

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® CY 225

Version	Revision Date:	SDS Number:	Date of last issue: 05.07.2022
2.2	04.12.2023	400001009060	Date of first issue: 25.01.2018

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

#### 1.1 Product identifier

Trade name : ARALDITE® CY 225

Unique Formula Identifier (UFI) : CH6F-4030-400K-X3UC

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

Use of the Substance/Mixture : Component used for the manufacture of electrical insulation parts

#### 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

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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

### 2.2 Label elements

#### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements :

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

**Prevention:**

P261	Avoid breathing mist or vapours.
P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.

**Response:**

P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P391	Collect spillage.

#### Hazardous components which must be listed on the label:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane

#### Additional Labelling

EUH205 Contains epoxy constituents. May produce an allergic reaction.

### 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.

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Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

##### Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3 216-823-5 603-073-00-2 01-2119456619-26	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411  specific concentration limit Skin Irrit. 2; H315 ≥ 5 % Eye Irrit. 2; H319 ≥ 5 %	≥ 90 - ≤ 100
methanol	67-56-1 200-659-6 603-001-00-X 01-2119433307-44	Flam. Liq. 2; H225 Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 STOT SE 1; H370 (Bladder, Blood, Central nervous system, Eyes, Kidney, Liver, Nervous system, spleen)  specific concentration limit STOT SE 1; H370 ≥ 10 % STOT SE 2; H371 3 - < 10 %	≥ 0,1 - < 1
tetramethylammonium chloride	75-57-0 200-880-8 -	Acute Tox. 2; H300 Acute Tox. 3; H311 Skin Irrit. 2; H315 STOT SE 1; H370 Aquatic Chronic 2; H411	≥ 0,1 - < 0,25

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For explanation of abbreviations see section 16.

Both 25068-38-6 and 1675-54-3 can be used to describe the epoxy resin which is produced through the reaction of bisphenol A and epichlorohydrin

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- |                            |   |
|----------------------------|---|
| General advice             | : Move out of dangerous area.<br>Show this safety data sheet to the doctor in attendance.<br>Treat symptomatically.<br>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<br>If potential for exposure exists refer to Section 8 for specific personal protective equipment.<br>Avoid inhalation, ingestion and contact with skin and eyes.<br>No action shall be taken involving any personal risk or without suitable training.<br>It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| If inhaled                 | : If inhaled, remove to fresh air.<br>Get medical attention if symptoms occur.  |
| In case of skin contact    | : If skin irritation persists, call a physician.<br>If on skin, rinse well with water.<br>If on clothes, remove clothes.  |
| In case of eye contact     | : Immediately flush eye(s) with plenty of water.<br>Remove contact lenses.<br>Keep eye wide open while rinsing.<br>If eye irritation persists, consult a specialist.  |
| If swallowed               | : Keep respiratory tract clear.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.   |

#### 4.2 Most important symptoms and effects, both acute and delayed

- |       |   |
|-------|---|
| Risks | : Causes skin irritation.<br>May cause an allergic skin reaction.<br>Causes serious eye irritation. |
|-------|---|

#### 4.3 Indication of any immediate medical attention and special treatment needed

- |           |                          |
|-----------|--------------------------|
| Treatment | : Treat symptomatically. |
|-----------|--------------------------|

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### 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  
Halogenated compounds

#### 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 : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).  
Keep in suitable, closed containers for disposal.

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### 6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

- Advice on safe handling : Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.  
Avoid 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.  
Dispose of rinse water in accordance with local and national regulations.  
Avoid breathing mist or vapours.
- 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.  
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. Keep in properly labelled containers.
- Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.
- Recommended storage temperature : 2 - 18 °C
- Further information on : Stable under normal conditions.

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storage stability

Stable under normal conditions.

