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

1.1 Product identifier

Trade name : REN HV 427-1

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

Use of the Substance/Mixture : Hardener

1.3 Details of the supplier of the safety data sheet

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

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

1.4 Emergency telephone number

Emergency telephone number : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11
Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11
Erfurt: 0049 361 73 07 30
Freiburg: 0049 761 16 24 0
Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80
Homburg: 0049 6841 19 24 0
Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66
München: 0049 89 19 24 0
Nürnberg: 0049 911 39 8 2 45 1
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 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.
Reproductive toxicity, Category 1B	H360F: May damage fertility.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :

H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H360F	May damage fertility.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
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.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P391	Collect spillage.

Hazardous components which must be listed on the label:
Fatty acids, C18 unsat., reaction products with tetraethylenepentamine

Phenol, polymer with formaldehyde (Polymer)

4,4'-Isopropylidenediphenol

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.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : Amines

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Fatty acids, C18 unsat., reaction products with tetraethylenepentamine	1226892-45-0 - 01-2119487006-38	Skin Corr. 1C; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 1	>= 50 - < 70
Phenol, polymer with formaldehyde (Polymer)	9003-35-4 Polymer	Skin Sens. 1; H317	>= 10 - < 20
4,4'-Isopropylidenediphenol	80-05-7 201-245-8 604-030-00-0 01-2119457856-23	Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360F STOT SE 3; H335 Aquatic Chronic 2; H411 M-Factor (Chronic aquatic toxicity): 1	>= 3 - < 10

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	:	Clean mouth with water and drink afterwards plenty of water. 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.
Hazardous combustion products	:	Carbon oxides Carbon dioxide (CO2) Carbon monoxide Ammonia Nitrogen oxides (NOx)

5.3 Advice for firefighters

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

Storage class (TRGS 510) : 6.1C, Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

Further information on storage stability : Stable under normal conditions.

Recommended storage temperature : 2 - 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
bisphenol A	80-05-7	AGW (Inhalable fraction)	5 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	1;(I)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible), When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
		TWA (inhalable fraction)	2 mg/m3	2017/164/EU
Further information	Indicative			
Phenol, polymer	9003-35-4	AGW (Inhalable	10 mg/m3	DE TRGS

with formaldehyde (Polymer)		fraction)		900
Peak-limit: excursion factor (category)	2;(II)			
Further information	General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values., Commission for dangerous substances, Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).			
		AGW (Alveolate fraction)	1,25 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	2;(II)			
Further information	General dust value. For this substance no specific occupational exposure limit value is established, since the AGS does not yet have information regarding unspecific action on the respiratory organs in excess of the normal values., Commission for dangerous substances, Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).			
4,4'-Isopropylidenediphenol	80-05-7	AGW (Inhalable fraction)	5 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	1;(I)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible), When there is compliance with the OEL and biological tolerance values, there is no risk of harming the unborn child			
		TWA (inhalable fraction)	2 mg/m3	2017/164/EU
Further information	Indicative			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Fatty acids, C18 unsat., reaction products with tetraethylenepentamine	Workers	Inhalation	Long-term systemic effects	29 mg/m3
	Workers	Dermal	Long-term systemic effects	4,2 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	8,7 mg/m3
	Consumers	Dermal	Long-term systemic effects	2,5 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	2,5 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
Fatty acids, C18 unsat., reaction products with tetraethylenepentamine	Fresh water	0,0307 mg/kg
Remarks:	Assessment Factors	
	Marine water	0,00307 mg/kg
	Assessment Factors	
	Sewage treatment plant	2,3 mg/l
	Assessment Factors	
	Fresh water sediment	119,8 mg/kg dry weight (d.w.)
	Equilibrium method	
	Marine sediment	11,98 mg/kg dry weight (d.w.)
	Equilibrium method	
	Soil	9,44 mg/kg dry weight (d.w.)
	Assessment Factors	
	Oral	20 mg/kg
	Assessment Factors	

8.2 Exposure controls

Personal protective equipment

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

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

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

Remarks : 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	:	Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines
Filter type	:	Combined particulates and ammonia/amines type (K-P) In the case of vapour formation use a respirator with an approved filter.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	No data is available on the product itself.
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
pH	:	11 (20 °C) Concentration: 500 g/l
Freezing point	:	No data is available on the product itself.
Melting point	:	No data is available on the product itself.
Boiling point	:	> 200 °C
Flash point	:	170 °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	:	0,00006 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	:	0,6 g/cm3 (25 °C)
Solubility(ies)		

Water solubility	:	completely miscible (20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
Viscosity	:	No data is available on the product itself.
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 : None known.

