according to Regulation (EC) No. 1907/2006, as amended



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

#### 1.1 Product identifier

Trade name : ARALDITE® 2012 RESIN

Unique Formula Identifier

(UFI)

: 1DH5-D07F-X003-5W03

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

Use of the : Adhesives

Substance/Mixture

### 1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV

Address : Grijpenlaan 18

3300 Tienen 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

Emergency telephone : Berlin: 0049 30 19 24 0 & 0049 30 30 68 6 7 11

Bonn: 0049 228 19 27 0 & 0049 228 28 7 3 32 11

Erfurt: 0049 361 73 07 30 Freiburg: 0049 761 16 24 0

Göttingen: 0049 51 19 24 0 & 0049 551 38 31 80

Homburg: 0049 6841 19 24 0

Mainz: 0049 6131 19 24 0 & 0049 6131 23 24 66

München: 0049 89 19 24 0 Nürnberg: 0049 911 39 8 2 45 1 EUROPE: +32 35 75 1234

France ORFILA: +33(0)145425959

ASIA: +65 6336-6011 China: +86 20 39377888 +86 532 83889090 India: + 91 22 42 87 5333 Australia: 1800 786 152 New Zealand: 0800 767 437

USA: +1 800-424-9300

# **SECTION 2: Hazards identification**

# 2.1 Classification of the substance or mixture

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

Skin irritation, Category 2 H315: Causes skin irritation.

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Eye irritation, Category 2 H319: Causes serious eye irritation. Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

Reproductive toxicity, Category 1B H360F: May damage fertility.

Long-term (chronic) aquatic hazard, H411: Toxic to aquatic life with long lasting effects.

Category 2

#### 2.2 Label elements

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

Hazard pictograms







Signal Word Danger

Hazard Statements H315 Causes skin irritation.

> H317 May cause an allergic skin reaction.

Causes serious eye irritation. H319

May damage fertility. H360F

H411 Toxic to aquatic life with long lasting effects.

Prevention:

Precautionary Statements P201 Obtain special instructions before use.

> Avoid breathing mist or vapors. P261 P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection/ hearing protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/

attention.

P391 Collect spillage.

# Hazardous ingredients which must be listed on the label:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane 1,4-bis(2,3 epoxypropoxy)butane

### 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: 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

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### **Hazardous ingredients**

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concent ration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxir ane	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 %	>= 70 - < 90
1,4-bis(2,3 epoxypropoxy)butane	2425-79-8 219-371-7 603-072-00-7 01-2119494060-45	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360F Acute toxicity estimate Acute dermal toxicity: 1 100 mg/kg	>= 3 - < 10

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.

Consult a physician.

Show this material 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.

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If inhaled : If inhaled, remove to fresh air.

Get medical attention if symptoms occur.

In case of skin contact : If skin irritation persists, call a physician.

If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.

Remove contact lenses.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Induce vomiting immediately and call a physician.

Keep respiratory tract clear.

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 : Causes skin irritation.

May cause an allergic skin reaction. Causes serious eye irritation.

May damage fertility.

### 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 Phenolics

## 5.3 Advice for firefighters

Special protective equipment:

for fire-fighters

Wear self-contained breathing apparatus for firefighting if

necessary.

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Specific extinguishing

methods

Further information

: Use extinguishing measures that are appropriate to local

circumstances and the surrounding environment.

: 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.

#### 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 sensitization of susceptible persons. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this

product.

Do not breathe vapors/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.

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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 labeled containers.

: For incompatible materials please refer to Section 10 of this Advice on common storage

SDS.

Storage class (TRGS 510) : 6.1C

Further information on

storage stability

Recommended storage

temperature

Stable under normal conditions.

: 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**

Contains no substances with occupational exposure limit values.

