HARDENER HW 2951

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

1.1 Product identifier

Trade name : HARDENER HW 2951

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 (Switzerland) GmbH
Address : Klybeckstrasse 200
CH-4057 Basel
Switzerland
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

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

1.4 Emergency telephone number

Emergency telephone number : EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300
Swiss Toxicologic Information Centre - Emergency Phone 145 (24 h)
+41 44 251 5151 (from outside Switzerland)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin corrosion, Sub-category 1C	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.

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:

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

2,4,6-Tris(dimethylaminomethyl)phenol

3-aminopropyltriethoxysilane

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (% w/w)

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)	14970-87-7 239-044-2	Acute Tox.4; H302 Acute Tox.4; H332 Aquatic Chronic2; H411	>= 2,5 - < 10
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	10563-29-8 234-148-4 01-2119970376-29	Acute Tox.4; H302 Skin Corr.1A; H314 Skin Sens.1B; H317	>= 3 - < 5
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2 202-013-9 603-069-00-0 01-2119560597-27	Skin Corr.1C; H314 Eye Dam.1; H318 Acute Tox.4; H302	>= 1 - < 3
3-aminopropyltriethoxysilane	919-30-2 213-048-4 612-108-00-0 01-2119480479-24	Acute Tox.4; H302 Skin Corr.1B; H314 Skin Sens.1; H317	>= 0,1 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

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

In case of skin contact : 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 : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

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

5.3 Advice for firefighters

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

Specific extinguishing methods : No data is available on the product itself.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Neutralise with acid.
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. Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. 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
Talc (Mg3H2(SiO3)4)	14807-96-6	TWA (alveolate dust)	2 mg/m3	CH SUVA
Further information	Occupational Safety and Health Administration, Harm to the unborn child is not to be expected when the OEL-value is respected			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
barium sulfate	Workers	Inhalation	Long-term systemic effects	10 mg/m3
	Workers	Inhalation	Long-term local effects	10 mg/m3
	Consumer use	Inhalation	Long-term systemic effects	10 mg/m3
	Consumer use	Oral	Long-term systemic effects	13000 mg/kg
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	Workers	Inhalation	Long-term systemic effects	3,7 mg/m3
	Workers	Inhalation	Acute systemic effects	7,5 mg/m3
	Workers	Inhalation	Long-term local effects	3,7 mg/m3
	Workers	Inhalation	Acute local effects	7,5 mg/m3
	Workers	Dermal	Long-term systemic effects	0,67 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0,65 mg/m3
	Consumers	Inhalation	Long-term local effects	0,65 mg/m3
	Consumers	Oral	Long-term systemic effects	0,2 mg/kg
silicon dioxide	Workers	Inhalation	Long-term systemic effects	4 mg/m3

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

Substance name	Environmental Compartment	Value
2,4,6-Tris(dimethylaminomethyl)phenol	Fresh water	0,084 mg/l
Remarks:	Assessment Factors	
	Marine water	0,0084 mg/l
	Assessment Factors	
	Sewage treatment plant	0,2 mg/l

	Assessment Factors	
	Freshwater - intermittent	0,84 mg/l
barium sulfate	Fresh water	115 µg/l
	Sewage treatment plant	62,2 mg/l
	Assessment Factors	
	Fresh water sediment	600,4 mg/kg
	Assessment Factors	
	Soil	207,7 mg/kg
	Assessment Factors	
N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine	Fresh water	9,2 µg/l
	Assessment Factors	
	Marine water	0,92 µg/l
	Assessment Factors	
	Freshwater - intermittent	92 µg/l
	Assessment Factors	
	Sewage treatment plant	18,1 mg/l
	Assessment Factors	
	Fresh water sediment	0,0336 mg/kg
	Equilibrium method	
	Marine sediment	0,00336 mg/kg
	Equilibrium method	
	Soil	0,00132 mg/kg
	Equilibrium method	

8.2 Exposure controls

Personal protective equipment

Eye protection : Safety glasses

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). The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	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). Workplace exposure limits (for total dust and inhalable quartz dust) must be complied with. If this is not possible, then suitable dust masks must be worn. Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines Recommended Filter type: Combined particulates and organic vapour type
Filter type	:	Filter type A-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	paste
Colour	:	grey
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
pH	:	10 (20 °C) Concentration: 500 g/l Method: Measured
Freezing point	:	No data is available on the product itself.

