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) 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 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/ 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.
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
Formaldehyde, oligomeric reaction products with phenol
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.

Ecological information: This substance/mixture contains components considered to have endocrine disrupting properties for environment , according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Toxicological information: This substance/mixture contains components considered to have endocrine disrupting properties affecting human health, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

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
Formaldehyde, oligomeric reaction products with phenol	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 (Respiratory system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 10	>= 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.

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

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

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : 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

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

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

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

5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : 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 : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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

respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	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	:	Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. Do not breathe vapours/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labelled containers.
Advice on common storage	:	Do not store near acids.
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
4,4'-isopropylidenediphenol	80-05-7	VME (Dust, inhalable fraction)	2 mg/m3	FR VLE
	Further information: Reprotoxic category 1B - Probably reprotoxic to humans, Regulatory binding exposure limits			
		TWA (inhalable fraction)	2 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA (inhalable fraction)	2 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			

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
	Remarks:Assessment Factors	
	Sewage treatment plant	2,3 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	119,8 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	

	Marine sediment	11,98 mg/kg dry weight (d.w.)
	Remarks:Equilibrium method	
	Soil	9,44 mg/kg dry weight (d.w.)
	Remarks:Assessment Factors	
	Oral	20 mg/kg
	Remarks:Assessment Factors	

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

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).
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.

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

In the case of vapour formation use a respirator with an approved filter.

Filter type : Combined particulates and ammonia/amines type (K-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour	:	No data is available on the product itself.
Odour	:	amine-like
Odour Threshold	:	No data is available on the product itself.
Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	> 200 °C
Flammability (solid, gas)	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Flash point	:	170 °C Method: Pensky-Martens closed cup
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
pH	:	11 (20 °C) Concentration: 500 g/l
Viscosity	:	No data is available on the product itself.
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.
Vapour pressure	:	0,00006 hPa (20 °C)
Density	:	0,6 g/cm3 (25 °C)
Relative density	:	No data is available on the product itself.
Relative vapour density	:	No data is available on the product itself.
Particle characteristics	:	No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products : 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

Not classified due to lack of data.

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.

Formaldehyde, oligomeric reaction products with phenol:

Acute oral toxicity : LD50 (Rat): > 5 000 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2 000 mg/kg
Assessment: The substance or mixture has no acute dermal

toxicity

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
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 170 mg/m3 Exposure time: 6 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit, male): ca. 6 400 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Causes severe burns.

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

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

Fatty acids C18 unsat, reaction products with tetraethylenepentamine:

Result	:	Corrosive

4,4'-isopropylidenediphenol:

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

GLP : yes

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified due to lack of data.

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

Formaldehyde, oligomeric reaction products with phenol:

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
Assessment	:	Did not cause sensitisation on laboratory animals.
Method	:	OECD Test Guideline 429
Result	:	Did not cause sensitisation on laboratory animals.
GLP	:	yes

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

Germ cell mutagenicity

Not classified due to lack of data.

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 : Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Test Type: reverse mutation assay
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Result: negative

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

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male and female)
Cell type: Bone marrow
Application Route: Oral
Dose: 0, 500, 1000, or 2000 mg/kg
Result: negative

Carcinogenicity

Not classified due to lack of data.

Components:

4,4'-isopropylidenediphenol:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	103 weeks
Frequency of Treatment	:	7 daily
Result	:	negative
GLP	:	yes

Reproductive toxicity

May damage fertility.

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: NOAEL: >= 300 mg/kg body weight
General Toxicity F1: NOAEL: >= 300 mg/kg body weight
Method: OECD Test Guideline 422
Result: Not classified
GLP: yes

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: NOAEL: > 1 000 mg/kg body weight
Developmental Toxicity: NOAEL: > 1 000 mg/kg body weight
Result: No teratogenic effects
GLP: yes

4,4'-isopropylidenediphenol:

Effects on fertility : Test Type: Two-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0, 0.2, 2, 20, and 200 µg/kg
General Toxicity - Parent: NOAEL: 0,2 mg/kg body weight
General Toxicity F1: NOAEL: 0,2 mg/kg body weight
General Toxicity F2: NOAEL: 0,2 mg/kg body weight
Method: OECD Test Guideline 416
Result: Embryotoxic effects and adverse effects on the offspring were detected.
GLP: yes

Species: Rat, male and female
General Toxicity - Parent: NOAEL: 2,7 mg/kg body weight
General Toxicity F1: NOAEL: 2,7 mg/kg body weight
GLP: yes

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 0,2 mg/kg body weight
Method: OECD Test Guideline 416
Result: No teratogenic effects

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

STOT - single exposure

Not classified due to lack of data.

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

Not classified due to lack of data.

Repeated dose toxicity

Components:

Fatty acids C18 unsat, reaction products with tetraethylenepentamine:

Species	:	Rat, male and female
NOAEL	:	>= 300 mg/kg/d
Application Route	:	oral (gavage)
Exposure time	:	8 - 28 d 6 h
Number of exposures	:	7 days/week
Dose	:	0/30/100/300 mg/kg/day
Control 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 d
Dose	:	4000/12000/40000 ppm
Method	:	Subchronic toxicity
Remarks	:	Information given is based on data obtained from similar substances.