## 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/m3
	Workers	Dermal	Long-term systemic effects	0,75 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0,87 mg/m3
	Consumers	Dermal	Long-term systemic effects	0,0893 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	0,5 mg/kg bw/day
1,4-bis(2,3 epoxypropoxy)butane	Workers	Inhalation	Long-term systemic effects	4,7 mg/m3
	Workers	Dermal	Long-term systemic effects	6,66 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,16 mg/m3
	Consumers	Dermal	Long-term systemic	3,33 mg/kg

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		effects	bw/day
Consumers	Oral	Long-term systemic	0,33 mg/kg
		effects	bw/day

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

Substance name	Environmental Compartment	Value
2,2'-[(1-methylethylidene)bis(4,1-	Fresh water	0,006 mg/l
phenyleneoxymethylene)]bisoxira		
ne		
	Sea water	0,001 mg/l
	Fresh water sediment	0,341 mg/kg dry
		weight (d.w.)
	Sea sediment	0,034 mg/kg dry
		weight (d.w.)
	Soil	0,065 mg/kg dry
		weight (d.w.)
	Sewage treatment plant	10 mg/l
	Secondary Poisoning	11 mg/kg
1,4-bis(2,3 epoxypropoxy)butane	Fresh water	0,024 mg/l
	Remarks:Assessment Factors	
	Sea water	0,002 mg/l
	Remarks: Assessment Factors	
	Sewage treatment plant	100 mg/l
	Remarks: Assessment Factors	
	Fresh water sediment	0,084 mg/kg dry
		weight (d.w.)
	Remarks:Equilibrium method	
	Sea sediment	0,008 mg/kg dry
		weight (d.w.)
	Remarks:Equilibrium method	
	Soil	0,003 mg/kg dry
		weight (d.w.)
	Remarks:Equilibrium method	
	Oral	0,028 mg/kg

### 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 : Gloves should be discarded and replaced if there is any

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indication of degradation or chemical breakthrough. Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

The selected protective gloves have to satisfy the

specifications of Regulation (EU) 2016/425 and the standard

EN 374 derived from it.

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

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

### **SECTION 9: Physical and chemical properties**

### 9.1 Information on basic physical and chemical properties

Physical state : liquid

Form : No data is available on the product itself.

Color : light yellow

Odor : slight

Odor 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 : 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 : 204 °C

Method: Cleveland open cup

Autoignition temperature : No data is available on the product itself.

Decomposition temperature : > 200 °C

pH : 6 (20 °C)

Concentration: 500 g/l

Viscosity

Viscosity, dynamic : 25 000 - 45 000 mPa.s (25 °C)

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Solubility(ies)

Water solubility : practically insoluble (20 °C)

Solubility in other solvents : No data is available on the product itself.

Partition coefficient: n-

octanol/water

: No data is available on the product itself.

Vapor pressure : < 0,002 hPa (20 °C)

Density : 1,17 g/cm3 (25 °C)

Relative density : No data is available on the product itself.

Relative vapor 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 and strong bases

Strong oxidizing agents

# 10.6 Hazardous decomposition products

No hazardous decomposition products are known.

#### **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.

**Product:** 

Acute oral toxicity : Acute toxicity estimate: > 2 000 mg/kg

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Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist 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

#### 1,4-bis(2,3 epoxypropoxy)butane:

Acute oral toxicity : LD50 (Rat, male and female): 1 163 mg/kg

Method: OECD Test Guideline 401

GLP: yes

Assessment: The component/mixture is moderately toxic after

single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 2,068 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Test atmosphere: dust/mist Method: Expert judgment

Assessment: The component/mixture is moderately toxic after short term inhalation., The substance/mixture is not toxic on inhalation as defined by dangerous goods regulations.

Acute dermal toxicity : Acute toxicity estimate: 1 100 mg/kg

Method: Converted acute toxicity point estimate

Assessment: The component/mixture is moderately toxic after

single contact with skin.

#### Skin corrosion/irritation

Causes skin irritation.

#### **Components:**

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

Species : Rabbit

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Exposure time : 4 h

Assessment : Irritating to skin.

Method : OECD Test Guideline 404

Result : Irritating to skin.