Melting point	:	No data is available on the product itself.
Boiling point	:	> 100 °C
Flash point	:	125 °C Method: Pensky-Martens closed cup
Evaporation rate	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Burning rate	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Vapour pressure	:	< 0,95 hPa (20 °C)
Relative vapour density	:	No data is available on the product itself.
Relative density	:	No data is available on the product itself.
Density	:	1,9 g/cm3 (25 °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	:	No data is available on the product itself.
Viscosity		
Viscosity, dynamic	:	thixotropic
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	No data is available on the product itself.

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 : Strong acids and strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : > 2 000 mg/kg
Method: Calculation method

Acute inhalation toxicity - Product : Acute toxicity estimate : > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol):
Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Acute dermal toxicity : LD50 (Rat): Assessment: The substance or mixture has no acute dermal toxicity

2,4,6-Tris(dimethylaminomethyl)phenol:
Acute dermal toxicity : LD50 (Rat, male): > 971 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

3-aminopropyltriethoxysilane:
Acute dermal toxicity : LD50 (Rabbit, male and female): 4 075 mg/kg

Method: Acute Dermal Toxicity
Assessment: The substance or mixture has no acute dermal toxicity

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

Skin corrosion/irritation

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol):
Species: human skin
Method: OECD Test Guideline 439
Result: No skin irritation

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine:
Species: Rabbit
Assessment: Corrosive
Method: OECD Test Guideline 404
Result: Corrosive

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

3-aminopropyltriethoxysilane:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Causes burns.

Serious eye damage/eye irritation

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol):
Species: Bovine cornea
Method: OECD Test Guideline 437
Result: No eye irritation

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

2,4,6-Tris(dimethylaminomethyl)phenol:
Species: Rabbit
Assessment: Corrosive
Result: Corrosive

3-aminopropyltriethoxysilane:
Species: Rabbit
Method: OECD Test Guideline 405
Result: Risk of serious damage to eyes.

Respiratory or skin sensitisation

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)**:**
Test Type: Maximisation Test
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

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

2,4,6-Tris(dimethylaminomethyl)phenol**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

3-aminopropyltriethoxysilane**:**
Exposure routes: Skin
Species: Guinea pig
Method: OECD Test Guideline 406
Result: The product is a skin sensitiser, sub-category 1B.

Assessment: No data available

Germ cell mutagenicity

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)**:**
Genotoxicity in vitro : Test Type: Ames test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

: Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 490
Result: negative

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

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

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

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

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

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

3-aminopropyltriethoxysilane**:**

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Components:

3-aminopropyltriethoxysilane**:**

Genotoxicity in vivo : Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Result: negative

Carcinogenicity

Components:

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

Result: negative

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol):

Effects on fertility : Species: Rat, male and female
Dose: 50, 100, 150 mg/kg
General Toxicity - Parent: No observed adverse effect level: 50 mg/kg body weight
General Toxicity F1: No observed adverse effect level: 50 mg/kg body weight
Method: OECD Test Guideline 421

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

Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 422
Result: Animal testing did not show any effects on fertility.

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

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

Components:

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

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

Components:

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

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)**:**
Species: Rat, male and female
NOAEL: 60 mg/kg
Application Route: Oral
Dose: 20, 60, 180 mg/kg
Method: OECD Test Guideline 407

N'-(3-aminopropyl)-N,N-dimethylpropane-1,3-diamine**:**
Species: Rat, male and female
: 550
Application Route: Ingestion
Test atmosphere: vapour
Exposure time: 3 WeeksNumber of exposures: 7 d
Method: Subchronic toxicity

Species: Mouse, male
NOAEL: >= 56,3
Application Route: Skin contact
Exposure time: 20 hNumber of exposures: 3 d
Method: Chronic toxicity

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

3-aminopropyltriethoxysilane**:**
Species: Rat, male and female
NOAEL: 200 mg/kg
Application Route: Ingestion
Exposure time: 2 160 hMethod: Subchronic toxicity

Repeated dose toxicity - Assessment : No data available

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)**:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 5,7 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,76 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 3,11 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 201
GLP: yes

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

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

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 9,2 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): 21 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): 181 mg/l Exposure time: 16 h Test Type: static test Test substance: Fresh water Method: DIN 38 412 Part 8

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

Toxicity to fish	:	LC50 (Cyprinus carpio (Carp)): 175 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water
Toxicity to daphnia and other aquatic invertebrates	:	LC50 : 718 mg/l Exposure time: 96 h Test Type: static test Test substance: Marine water
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 84 mg/l Exposure time: 72 h Test Type: static test 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 Test substance: Fresh water Method: OECD Test Guideline 201
Ecotoxicology Assessment Chronic aquatic toxicity	:	This product has no known ecotoxicological effects.