4,4'-isopropylidenediphenol:

Species	:	Mouse, male and female
NOAEL	:	300 ppm
Application Route	:	oral (feed)
Exposure time	:	8 weeks
Number of exposures	:	7 days/week
Dose	:	0.018,0.18,1.8,30,300,3500 ppm
Method	:	OECD Test Guideline 416
GLP	:	yes

Species	:	Rat, male and female
NOEL	:	75 ppm
NOAEL	:	750 ppm
Application Route	:	oral (feed)

Number of exposures	:	7 days/week
Dose	:	0,0.015,0.3,4.5,75,750,7500ppm
Method	:	OECD Test Guideline 416
GLP	:	yes

Species	:	Rat, male and female
LOAEL	:	600 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	28 d
Number of exposures	:	7 days/week
Dose	:	0, 40, 200, 600 1000 mg/kg-day
Method	:	OECD Test Guideline 407
GLP	:	yes

Species	:	Rat, male and female
NOEC	:	10 mg/m3
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	13 weeks 6 h
Number of exposures	:	5 days/week
Dose	:	0, 10, 50, or 150 mg/m3

Species	:	Rat, male and female
NOAEL	:	90 mg/m³
Application Route	:	inhalation (dust/mist/fume)
Exposure time	:	8 weeks 6 h
Number of exposures	:	5 days/week
Dose	:	10/30/90 mg/m3

Aspiration toxicity

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	This substance/mixture contains components considered to have endocrine disrupting properties affecting human health, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

SECTION 12: Ecological information

12.1 Toxicity

Product:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

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 (Pimephales promelas (fathead minnow)): 4,6 mg/l End point: mortality Exposure time: 96 h Test Type: flow-through test

Analytical monitoring: yes
Test substance: Fresh water
Method: ASTM Method, other
GLP: yes

LC50 (Oryzias latipes (Orange-red killifish)): 6,8 mg/l
End point: mortality
Exposure time: 72 h
Test substance: Fresh water
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 10,2 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Other guidelines
GLP: yes

EC50 (Chironomus sp. (midge)): 2,7 mg/l
End point: Immobilization
Exposure time: 96 h
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: Other guidelines
GLP: yes

EC50 (Acartia tonsa): 0,885 mg/l
Exposure time: 48 h
Method: Measured

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 2,73 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

EC10 (Pseudokirchneriella subcapitata (green algae)): 1,41 mg/l
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

EC50 (Lemna minor (duckweed)): 20 mg/l
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 221

GLP: yes

NOEC (Lemna minor (duckweed)): 7,8 mg/l
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 221
GLP: yes

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: >= 0,640 mg/l
Exposure time: 36 d
Species: Pimephales promelas (fathead minnow)
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 210
GLP: yes

NOEC: 0,000372 mg/l
Exposure time: 300 d
Species: Danio rerio (zebra fish)
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,025 mg/l
Exposure time: 181 d
Test Type: flow-through test
Analytical monitoring: yes
Test substance: Fresh water
GLP: yes

M-Factor (Chronic aquatic toxicity) : 10

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 : Test Type: aerobic
Inoculum: activated sludge, non-adapted

Concentration: 100 mg/l
Result: Readily biodegradable.
Biodegradation: 89 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water
GLP: yes

Test Type: aerobic
Inoculum: activated sludge, non-adapted
Concentration: 25 mg/l
Result: Readily biodegradable.
Biodegradation: 74,7 - 81,4 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301F
Test substance: Fresh water
GLP: yes

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

4,4'-isopropylidenediphenol:

Bioaccumulation	:	Species: Cyprinus carpio (Carp) Exposure time: 42 d Bioconcentration factor (BCF): 5,1 - 13,3
Partition coefficient: n-octanol/water	:	log Pow: 3,4 (21,5 °C) pH: 6,4 Method: OECD Test Guideline 107

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	:	This substance/mixture contains components considered to

have endocrine disrupting properties for environment , according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Components:

4,4'-isopropylidenediphenol:

Assessment : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for the environment.

12.7 Other adverse effects

Product:

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 2735

ADR : UN 2735

RID : UN 2735

IMDG : UN 2735

IATA : UN 2735

14.2 UN proper shipping name

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

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

RID : AMINES, LIQUID, CORROSIVE, N.O.S.

(POLYAMIDOIMIDAZOLINE)

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

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

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	:	III
Classification Code	:	C7
Hazard Identification Number	:	80
Labels	:	8

ADR

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

RID

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

IMDG

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

IATA (Cargo)

Packing instruction (cargo aircraft)	:	856
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosive

IATA (Passenger)

Packing instruction (passenger aircraft)	:	852
Packing instruction (LQ)	:	Y841
Packing group	:	III
Labels	:	Corrosive

14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

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).	:	4,4'-isopropylidenediphenol
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. 4,4'-isopropylidenediphenol (Number on list 66, 30) formaldehyde (Number on list 72, 28)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E1	ENVIRONMENTAL HAZARDS

Occupational Illnesses (R-461-3, France)	:	Not applicable
Installations classified for the protection of the environment (Environment Code R511-9)	:	4510

Other regulations:

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

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

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

DSL	:	All components of this product are on the Canadian DSL
AIIC	:	On the inventory, or in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Full text of H-Statements

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.

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
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
FR VLE	:	France. Occupational Exposure Limits
2004/37/EC / TWA	:	Long term exposure limit
2017/164/EU / TWA	:	Limit Value - eight hours
FR VLE / VME	:	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	Based on product data or assessment
Aquatic Chronic 1	H410	Based on product data or assessment

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

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

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

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