### 1,4-bis(2,3 epoxypropoxy)butane:

Species : Rabbit

Method : OECD Test Guideline 404

Result : Skin irritation

GLP : yes

#### Serious eye damage/eye irritation

Causes serious eye irritation.

**Product:** 

Assessment : Irritating to eyes.

#### **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.

### 1,4-bis(2,3 epoxypropoxy)butane:

Species : Rabbit

Assessment : Risk of serious damage to eyes.

Method : OECD Test Guideline 405

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 sensitiser, sub-category 1B.

## 1,4-bis(2,3 epoxypropoxy)butane:

Exposure routes : Skin Species : Guinea pig

Method : OECD Test Guideline 406

Result : May cause sensitisation by skin contact.

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GLP : yes

Assessment : Harmful if inhaled.

Germ cell mutagenicity

Not classified due to lack of data.

#### **Components:**

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

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

### 1,4-bis(2,3 epoxypropoxy)butane:

Genotoxicity in vitro : Test Type: reverse mutation assay

Concentration: 10 - 5000 ug/plate

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive GLP: yes

Remarks: Not classified due to data which are conclusive

although insufficient for classification.

Test Type: Chromosome aberration test in vitro Test system: Chinese hamster lung cells

Concentration: 1 - 100 µg/L

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: positive GLP: yes

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Remarks: Not classified due to data which are conclusive

although insufficient for classification.

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: positive

GLP: no

Remarks: Not classified due to data which are conclusive

although insufficient for classification.

Genotoxicity in vivo : Test Type: In vivo micronucleus test

Species: Mouse (male) Cell type: Somatic Application Route: Oral Exposure time: 4 d Dose: 187.5 - 750 mg/kg

Method: OECD Test Guideline 474

Result: negative

GLP: yes

Test Type: unscheduled DNA synthesis assay

Species: Rat Cell type: Liver cells Application Route: Oral

Method: OECD Test Guideline 486

Result: negative

Test Type: gene mutation test

Species: Rat (male) Cell type: Somatic Application Route: Oral

Dose: 0, 62.5, 125 and 250 mg/kg Method: OECD Test Guideline 488

Result: negative

Germ cell mutagenicity-

Assessment

Weight of evidence does not support classification as a germ

cell mutagen., Animal testing did not show any mutagenic

effects.

### 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

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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

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

### Reproductive toxicity

May damage fertility.

### 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

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Symptoms: No adverse effects Method: OECD Test Guideline 416

Result: No effects on fertility and early embryonic

development were detected.

Effects on fetal 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

### 1,4-bis(2,3 epoxypropoxy)butane:

Effects on fertility : Test Type: reproductive and developmental toxicity study

Species: Rat, male and female

Application Route: Oral

Dose: 0/50/200/500 mg/kg bw/day Duration of Single Treatment: 43 d

General Toxicity Parent: LOEL: 500 mg/kg body weight General Toxicity F1: LOAEL: 500 mg/kg body weight

Target Organs: Gastrointestinal tract Method: OECD Test Guideline 421

GLP: yes

Test Type: Extended one-generation reproduction toxicity

study

Species: Rat, male and female

Application Route: Oral

Dose: 0/10/55/300 mg/kg bw/day

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General Toxicity Parent: NOAEL: 55 mg/kg body weight General Toxicity F1: NOAEL: 300 mg/kg body weight

Method: OECD Test Guideline 443

GLP: yes

Effects on fetal development : Test Type: Pre-natal

Species: Rat, female Application Route: Oral

Dose: 0/30/100/300 mg/kg bw/day Duration of Single Treatment: 17 d

General Toxicity Maternal: NOAEL: 300 mg/kg body weight Developmental Toxicity: NOAEL: 300 mg/kg body weight

Method: OECD Test Guideline 414

GLP: yes

Remarks: Information given is based on data obtained from

similar substances.

