toxicity F1: NOEL: 450 mg/kg body weight Method: OECD Test Guideline 421 Result: No effects on fertility and early embryonic development were detected. GLP: yes
Effects on foetal development	:	Test Type: Pre-natal Species: Rat, female Strain: Sprague-Dawley Application Route: Oral Dose: 0, 30, 100, 300 mg/kg milligram per kilogram Duration of Single Treatment: 15 d Frequency of Treatment: 1 daily General Toxicity Maternal: NOAEL: 100 mg/kg body weight Developmental Toxicity: NOAEL: 300 mg/kg body weight Method: OECD Test Guideline 414 Result: No effects on fertility and early embryonic development were detected.
Reproductive toxicity - Assessment	:	No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

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

Effects on fertility	:	Test Type: Reproduction / Developmental Toxicity Screening Test Species: Rat, male and female Application Route: Dermal Dose: 3/10/30 milligram per kilogram General Toxicity - Parent: NOAEL: 30 mg/kg body weight General Toxicity F1: NOAEL: 30 mg/kg body weight Method: OECD Test Guideline 421 Result: Animal testing did not show any effects on fertility. Species: Rat, male and female Application Route: Oral Dose: 0/50/150/450 milligram per kilogram General Toxicity - Parent: NOAEL: 150 mg/kg body weight General Toxicity F1: NOAEL: 150 mg/kg body weight Method: OECD Test Guideline 443 Test Type: Reproduction / Developmental Toxicity Screening Test Species: Rat, male and female Application Route: Oral Dose: 0/75/150/300/600 mg/kg bw/d General Toxicity - Parent: NOAEL: 150 mg/kg body weight General Toxicity F1: NOAEL: 600 mg/kg body weight Method: OECD Test Guideline 421

Effects on foetal development	:	Test Type: Pre-natal Species: Rabbit, female Application Route: Oral Dose: 15/50/115 milligram per kilogram Duration of Single Treatment: 23 d General Toxicity Maternal: NOAEL: 50 mg/kg body weight Developmental Toxicity: NOAEL: 115 mg/kg body weight Method: OECD Test Guideline 414 Test Type: Pre-natal Species: Rat, female Application Route: Oral Dose: 0/40/125/350 milligram per kilogram Duration of Single Treatment: 13 d General Toxicity Maternal: NOAEL: 350 mg/kg body weight Developmental Toxicity: NOAEL: 350 mg/kg body weight Method: OECD Test Guideline 414

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

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

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Species	:	Rat, male and female
NOAEL	:	1000 mg/kg
Application Route	:	Ingestion
Exposure time	:	6 Weeks
Number of exposures	:	7 d
Method	:	Subacute toxicity

m-phenylenebis(methylamine):

Species	:	Rat, male and female
NOEL	:	150 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	28 d
Number of exposures	:	7 days/week
Dose	:	0, 10, 40, 150 and 600 mg/kg/d
Method	:	OECD Test Guideline 407
GLP	:	yes

Species	:	Rat, male and female
NOEC	:	0,6 mg/m3
Application Route	:	Inhalation
Exposure time	:	13 weeks 6 h
Number of exposures	:	5 days/week
Dose	:	0, 0.64, 5.1, 31 mg/m3
Method	:	OECD Test Guideline 413
GLP	:	yes
Target Organs	:	Lungs

Repeated dose toxicity - Assessment	:	Harmful if swallowed or if inhaled., Causes severe skin burns and eye damage., Corrosive to the respiratory tract. No adverse effect has been observed in chronic toxicity tests.

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

Species	:	Rat, male and female
NOAEL	:	>= 250 mg/kg/d
Application Route	:	Dermal
Exposure time	:	90 days 6 h
Number of exposures	:	5 days/week
Dose	:	0/50/80/250 mg/kg bw/day
Method	:	OECD Test Guideline 411

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

Species	:	Rat, male and female
NOEL	:	15 mg/kg
Application Route	:	Ingestion
Exposure time	:	1 032 h
Number of exposures	:	7 d
Method	:	Subacute toxicity

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:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 7,07 mg/l Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 5,18 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 2,63 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 : 721 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

m-phenylenebis(methylamine):

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): 87,6 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 15,2 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic	:	ErC50 (Selenastrum capricornutum (green algae)): 32,1 mg/l

plants		Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes NOEC (Selenastrum capricornutum (green algae)): 10,5 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 1 000 mg/l Exposure time: 0,5 h Test Type: static test Analytical monitoring: no Test substance: Fresh water Method: OECD Test Guideline 209 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 4,7 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