### 7.3 Specific end use(s)

Specific use(s) : No data available

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
methanol	67-56-1	TWA	200 ppm 260 mg/m <sup>3</sup>	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
		VME	200 ppm 260 mg/m <sup>3</sup>	FR VLE
	Further information: Risk of penetration through skin, Regulatory binding exposure limits			
		VLCT (VLE)	1 000 ppm 1 300 mg/m <sup>3</sup>	FR VLE
	Further information: Risk of penetration through skin, Indicative exposure limits			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethyle ne)]bisoxirane	Workers	Inhalation	Long-term systemic effects	4,93 mg/m <sup>3</sup>
	Workers	Dermal	Long-term systemic effects	0,75 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,87 mg/m <sup>3</sup>
	Consumers	Dermal	Long-term systemic effects	0,0893 mg/kg bw/day
methanol	Consumers	Oral	Long-term systemic effects	0,5 mg/kg bw/day
	Workers	Dermal	Systemic effects, Long-term exposure	40 mg/kg bw/day
	Workers	Inhalation	Systemic effects, Long-term exposure	260 mg/m <sup>3</sup>
	Workers	Inhalation	Local effects, Long-term exposure	260 mg/m <sup>3</sup>
	Workers	Dermal	Systemic effects, Short-term exposure	40 mg/kg bw/day

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	Workers	Inhalation	Systemic effects, Short-term exposure	260 mg/m3
	Workers	Inhalation	Local effects, Short-term exposure	260 mg/m3
	Consumers	Dermal	Systemic effects, Long-term exposure	8 mg/kg bw/day
	Consumers	Inhalation	Systemic effects, Long-term exposure	50 mg/m3
	Consumers	Oral	Systemic effects, Long-term exposure	8 mg/kg bw/day
	Consumers	Inhalation	Local effects, Long-term exposure	50 mg/m3
	Consumers	Inhalation	Systemic effects, Short-term exposure	50 mg/m3
	Consumers	Inhalation	Local effects, Short-term exposure	50 mg/m3
	Consumers	Dermal	Systemic effects, Short-term exposure	8 mg/kg bw/day
	Consumers	Oral	Systemic effects, Short-term exposure	8 mg/kg bw/day
tetramethylammonium chloride	Workers	Inhalation	Long-term systemic effects	2,9 mg/m3
	Workers	Dermal	Long-term systemic effects	0,4 mg/kg
	Consumers	Inhalation	Long-term systemic effects	1,76 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,25 mg/kg
	Consumers	Oral	Long-term systemic effects	0,25 mg/kg

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

Substance name	Environmental Compartment	Value
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Fresh water	0,006 mg/l
	Marine water	0,001 mg/l
	Fresh water sediment	0,341 mg/kg dry weight (d.w.)
	Marine sediment	0,034 mg/kg dry weight (d.w.)
	Soil	0,065 mg/kg dry weight (d.w.)
	Sewage treatment plant	10 mg/l
methanol	Secondary Poisoning	11 mg/kg
	Fresh water	154 mg/l
	Remarks:Assessment Factors	
	Marine water	15,4 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	1540 mg/l
	Remarks:Assessment Factors	
	Sediment	570,4 mg/kg
	Remarks:Equilibrium method	
	Secondary Poisoning	



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	Sewage treatment plant	100 mg/l
	Remarks:Assessment Factors	
	Soil	23,5 mg/kg
	Remarks:Equilibrium method	
tetramethylammonium chloride	Fresh water	0,6 µg/l
	Remarks:Assessment Factors	
	Marine water	0,06 µg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	36 µg/l
	Remarks:Assessment Factors	
	Sewage treatment plant	6 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	0,0035 mg/kg
	Remarks:Equilibrium method	
	Marine sediment	0,0035 mg/kg
	Remarks:Equilibrium method	
	Soil	0,00001 mg/kg
	Remarks:Equilibrium method	

### 8.2 Exposure controls

#### Personal protective equipment

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

#### Hand protection

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

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

Material : Ethyl Vinyl Alcohol Laminate (EVAL)  
Break through time : > 8 h

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).  
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

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concentration of the dangerous substance at the work place.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines  
Equipment should conform to EN 14387

Filter type : Combined particulates and organic vapour type (A-P)

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state : liquid

Colour : Clear

Odour : slight

Odour Threshold : No data is available on the product itself.

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 : ca. 135 °C  
Method: Pensky-Martens closed cup, closed cup

Auto-ignition temperature : No data is available on the product itself.

Decomposition temperature : > 200 °C

pH : substance/mixture is non-soluble (in water)

Viscosity  
Viscosity, dynamic : 8 500 - 12 500 mPa.s (25 °C)

Solubility(ies)  
Water solubility : practically insoluble (20 °C)

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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 : < 0,0001 hPa (20 °C)

Density : 1,17 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.