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**

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

Assessment: The component/mixture is low toxic after single ingestion.

Phenol, polymer with formaldehyde (Polymer)**:**
Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg

4,4'-Isopropylidenediphenol**:**
Acute oral toxicity : LD50 (Rat, male and female): > 2 000 - < 5 000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Components:

4,4'-Isopropylidenediphenol**:**
Acute inhalation toxicity : LC50 (Rat, male and female): > 170 mg/m3
Exposure time: 6 h
Test atmosphere: dust/mist

Components:

Phenol, polymer with formaldehyde (Polymer)**:**
Acute dermal toxicity : LD50 (Rat): > 2 000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

4,4'-Isopropylidenediphenol**:**
Acute dermal toxicity : LD50 (Rabbit, male): ca. 6 400 mg/kg

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

Skin corrosion/irritation

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
Species: Rabbit
Exposure time: 4 h
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, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.
GLP: yes

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

Serious eye damage/eye irritation

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
Result: Corrosive

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

Respiratory or skin sensitisation

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
Test Type: Maximisation Test
Exposure routes: Skin
Species: Guinea pig
Assessment: Probability or evidence of high skin sensitisation rate in humans
Method: OECD Test Guideline 406
Result: Probability or evidence of high skin sensitisation rate in humans
GLP: yes

Phenol, polymer with formaldehyde (Polymer)**:**
Exposure routes: Skin
Species: Humans
Assessment: May cause sensitisation by skin contact.
Result: May cause sensitisation by skin contact.

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

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

Assessment: No data available

Germ cell mutagenicity

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
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: negative
GLP: yes

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

: 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

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

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

Components:

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

Carcinogenicity

Components:

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

Carcinogenicity - Assessment : No data available

Reproductive toxicity

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 0/30/100/300 milligram per kilogram
Duration of Single Treatment: 28 - 41 d

Frequency of Treatment: 7 days/week
General Toxicity - Parent: No observed adverse effect level: >= 300 mg/kg body weight
General Toxicity F1: No observed adverse effect level: >= 300 mg/kg body weight
Method: OECD Test Guideline 422
Result: Not classified
GLP: yes

4,4'-Isopropylidenediphenol**:**

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

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**

Effects on foetal development : Species: Rat, female
Application Route: Oral
Dose: 0/100/300/1000 milligram per kilogram
Duration of Single Treatment: 10 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level: > 1 000 mg/kg body weight
Developmental Toxicity: No observed adverse effect level: > 1 000 mg/kg body weight
Result: No teratogenic effects
GLP: yes

4,4'-Isopropylidenediphenol**:**

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

Components:

4,4'-Isopropylidenediphenol**:**

Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT - single exposure

Components:

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

STOT - repeated exposure

No data available

Repeated dose toxicity

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**
Species: Rat, male and female
NOAEL: >= 300
Application Route: oral (gavage)
Exposure time: 8 - 28 d 6 hNumber of exposures: 7 days/week
Dose: 0/30/100/300 mg/kg/day
Group: yes
Method: OECD Test Guideline 422
GLP: yes

Species: Dog, male and female
NOAEL: 144 mg/kg
Application Route: oral (feed)
Exposure time: 3 dDose: 4000/12000/40000 ppm
Method: Subchronic toxicity
Remarks: Information given is based on data obtained from similar substances.

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

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

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:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 0,19 mg/l
End point: mortality
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 203
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,18 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
Remarks: Information given is based on data obtained from similar substances.

LC50 (Daphnia magna (Water flea)): 0,24 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water

Method: ISO 6341
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

EC50 (Daphnia magna (Water flea)): 1,48 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes
Remarks: Information given is based on data obtained from similar substances.