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

Toxicity to fish	:	EC50 (Oncorhynchus mykiss (rainbow trout)): > 15 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 80 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202 EC50 (Acartia tonsa): 418,34 mg/l Exposure time: 48 h Test Type: static test Test substance: Marine water
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): 15 mg/l Exposure time: 72 h Test Type: static test

Test substance: Fresh water
Method: OECD Test Guideline 201

NOECr (Selenastrum capricornutum (green algae)): 0,32 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201

IC50 (Skeletonema costatum (marine diatom)): 141,72 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Marine water
Method: ISO 10253

ErC10 (Skeletonema costatum (marine diatom)): 33,34 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Marine water
Method: ISO 10253

Toxicity to microorganisms : EC50 (activated sludge): 750 mg/l
Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

Ecotoxicology Assessment

Acute aquatic toxicity : Harmful to aquatic life.

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

Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 40 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): > 219 ugl
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

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 (Palaeomonetes vulgaris (Grass shrimp)): 718 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: no
Test substance: Marine water

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 6,25 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

12.2 Persistence and degradability

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Biodegradability : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 0 - 70 %
Exposure time: 74 d
Method: OECD Test Guideline 301B

m-phenylenebis(methylamine):

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 14,2 mg/l
Result: Not readily biodegradable.
Biodegradation: 49 %
Exposure time: 28 d
Method: OECD Test Guideline 301B
Test substance: Fresh water
GLP: yes

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

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

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

Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 3 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

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

Biodegradability : Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 2 mg/l
Result: Not biodegradable
Biodegradation: 4 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

12.3 Bioaccumulative potential

Components:

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and tetraethylenepentamine:

Bioaccumulation : Bioconcentration factor (BCF): 2,14
Remarks: Bioaccumulation is unlikely.

m-phenylenebis(methylamine):

Partition coefficient: n-octanol/water : log Pow: 0,18 (25 °C)
pH: 10,3 - 10,4
Method: OECD Test Guideline 107
GLP: yes

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

Partition coefficient: n-octanol/water : Pow: 22,09 (25 °C)
log Pow: 1,34 (25 °C)

Formaldehyde, polymer with N1,N1-dimethyl-1,3-propanediamine and phenol:

Partition coefficient: n-octanol/water : Pow: 6,47 (20 °C)
log Pow: 0,81 (20 °C)

Method: OECD Test Guideline 107
GLP: yes

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

Partition coefficient: n-octanol/water	:	Pow: >= 0,219 (21,5 °C) log Pow: -0,66 (21,5 °C) Method: OPPTS 830.7550

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 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. 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 1760

ADR : UN 1760

RID : UN 1760

IMDG : UN 1760

IATA : UN 1760

14.2 UN proper shipping name

ADN : CORROSIVE LIQUID, N.O.S.
(M-XYLYLENE DIAMINE)

ADR : CORROSIVE LIQUID, N.O.S.
(M-XYLYLENE DIAMINE)

RID : CORROSIVE LIQUID, N.O.S.
(M-XYLYLENE DIAMINE)

IMDG : CORROSIVE LIQUID, N.O.S.
(M-XYLYLENE DIAMINE)

IATA : Corrosive liquid, n.o.s.
(M-XYLYLENE DIAMINE)

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 : C9
Hazard Identification Number : 80
Labels : 8

ADR

Packing group : II
Classification Code : C9
Hazard Identification Number : 80
Labels : 8
Tunnel restriction code : (E)

RID

Packing group : II
Classification Code : C9
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 : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes(FORMALDEHYDE, POLYMER WITH AMINE AND PHENOL, POLYAMIDOAMINE)

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 75, 3 If you intend to use this product as tattoo ink, please contact your vendor.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E2	ENVIRONMENTAL HAZARDS

Occupational Illnesses (R-461-3, France) : 51, 49, 49 bis, 43

Installations classified for the protection of the environment (Environment Code R511-9) : 4511

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 : This product contains one or several components listed in the Canadian NDSL.

AIIC : All components are listed on the inventory, regulatory obligations/restrictions apply. Please contact your sales representative for more information before import into Australia

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 : 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.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H332	:	Harmful if inhaled.
H400	:	Very toxic to aquatic life.
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.
EUH071	:	Corrosive to the respiratory tract.

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
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
FR VLE	:	France. Occupational Exposure Limits
FR VLE / VLCT (VLE)	:	Short Term Exposure Limit

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 2	H411	Calculation method

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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.

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