### 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 : Strong acids  
Strong bases  
Strong oxidizing agents

### 10.6 Hazardous decomposition products

No decomposition if stored and applied as directed.

Hazardous decomposition products : carbon dioxide  
carbon monoxide  
Halogenated compounds

## 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.

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### Product:

Acute oral toxicity	: Acute toxicity estimate: > 2 000 mg/kg Method: Calculation method
Acute inhalation toxicity	: Acute toxicity estimate: > 20 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	: Acute toxicity estimate: > 2 000 mg/kg Method: Calculation method

### Components:

#### **2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Acute oral toxicity	: LD50 (Rat, female): > 2 000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity Remarks: No mortality observed at this dose.
Acute dermal toxicity	: LD50 (Rat, male and female): > 2 000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

#### **methanol:**

Acute oral toxicity	: LD50 (Rat): 5 628 mg/kg Assessment: The component/mixture is toxic after single ingestion.
Acute inhalation toxicity	: LC50 (Rat, male and female): 128,2 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Other guidelines Assessment: The component/mixture is toxic after short term inhalation.
Acute dermal toxicity	: LD50 (Rabbit): 15 800 mg/kg Assessment: The component/mixture is toxic after single contact with skin.

#### **tetramethylammonium chloride:**

Acute oral toxicity	: LD50 (Rat, female): 1 146 mg/kg Method: OECD Test Guideline 425 Assessment: The component/mixture is toxic after single ingestion.
	: LD50 (Rat, male and female): 47 mg/kg Method: OECD Test Guideline 401 Assessment: The component/mixture is highly toxic after single ingestion.

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LD50 (Rat, female): 55 mg/kg  
Method: OECD Test Guideline 425  
Assessment: The component/mixture is toxic after single ingestion.

Acute dermal toxicity : LD50 (Rabbit, male and female): > 200 - < 500 mg/kg  
Method: OECD Test Guideline 402  
GLP: yes  
Assessment: The component/mixture is toxic after single contact with skin.

### Skin corrosion/irritation

Causes skin irritation.

#### Components:

##### **2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species : Rabbit  
Exposure time : 4 h  
Assessment : Irritating to skin.  
Method : OECD Test Guideline 404  
Result : Irritating to skin.

##### **methanol:**

Species : Rabbit  
Assessment : No skin irritation  
Method : Other guidelines  
Result : No skin irritation

##### **tetramethylammonium chloride:**

Species : human skin  
Method : OECD Test Guideline 439  
Result : Irritating to skin.  
GLP : yes

Species : Human  
Method : OECD Test Guideline 431  
Result : Non-corrosive  
GLP : yes

### Serious eye damage/eye irritation

Causes serious eye irritation.

#### Components:

##### **2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species : Rabbit  
Assessment : Irritating to eyes.  
Method : OECD Test Guideline 405  
Result : Irritating to eyes.

##### **methanol:**

Species : Rabbit

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Result : No eye irritation

### tetramethylammonium chloride:

Species	: Rabbit
Assessment	: No eye irritation
Method	: OECD Test Guideline 405
Result	: No eye irritation
GLP	: yes

Species	: Bovine cornea
Assessment	: No eye irritation
Method	: OECD Test Guideline 437
Result	: No eye irritation
GLP	: yes

### Respiratory or skin sensitisation

#### Skin sensitisation

May cause an allergic skin reaction.

#### Respiratory sensitisation

Not classified due to lack of data.

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Test Type	: Local lymph node assay (LLNA)
Exposure routes	: Skin
Species	: Mouse
Method	: OECD Test Guideline 429
Result	: The product is a skin sensitizer, sub-category 1B.

#### methanol:

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

### tetramethylammonium chloride:

Test Type	: Local lymph node assay (LLNA)
Exposure routes	: Skin
Species	: Mouse
Assessment	: Does not cause skin sensitisation.
Method	: OECD Test Guideline 429
Result	: Does not cause skin sensitisation.
GLP	: yes

### Germ cell mutagenicity

Not classified due to lack of data.

