

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## REN® HV 427-1

Version 2.0      Revision Date: 22.11.2023      SDS Number: 400001008827      Date of last issue: 08.03.2023  
Date of first issue: 04.09.2015

Print Date 27.08.2024

### 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.

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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.

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### 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

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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.

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### 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 (CO<sub>2</sub>)  
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 (CO<sub>2</sub>)  
Carbon monoxide  
Ammonia  
Nitrogen oxides (NO<sub>x</sub>)

### 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

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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)

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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'-isopropylidenediph enol	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	

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	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



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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/cm<sup>3</sup> (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.

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### 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 (NO<sub>x</sub>)  
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

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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.

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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

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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

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### 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:  $\geq$  300 mg/kg body weight  
General Toxicity F1: NOAEL:  $\geq$  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  $\mu$ g/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

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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)

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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/m<sup>3</sup>  
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/m<sup>3</sup>

Species : Rat, male and female  
NOAEL : 90 mg/m<sup>3</sup>  
Application Route : inhalation (dust/mist/fume)  
Exposure time : 8 weeks 6 h  
Number of exposures : 5 days/week  
Dose : 10/30/90 mg/m<sup>3</sup>

### 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



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### 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

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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

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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

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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:  $\geq$  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

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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

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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.

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

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

### 14.3 Transport hazard class(es)

	Class	Subsidiary risks
<b>ADN</b>	: 8	
<b>ADR</b>	: 8	
<b>RID</b>	: 8	
<b>IMDG</b>	: 8	
<b>IATA</b>	: 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 : 852  
(passenger aircraft)  
Packing instruction (LQ) : Y841  
Packing group : III  
Labels : Corrosive

### 14.5 Environmental hazards

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### 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



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### 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.

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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:

Skin Corr. 1C	H314
Eye Dam. 1	H318
Skin Sens. 1	H317
Repr. 1B	H360F
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

#### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Based on product data or assessment
Based on product data or assessment

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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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