3-aminopropyltriethoxysilane**:**

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): > 934 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)): 331 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 (Desmodesmus subspicatus (green algae)): > 1 000 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: Directive 67/548/EEC, Annex V, C.3.
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): 43 mg/l Exposure time: 5,75 h Test Type: static test Test substance: Fresh water

12.2 Persistence and degradability

Components:

2,2'-[1,2-ethanediylbis(oxy)]bis(ethanethiol)**:**

Biodegradability	:	Test Type: aerobic Inoculum: activated sludge Concentration: 38,2 mg/l Result: Not biodegradable Biodegradation: < 10 % Exposure time: 28 d Method: OECD Test Guideline 301A

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

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

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

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

3-aminopropyltriethoxysilane**:**

Biodegradability	:	Inoculum: activated sludge Concentration: 8,95 mg/l Result: Not readily biodegradable. Biodegradation: 67 % Exposure time: 28 d Method: Directive 67/548/EEC Annex V, C.4.A.

12.3 Bioaccumulative potential

Components:

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

Partition coefficient: n-octanol/water	:	log Pow: 0,5 log Pow: -0,56 (25 °C)

pH: 11,6
Method: OECD Test Guideline 107

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

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

3-aminopropyltriethoxysilane**:**

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Bioconcentration factor (BCF): 3,4 Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: 1,7 (20 °C) pH: 7

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

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

12.6 Other adverse effects

Product:

Additional ecological 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	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company. Dispose of as hazardous waste in compliance with local and national regulations. Dispose of contents/ container to an approved waste disposal plant.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14: Transport information

IATA

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	Polyamines, liquid, corrosive, n.o.s. (DIMETHYL DIPROPYL TRIAMINE, 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	II
Labels	:	Corrosive
Packing instruction (cargo aircraft)	:	855
Packing instruction (passenger aircraft)	:	851

IMDG

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (DIMETHYL DIPROPYL TRIAMINE, 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	II
Labels	:	8
EmS Code	:	F-A, S-B
14.5 Environmental hazards		
Marine pollutant	:	no

ADR

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (DIMETHYL DIPROPYL TRIAMINE, 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	II
Labels	:	8
14.5 Environmental hazards		
Environmentally hazardous	:	no

RID

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	POLYAMINES, LIQUID, CORROSIVE, N.O.S. (DIMETHYL DIPROPYL TRIAMINE, 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	II
Labels	:	8
14.5 Environmental hazards		

Environmentally hazardous : no

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

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

REACH - List of substances subject to authorisation - Future sunset date : 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).

Ordinance on Protection against Major Accidents
Threshold quantity according to Major Accidents Ordinance (MAO 814.012) : 20 000 kg

Other regulations:

Article 4 para. 4 of the Ordinance on the protection of young people in the workplace (SR 822.115) and Article 1 lit. f of the EAER regulation on hazardous work and young people (SR 822.115.2): Young people undergoing basic vocational training may only work with this product if the relevant training ordinance makes provision for them to do so with a view to enabling them to achieve their training objectives and if the preconditions for the training plan have been met and the applicable age restrictions have been complied with. Young people who are not completing any basic vocational training are not permitted to work with this product. Employees of either sex who are under 18 years old are classed as young people.

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

DSL : This product contains one or several components that are not on the Canadian DSL nor NDSL.

AICS : Not in compliance with the inventory

NZIoC : Not in compliance with the inventory

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

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

PICCS : Not in compliance with the inventory

IECSC : Notified. Allowed to be imported / manufactured only by the

notifiers. Please contact your Huntsman sales representative for more information.

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

TSCA : Not On TSCA Inventory

Inventories

AICS (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.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H332	:	Harmful if inhaled.
H411	:	Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Skin Corr.	:	Skin corrosion
Skin Sens.	:	Skin sensitisation
CH SUVA	:	Switzerland. Limit values at the work place
CH SUVA / TWA	:	Time Weighted Average

Classification of the mixture:		**Classification procedure:**
Skin Corr. 1C	H314	Calculation method
Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
Aquatic Chronic 3	H412	Calculation method

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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.

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