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

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Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test  
Test system: mouse lymphoma cells  
Metabolic activation: without metabolic activation  
Result: positive

Test Type: reverse mutation assay  
Test system: Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)  
Result: negative

Genotoxicity in vivo : Test Type: in vivo assay  
Species: Mouse (male)  
Cell type: Germ  
Application Route: Oral  
Dose: 3333, 10000 mg/kg  
Result: negative

Test Type: gene mutation test  
Species: Rat (male)  
Cell type: Somatic  
Application Route: Oral  
Dose: 50,250,500,1000 mg/kg bw/day  
Method: OECD Test Guideline 488  
Result: negative

### methanol:

Genotoxicity in vitro : Concentration: 15.8 - 63.3 mg/ml  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative

Concentration: 5 - 5000 ug/plate  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Concentration: ca 40 mg/ml  
Metabolic activation: negative  
Result: negative

Genotoxicity in vivo : Application Route: Intraperitoneal injection  
Dose: 1920 - 4480 mg/kg  
Method: OECD Test Guideline 474  
Result: negative

### tetramethylammonium chloride:

Genotoxicity in vitro : Test Type: reverse mutation assay  
Test system: Salmonella tryphimurium and E. coli  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
GLP: yes

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Test Type: Chromosome aberration test in vitro  
Test system: Chinese hamster lung cells  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 473  
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  
Remarks: Information given is based on data obtained from similar substances.

### Carcinogenicity

Not classified due to lack of data.

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Species	: Rat, male
Application Route	: Oral
Exposure time	: 24 month(s)
Dose	: 0, 2, 15, or 100 mg/kg bw/day
Frequency of Treatment	: 7 days/week
NOAEL	: 15 mg/kg bw/day
Method	: OECD Test Guideline 453
Result	: negative
Target Organs	: Digestive organs

Species	: Mouse, male
Application Route	: Dermal
Exposure time	: 24 month(s)
Dose	: 0, 0.1, 10, 100 mg/kg bw/day
Frequency of Treatment	: 3 days/week
NOEL	: 0,1 mg/kg body weight
Method	: OECD Test Guideline 453
Result	: negative
Target Organs	: Digestive organs

Species	: Rat, female
Application Route	: Dermal
Exposure time	: 24 month(s)
Dose	: 0.1, 100, 1000 mg/kg bw/day
Frequency of Treatment	: 5 days/week
NOEL	: 100 mg/kg body weight
Method	: OECD Test Guideline 453
Result	: negative

Species	: Rat, female
---------	---------------



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Application Route : Oral  
Exposure time : 24 month(s)  
Dose : 0, 2, 15, or 100 mg/kg bw/day  
Frequency of Treatment : 7 days/week  
NOAEL : 100 mg/kg bw/day  
Method : OECD Test Guideline 453  
Result : negative  
Target Organs : Digestive organs

Species : Rat, females  
Application Route : Oral  
Exposure time : 24 month(s)  
Dose : 0, 2, 15, or 100 mg/kg bw/day  
Frequency of Treatment : 7 days/week  
NOEL : 2 mg/kg bw/day  
Method : OECD Test Guideline 453  
Result : negative  
Target Organs : Digestive organs

### methanol:

Species : Rat, male and female  
Application Route : Inhalation  
Exposure time : 24 month(s)  
Dose :  $\geq 1300 \text{ mg/m}^3$   
Frequency of Treatment : 20 hour  
Method : OECD Test Guideline 453  
Result : negative

Species : Mouse, male and female  
Application Route : Inhalation  
Exposure time : 18 month(s)  
Dose : 13 - 1300  $\text{mg/m}^3$   
Frequency of Treatment : 19 hour  
Method : OECD Test Guideline 453  
Result : negative

### Reproductive toxicity

Not classified due to lack of data.

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Effects on fertility : Test Type: Two-generation study  
Species: Rat, male and female  
Application Route: Oral  
Dose: 0, 50, 180, 540 or 750 milligram per kilogram  
Duration of Single Treatment: 238 d  
Frequency of Treatment: 1 daily  
General Toxicity - Parent: NOEL: 540 mg/kg body weight  
General Toxicity F1: NOEL: 750 mg/kg body weight  
Symptoms: No adverse effects  
Method: OECD Test Guideline 416  
Result: No effects on fertility and early embryonic development were detected.