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 0,638 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

EC10 (Pseudokirchneriella subcapitata (green algae)): 0,395 mg/l
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : 10

Toxicity to microorganisms : EC50 (activated sludge): 114 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: yes

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,0320 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

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to soil dwelling organisms	:	NOEC: 944 mg/kg Exposure time: 56 d Species: Eisenia fetida (earthworms) Test substance: Natural Method: OECD Test Guideline 222 GLP:yes

4,4'-Isopropylidenediphenol**:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 7,5 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 : 3,9 - 10,2 mg/l Exposure time: 48 h (Ceriodaphnia dubia (Water flea)):
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 2,5 - 3,1 mg/l Exposure time: 96 h
Toxicity to fish (Chronic toxicity)	:	NOEC: 0,016 mg/l Exposure time: 444 d Species: Pimephales promelas (fathead minnow) Test Type: flow-through test Test substance: Fresh water Method: Fish Life Cycle Toxicity Remarks: Toxic to aquatic organisms.
M-Factor (Chronic aquatic toxicity)	:	1
Ecotoxicology Assessment Chronic aquatic toxicity	:	Toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**

Biodegradability	:	Test Type: aerobic Inoculum: Fresh water Concentration: 2 mg/l Result: Inherently biodegradable. Biodegradation: 24 % Exposure time: 60 d Method: OECD Test Guideline 301D GLP: yes Remarks: Based on data from similar materials

4,4'-Isopropylidenediphenol**:**

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

12.3 Bioaccumulative potential

Components:

Fatty acids, C18 unsat., reaction products with tetraethylenepentamine**:**

Partition coefficient: n-octanol/water	:	log Pow: 2,2 (25 °C) pH: 6 Method: OECD Test Guideline 123 GLP: no Remarks: Based on data from similar materials

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. Very toxic to aquatic life with long lasting effects. 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	:	Amines, liquid, corrosive, n.o.s.

name
(POLYAMIDOIMIDAZOLINE)

14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	III
Labels	:	Class 8 - Corrosive substances
Packing instruction (cargo aircraft)	:	856
Packing instruction (passenger aircraft)	:	852

IMDG

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	AMINES, LIQUID, CORROSIVE, N.O.S. (POLYAMIDOIMIDAZOLINE)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	III
Labels	:	8
EmS Code	:	F-A, S-B
14.5 Environmental hazards		
Marine pollutant	:	yes

ADR

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	AMINES, LIQUID, CORROSIVE, N.O.S. (POLYAMIDOIMIDAZOLINE)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	III
Labels	:	8
14.5 Environmental hazards		
Environmentally hazardous	:	yes

RID

14.1 UN number	:	UN 2735
14.2 UN proper shipping name	:	AMINES, LIQUID, CORROSIVE, N.O.S. (POLYAMIDOIMIDAZOLINE)
14.3 Transport hazard class(es)	:	8
14.4 Packing group	:	III
Labels	:	8
14.5 Environmental hazards		
Environmentally hazardous	:	yes

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). : bisphenol A

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

E1	ENVIRONMENTAL HAZARDS

Water contaminating class (Germany) : WGK 2 obviously hazardous to water

TA Luft List (Germany) :
Total dust:
Not applicable
: Inorganic substances in powdered form:
Not applicable
: Inorganic substances in vapour or gaseous form:
Not applicable
: Organic Substances:
Not applicable
: Carcinogenic substances:
Not applicable
: Mutagenic:
Not applicable
: Toxic to reproduction:
Not applicable

Other regulations:

The product is subject to the supply restrictions of the Ordinance on the Prohibition of Chemicals.

Take note of Law on the protection of mothers at work, in education and in studies (Maternity Protection Act - MuSchG).

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.

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

ENCS	:	On the inventory, or in compliance with the inventory
NZIoC	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), 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

H314	:	Causes severe skin burns and eye damage.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H335	:	May cause respiratory irritation.
H360F	:	May damage fertility.
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.

Full text of other abbreviations

Aquatic Acute	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Repr.	:	Reproductive toxicity
Skin Corr.	:	Skin corrosion
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
2017/164/EU	:	Commission Directive (EU) 2017/164 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission

Directives 91/322/EEC, 2000/39/EC and 2009/161/EU
DE TRGS 900 : Germany. TRGS 900 - Occupational exposure limit values.
2017/164/EU / TWA : Limit Value - eight hours
DE TRGS 900 / AGW : Time Weighted Average

Further information

Classification of the mixture:		**Classification procedure:**
Skin Corr. 1C	H314	Calculation method
Eye Dam. 1	H318	Calculation method
Skin Sens. 1	H317	Calculation method
Repr. 1B	H360F	Calculation method
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	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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