Test Type: reproductive and developmental toxicity study

Species: Rat, male and female

Application Route: Oral

Dose: 0/33/110/300 mg/kg bw/day Duration of Single Treatment: 18 d

General Toxicity Maternal: NOAEL: 110 mg/kg body weight Embryo-fetal toxicity.: NOAEL: 300 mg/kg body weight

Method: OECD Test Guideline 414

GLP: yes

Test Type: Pre-natal Species: Rabbit Application Route: Oral

Dose: 0/125/250/500 mg/kg bw/day

General Toxicity Maternal: NOAEL: 250 mg/kg body weight Embryo-fetal toxicity.: NOAEL: 250 mg/kg body weight

Method: OECD Test Guideline 414

GLP: yes

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.

#### 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 : >= 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, maleNOAEL: 100 mg/kgApplication Route: Skin contactExposure time: 13 Weeks

Number of exposures : 3 d

Dose : 0, 1, 10, 100 mg/kg/day Method : OECD Test Guideline 411

### 1,4-bis(2,3 epoxypropoxy)butane:

Species : Rat, male and female

NOAEL : 200 mg/kg
Application Route : Oral
Exposure time : 28 d
Number of exposures : daily

Dose : 25, 100, 200, 400 mg/kg

Method : Subacute toxicity

Species : Rat, male and female

NOAEL : 263 mg/kg
Application Route : Oral
Exposure time : 90 h
Number of exposures : daily

Dose : 0,30,100,300 mg/kg bw/day Method : OECD Test Guideline 408

GLP : yes

Remarks : Information given is based on data obtained from similar

substances.

Repeated dose toxicity -

Assessment

: Harmful if inhaled.

# **Aspiration toxicity**

Not classified due to lack of data.

### 11.2 Information on other hazards

### **Endocrine disrupting properties**

Based on available data, the classification criteria are not met.

### **Experience with human exposure**

No data available

### Toxicology, Metabolism, Distribution

No data available

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**Neurological effects** 

No data available

**Further information** 

No data available

# **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 :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 1,8 mg/l

Exposure time: 48 h Test Type: static test

Test substance: Fresh water Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50: 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.

1,4-bis(2,3 epoxypropoxy)butane:

Toxicity to fish : LC50 (Brachydanio rerio (zebrafish)): 24 mg/l

End point: mortality Exposure time: 96 h

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Test Type: static test Analytical monitoring: no Test substance: Fresh water Method: OECD Test Guideline 203

GLP: no

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 75 mg/l

End point: Immobilization
Exposure time: 24 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water

Method: OECD Test Guideline 202

GLP: no

Toxicity to algae/aquatic

plants

EL50 (Pseudokirchneriella subcapitata (green algae)): > 160

mg/

Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

GLP: yes

NOELR (Pseudokirchneriella subcapitata (green algae)): 40

mg/l

Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Test substance: Fresh water
Method: OECD Test Guideline 201

GLP: yes

Toxicity to microorganisms : IC50 (activated sludge): > 100 mg/l

Exposure time: 3 h
Test Type: static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 209

GLP: no

Toxicity to fish (Chronic

toxicity)

NOEC: > 3,2 mg/l

Exposure time: 35 d

Species: Danio rerio (zebra fish) Test Type: flow-through test Method: OECD Test Guideline 210

Toxicity to daphnia and other :

aquatic invertebrates (Chronic toxicity)

NOEC: 15 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea)

Test Type: semi-static test

Method: OECD Test Guideline 211

GLP: yes

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### 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.

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

### 1,4-bis(2,3 epoxypropoxy)butane:

Biodegradability : Test Type: aerobic

Inoculum: activated sludge Concentration: 20 mg/l

Result: Not readily biodegradable.

Biodegradation: 43 % Exposure time: 28 d

Method: OECD Test Guideline 301F

GLP: yes

Test Type: aerobic

Inoculum: Sewage (STP effluent)

Concentration: 20 mg/l

Result: Not readily biodegradable.

Biodegradation: 38 %

Related to: Dissolved organic carbon (DOC)

Exposure time: 28 d

Method: OECD Test Guideline 301E

GLP: no

### 12.3 Bioaccumulative potential

#### **Components:**

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

Bioaccumulation : Bioconcentration factor (BCF): 31

Remarks: Does not bioaccumulate.