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Effects on foetal development

: Species: Rabbit, female  
Application Route: Dermal  
Dose: 0, 30, 100 or 300 milligram per kilogram  
Duration of Single Treatment: 28 d  
Frequency of Treatment: 1 daily  
General Toxicity Maternal: NOAEL: 30 mg/kg body weight  
Developmental Toxicity: NOAEL: 300 mg/kg body weight  
Method: Other guidelines  
Result: No teratogenic effects

Test Type: Pre-natal  
Species: Rabbit, female  
Application Route: Oral  
Dose: 0, 20, 60 or 180 milligram per kilogram  
Duration of Single Treatment: 13 d  
Frequency of Treatment: 1 daily  
General Toxicity Maternal: NOAEL: 60 mg/kg body weight  
Developmental Toxicity: NOAEL: 180 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Test Type: Pre-natal  
Species: Rat, female  
Application Route: Oral  
Dose: 0, 60, 180 and 540 milligram per kilogram  
Duration of Single Treatment: 10 d  
Frequency of Treatment: 1 daily  
General Toxicity Maternal: NOAEL: 180 mg/kg body weight  
Developmental Toxicity: NOAEL: > 540 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

### methanol:

Effects on fertility

: Species: Rat, male and female  
Application Route: Inhalation  
Method: OECD Test Guideline 416  
Result: negative

Species: Monkey, female  
Application Route: Inhalation  
Result: negative

Species: Mouse, male  
Application Route: Oral  
Result: negative

Effects on foetal development

: Species: Monkey  
Application Route: Inhalation  
General Toxicity Maternal: NOAEL: 2 390 mg/m<sup>3</sup>  
Result: No teratogenic effects

### tetramethylammonium chloride:

Effects on fertility

: Test Type: Reproduction / Developmental Toxicity Screening

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### Test

Species: Rat, male and female

Application Route: Oral

Dose: 0/1/5/20 milligram per kilogram

Frequency of Treatment: 7 days/week

General Toxicity - Parent: NOAEL:  $\geq 20$  mg/kg body weight

General Toxicity F1: NOAEL:  $\geq 20$  mg/kg body weight

Method: OECD Test Guideline 421

GLP: yes

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

General Toxicity - Parent: NOAEL: 5 mg/kg body weight

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

Effects on foetal development

: Test Type: reproductive and developmental toxicity study  
Species: Rat, male and female  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 20 mg/kg body weight  
Developmental Toxicity: NOAEL: 20 mg/kg body weight  
Method: OECD Test Guideline 421  
Result: No teratogenic effects  
Remarks: Information given is based on data obtained from similar substances.

### STOT - single exposure

Not classified due to lack of data.

#### Components:

##### **methanol:**

Target Organs : Bladder, Blood, Central nervous system, Eyes, Kidney, Liver, Nervous system, spleen

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

##### **tetramethylammonium chloride:**

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

### STOT - repeated exposure

Not classified due to lack of data.

#### **Repeated dose toxicity**

#### Components:

##### **2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:**

Species : Rat, male and female

NOAEL : 50 mg/kg

Application Route : oral (gavage)

Exposure time : 14 Weeks

Number of exposures : 7 d

Dose : 0, 50, 250, 1000 mg/kg/day

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Method : OECD Test Guideline 408

Species : Rat, male and female

NOAEL :  $\geq 10$  mg/kg

Application Route : Skin contact

Exposure time : 13 Weeks

Number of exposures : 5 d

Dose : 0, 10, 100, 1000 mg/kg/day

Method : OECD Test Guideline 411

Species : Mouse, male

NOAEL : 100 mg/kg

Application Route : Skin contact

Exposure time : 13 Weeks

Number of exposures : 3 d

Dose : 0, 1, 10, 100 mg/kg/day

Method : OECD Test Guideline 411

### methanol:

Species : Monkey

NOEC : 13 mg/m<sup>3</sup>

Test atmosphere : vapour

Exposure time : 5 040 h

Number of exposures : 21 h

Species : Monkey, male and female

NOEC : 6660 mg/m<sup>3</sup>

Application Route : Ingestion

Test atmosphere : vapour

Exposure time : 72 h

Number of exposures : 6 h

Method : OECD Test Guideline 412

Species : Monkey

NOEC : 1300 mg/m<sup>3</sup>

Test atmosphere : vapour

Exposure time : 1 440 h

Number of exposures : 21 h

Species : Monkey

LOEC : 3990 mg/m<sup>3</sup>

Test atmosphere : vapour

Exposure time : 480 h

Number of exposures : 21 h

### tetramethylammonium chloride:

Species : Rat, male and female

NOAEL : 10 mg/kg

Application Route : oral (gavage)

Exposure time : 90 d

Number of exposures : 7 d/week

Dose : 0/3/10/30 mg/kg bw/day

Control Group : yes

Method : OECD Test Guideline 408

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GLP : yes  
Target Organs : Liver

### Aspiration toxicity

Not classified due to lack of data.

### Components:

#### methanol:

May be harmful if swallowed and enters airways.

## 11.2 Information on other hazards

### Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

### Experience with human exposure

No data available

### Toxicology, Metabolism, Distribution

No data available

### Neurological effects

No data available

### Further information

#### Components:

#### methanol:

Remarks : Solvents may degrease the skin.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 2 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 1,8 mg/l  
aquatic invertebrates  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202

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Toxicity to algae/aquatic plants : EC50 : 11 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: EPA-660/3-75-009

NOEC : 4,2 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: EPA-660/3-75-009

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,3 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Test substance: Fresh water  
Method: OECD Test Guideline 211

### Ecotoxicology Assessment

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

#### methanol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 15 400 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Test substance: Fresh water

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10 000 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: DIN 38412

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): ca. 22 000 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201

Toxicity to microorganisms : IC50 (activated sludge): > 1 000 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 209

#### tetramethylammonium chloride:

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- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 462 mg/l  
Exposure time: 96 h  
Test Type: flow-through test  
Test substance: Fresh water  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3 mg/l  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 202  
Remarks: Information given is based on data obtained from similar substances.
- Toxicity to algae/aquatic plants : EC50 (Selenastrum capricornutum (green algae)): 96,3 mg/l  
Exposure time: 72 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 201  
Remarks: Information given is based on data obtained from similar substances.
- NOEC : 6,25 mg/l  
Remarks: Information given is based on data obtained from similar substances.
- Toxicity to microorganisms : EC50 (activated sludge): > 503 mg/l  
Exposure time: 3 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 209  
GLP: yes  
Remarks: Information given is based on data obtained from similar substances.
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 30 µg/l  
Exposure time: 11 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Test substance: Fresh water

### Ecotoxicology Assessment

- Acute aquatic toxicity : This product has no known ecotoxicological effects.
- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

## 12.2 Persistence and degradability

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

- Biodegradability : Test Type: aerobic  
Inoculum: activated sludge, non-adapted  
Concentration: 20 mg/l  
Result: Not readily biodegradable.

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Biodegradation: 5 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F

Stability in water : Degradation half life (DT50): 4,83 d (25 °C)  
pH: 4  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 7,1 d (25 °C)  
pH: 9  
Method: OECD Test Guideline 111  
Remarks: Fresh water

Degradation half life (DT50): 3,58 d (25 °C)  
pH: 7  
Method: OECD Test Guideline 111  
Remarks: Fresh water

### methanol:

Biodegradability : Inoculum: Marine water  
Result: Readily biodegradable.  
Biodegradation: 69 - 97 %  
Exposure time: 5 - 20 d

Photodegradation : Test Type: Air  
Rate constant: 0.0093  
Degradation (direct photolysis): 50 %

### tetramethylammonium chloride:

Biodegradability : Test Type: aerobic  
Inoculum: activated sludge, non-adapted  
Concentration: 90 mg/l  
Result: Readily biodegradable.  
Biodegradation: 100 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B  
GLP: yes  
Remarks: Based on data from similar materials

## 12.3 Bioaccumulative potential

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Bioaccumulation : Bioconcentration factor (BCF): 31  
Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: 3,242 (25 °C)  
pH: 7,1  
Method: OECD Test Guideline 117

### methanol:



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Bioaccumulation : Species: Leuciscus idus (Golden orfe)  
Exposure time: 3 d  
Bioconcentration factor (BCF): < 10  
Test substance: Fresh water