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Partition coefficient: n- : log Pow: 3,242 (25 °C)

octanol/water pH: 7,1

Method: OECD Test Guideline 117

### 1,4-bis(2,3 epoxypropoxy)butane:

Partition coefficient: n- : log Pow: -0,269 (25 °C)

octanol/water pH: 6,7

Method: OECD Test Guideline 117

GLP: yes

### 12.4 Mobility in soil

#### **Components:**

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

Distribution among : Koc: 445

environmental compartments

### 1,4-bis(2,3 epoxypropoxy)butane:

Distribution among : Koc: 12,59

environmental compartments Method: OECD Test Guideline 121

### 12.5 Results of PBT and vPvB assessment

Based on available data, the classification criteria are not met.

#### 12.6 Endocrine disrupting properties

Based on available data, the classification criteria are not met.

#### 12.7 Other adverse effects

#### **Product:**

Additional ecological : An environmental hazard cannot be excluded in the event of

information unprofessional handling or disposal.

Toxic to aquatic life with long lasting effects.

### **Components:**

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

Assessment : Not persistent, mobile, and toxic (PMT).

Not very persistent and very mobile (vPvM).

#### 1,4-bis(2,3 epoxypropoxy)butane:

Assessment : Not persistent, mobile, and toxic (PMT).

Not very persistent and very mobile (vPvM).

## **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.

according to Regulation (EC) No. 1907/2006, as amended



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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 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.

(BISPHENOL A EPOXY RESIN)

**ADR** : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(BISPHENOL A EPOXY RESIN)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(BISPHENOL A EPOXY RESIN)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(BISPHENOL A EPOXY RESIN)

**IATA** : Environmentally hazardous substance, liquid, n.o.s.

(BISPHENOL A EPOXY RESIN)

#### 14.3 Transport hazard class(es)

Class Subsidiary risks

ADN : 9
ADR : 9
RID : 9
IMDG : 9
IATA : 9

### 14.4 Packing group

**ADN** 

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

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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 : 964

aircraft)

Packing instruction (LQ) : Y964
Packing group : III

Labels : Miscellaneous

IATA (Passenger)

Packing instruction : 964

(passenger aircraft)

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

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.

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#### 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 : Not applicable

(Annex XIV) REACH - Candidate List of Substances of Very High : This product does not contain

Concern for Authorization (Article 59). substances of very high concern. REACH - Restrictions on the manufacture, placing on Conditions of restriction for the the market and use of certain dangerous substances, following entries should be

mixtures and articles (Annex XVII) considered: Number on list 3

> Number on list 75: If you intend to use this product as tattoo ink, please contact your vendor.

Seveso II - Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous

substances

Dangerous for the environment

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

9b

E2

**ENVIRONMENTAL HAZARDS** 

Water hazard class : WGK 2 obviously hazardous to water

(Germany) Classification according to AwSV, Annex 1 (5.2)

## Other regulations:

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

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

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

#### 15.2 Chemical Safety Assessment

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

#### **SECTION 16: Other information**

#### **Full text of H-Statements**

H302 : Harmful if swallowed. H312 : Harmful in contact with skin.

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H315 : Causes skin irritation.

H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.

H332 : Harmful if inhaled. H360F : May damage fertility.

H411 : Toxic to aquatic life with long lasting effects.

#### Full text of other abbreviations

Acute Tox. : Acute toxicity

Aquatic Chronic : Long-term (chronic) aquatic hazard

Eye Dam. : Serious eye damage

Eye Irrit. : Eye irritation

Repr. : Reproductive toxicity
Skin Irrit. : Skin irritation
Skin Sens. : Skin sensitisation

#### **Further information**

#### Classification of the mixture: Classification procedure:

Skin Irrit. 2 H315 Calculation method

Eye Irrit. 2 H319 Based on product data or assessment

Skin Sens. 1 H317 Calculation method

Repr. 1B H360F Calculation method

Aquatic Chronic 2 H411 Calculation method

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