Partition coefficient: n-octanol/water : log Pow: -0,77

### tetramethylammonium chloride:

Partition coefficient: n-octanol/water : Pow: < 0,027 (20 °C)  
log Pow: < -1,6 (20 °C)  
pH: 7  
Method: OECD Test Guideline 107  
GLP: yes

## 12.4 Mobility in soil

### Components:

#### 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Distribution among environmental compartments : Koc: 445

### tetramethylammonium chloride:

Distribution among environmental compartments : Koc: 44  
Method: OECD Test Guideline 106

## 12.5 Results of PBT and vPvB assessment

### Product:

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

## 12.6 Endocrine disrupting properties

### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

## 12.7 Other adverse effects

### Product:

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

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### 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.<br>Do not dispose of waste into sewer.<br>Do not contaminate ponds, waterways or ditches with chemical or used container. |
| Contaminated packaging | : Empty remaining contents.<br>Dispose of as unused product.<br>Do not re-use empty containers.   |

### SECTION 14: Transport information

#### 14.1 UN number or ID number

- |      |           |
|------|-----------|
| ADN  | : UN 3082 |
| ADR  | : UN 3082 |
| RID  | : UN 3082 |
| IMDG | : UN 3082 |
| IATA | : UN 3082 |

#### 14.2 UN proper shipping name

- |      |  |
|------|--|
| ADN  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(BISPHENOL A EPOXY RESIN) |
| ADR  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(BISPHENOL A EPOXY RESIN) |
| RID  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(BISPHENOL A EPOXY RESIN) |
| IMDG | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(BISPHENOL A EPOXY RESIN) |
| IATA | : Environmentally hazardous substance, liquid, n.o.s.<br>(BISPHENOL A EPOXY RESIN) |

#### 14.3 Transport hazard class(es)

- |      | Class | Subsidiary risks |
|------|-------|------------------|
| ADN  | : 9   |                  |
| ADR  | : 9   |                  |
| RID  | : 9   |                  |
| IMDG | : 9   |                  |
| IATA | : 9   |                  |

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### 14.4 Packing group

#### ADN

Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

#### ADR

Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9  
Tunnel restriction code : (-)

#### RID

Packing group : III  
Classification Code : M6  
Hazard Identification Number : 90  
Labels : 9

#### IMDG

Packing group : III  
Labels : 9  
EmS Code : F-A, S-F

#### IATA (Cargo)

Packing instruction (cargo aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

#### IATA (Passenger)

Packing instruction (passenger aircraft) : 964  
Packing instruction (LQ) : Y964  
Packing group : III  
Labels : Miscellaneous

### 14.5 Environmental hazards

#### ADN

Environmentally hazardous : yes

#### ADR

Environmentally hazardous : yes

#### RID

Environmentally hazardous : yes

#### IMDG

Marine pollutant : yes

#### IATA (Passenger)

Environmentally hazardous : yes

#### IATA (Cargo)

Environmentally hazardous : yes

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### 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

### 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern.

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)

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

E2 ENVIRONMENTAL HAZARDS

Occupational Illnesses (R-461-3, France) : 51, 84

Installations classified for the protection of the environment (Environment Code R511-9) : 4511, 4722

### Other regulations:

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

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

DSL : All components of this product are on the Canadian DSL

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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## ARALDITE® CY 225

Version	Revision Date:	SDS Number:	Date of last issue:
2.2	04.12.2023	400001009060	05.07.2022
			Date of first issue: 25.01.2018

Print Date 26.03.2024

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

H225	: Highly flammable liquid and vapour.
H300	: Fatal if swallowed.
H301	: Toxic if swallowed.
H311	: Toxic in contact with skin.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H319	: Causes serious eye irritation.
H331	: Toxic if inhaled.
H370	: Causes damage to organs.
H411	: Toxic to aquatic life with long lasting effects.

### Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation

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STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
FR VLE	:	France. Occupational Exposure Limits
2006/15/EC / TWA	:	Limit Value - eight hours
FR VLE / VME	:	Time Weighted Average
FR VLE / VLCT (VLE)	:	Short Term Exposure Limit

### Further information

#### Classification of the mixture:

Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1	H317
Aquatic Chronic 2	H411

#### Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method

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