

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

**HUNTSMAN**

Enriching lives through innovation

## ARALDITE® LY 1556 SP

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: -           |
| 1.0     | 11.10.2018     | 400001009441 | Date of first issue: 11.10.2018 |

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

#### 1.1 Product identifier

|                           |                        |
|---------------------------|------------------------|
| Trade name                | : ARALDITE® LY 1556 SP |
| REACH Registration Number | : 01-2119456619-26     |
| CAS-No.                   | : 1675-54-3            |
| Index-No.                 | : 603-073-00-2         |
| EC-No.                    | : 216-823-5            |

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

|                                 |                        |
|---------------------------------|------------------------|
| Use of the<br>Substance/Mixture | : Epoxy resin solution |
|---------------------------------|------------------------|

ES1: Formulation, Industrial  
ES2: Used as monomer at downstream industrial sites  
ES3: Used as chemical intermediate  
ES4: Industrial use  
ES5: Professional use  
ES6: Consumer application of coatings

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

|                                                     |                                            |
|-----------------------------------------------------|--------------------------------------------|
| Company                                             | : Huntsman Advanced Materials (Europe)BVBA |
| Address                                             | : Everslaan 45<br>3078 Everberg<br>Belgium |
| Telephone                                           | : +41 61 299 20 41                         |
| Telefax                                             | : +41 61 299 20 40                         |
| E-mail address of person<br>responsible for the SDS | : Global_Product_EHS_AdMat@huntsman.com    |

#### 1.4 Emergency telephone number

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Emergency telephone number | : Centres Antipoison et de Toxicovigilance:<br>ANGERS: 02 41 48 21 21<br>BORDEAUX: 05 56 96 40 80<br>LILLE: 0 825 812 822<br>LYON: 04 72 11 69 11<br>MARSEILLE 04 91 75 25 25<br>NANCY: 03 83 32 36 36<br>PARIS: 01 40 05 48 48<br>RENNES: 02 99 59 22 22<br>STRASBOURG: 03 88 37 37 37<br>TOULOUSE: 05 61 77 74 47<br>EUROPE: +32 35 75 1234<br>France ORFILA: +33(0)145425959<br>ASIA: +65 6336-6011<br>China: +86 20 39377888<br>+86 532 83889090 |
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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.                          |
| 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 | : <b>Prevention:</b> |                                                                   |
|                          | P261                 | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.            |
|                          | P264                 | Wash skin thoroughly after handling.                              |
|                          | P273                 | Avoid release to the environment.                                 |
|                          | P280                 | Wear protective gloves/ eye protection/ face protection.          |
|                          | : <b>Response:</b>   |                                                                   |
|                          | P333 + P313          | If skin irritation or rash occurs: Get medical advice/ attention. |
|                          | P391                 | Collect spillage.                                                 |

### 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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### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

|                |                        |
|----------------|------------------------|
| Substance name | : ARALDITE® LY 1556 SP |
| Index-No.      | : 603-073-00-2         |
| EC-No.         | : 216-823-5            |

#### Hazardous components

| Chemical name                                                       | CAS-No.<br>EC-No.      | Concentration (% w/w) |
|---------------------------------------------------------------------|------------------------|-----------------------|
| 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane | 1675-54-3<br>216-823-5 | >= 60 - <= 100        |

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.      |
| 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

None known.

#### 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 : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : High volume water jet

#### 5.2 Special hazards arising from the substance or mixture

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

Hazardous combustion products : Carbon oxides

#### 5.3 Advice for firefighters

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

Specific extinguishing methods : No data is available on the product itself.

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

### SECTION 6: Accidental release measures

#### 6.1 Personal precautions, protective equipment and emergency procedures

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

#### 6.2 Environmental precautions

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

#### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : 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                         | : Do not breathe vapours or spray mist.<br>Avoid exposure - obtain special instructions before use.<br>Avoid contact with skin and eyes.<br>For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area.<br>Dispose of rinse water in accordance with local and national regulations.<br>Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used. |
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Hygiene measures                                | : When using do not eat or drink. When using do not smoke.<br>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 - 40 °C                                                                                                                                                                                           |
| Further information on storage stability      | : Stable under normal conditions.                                                                                                                                                                     |

### 7.3 Specific end use(s)

|                 |                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------|
| Specific use(s) | : See Annex to the Safety data sheet for additional information in the Exposure Scenario(s). |
|-----------------|----------------------------------------------------------------------------------------------|

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### SECTION 8: Exposure controls/personal protection

#### 8.1 Control parameters

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-phenyleneoxymethylene)]bisoxirane | Workers   | Dermal          | Systemic effects, Short-term exposure | 8,33 mg/kg bw/day  |
|                                                                     | Workers   | Inhalation      | Systemic effects, Short-term exposure | 12,25 mg/m3        |
|                                                                     | Workers   | Dermal          | Systemic effects, Long-term exposure  | 8,33 mg/kg bw/day  |
|                                                                     | Workers   | Inhalation      | Systemic effects, Long-term exposure  | 12,25 mg/m3        |
|                                                                     | Consumers | Dermal          | Systemic effects, Short-term exposure | 3,571 mg/kg bw/day |
|                                                                     | Consumers | Oral            | Systemic effects, Short-term exposure | 0,75 mg/kg bw/day  |
|                                                                     | Consumers | Dermal          | Systemic effects, Long-term exposure  | 3,571 mg/kg bw/day |
|                                                                     | Consumers | Oral            | Systemic effects, Long-term exposure  | 0,75 mg/kg 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-phenyleneoxymethylene)]bisoxirane | Fresh water               | 0,006 mg/l   |
| Remarks:                                                            | Assessment Factors        |              |
|                                                                     | Marine water              | 0,0006 mg/l  |
|                                                                     | Assessment Factors        |              |
|                                                                     | Freshwater - intermittent | 0,018 mg/l   |
|                                                                     | Assessment Factors        |              |
|                                                                     | Fresh water sediment      | 0,996 mg/kg  |
|                                                                     | Equilibrium method        |              |
|                                                                     | Marine sediment           | 0,0996 mg/kg |
|                                                                     | Equilibrium method        |              |
|                                                                     | Soil                      | 0,196 mg/kg  |

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|  |                        |          |
|--|------------------------|----------|
|  | Equilibrium method     |          |
|  | Sewage treatment plant | 10 mg/l  |
|  | Assessment Factors     |          |
|  | Secondary Poisoning    | 11 mg/kg |

### 8.2 Exposure controls

#### Personal protective equipment

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

#### Hand protection

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

Material : Solvent-resistant gloves (butyl-rubber)

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

Material : Neoprene gloves

Remarks : 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.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : yellow

Odour : slight

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

pH : ca. 7 (20 °C)  
Concentration: 500 g/l

Freezing point : No data is available on the product itself.

Melting point : No data is available on the product itself.

Boiling point : > 200 °C

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|                                                  |                                               |
|--------------------------------------------------|-----------------------------------------------|
| Flash point                                      | : 200 °C<br>Method: Pensky-Martens closed cup |
| Evaporation rate                                 | : No data is available on the product itself. |
| Flammability (solid, gas)                        | : No data is available on the product itself. |
| Burning rate                                     | : No data is available on the product itself. |
| Upper explosion limit / Upper flammability limit | : No data is available on the product itself. |
| Lower explosion limit / Lower flammability limit | : No data is available on the product itself. |
| Vapour pressure                                  | : < 0,0001 hPa (20 °C)                        |
| Relative vapour density                          | : No data is available on the product itself. |
| Relative density                                 | : 1,17                                        |
| Density                                          | : 1,15 - 1,2 g/cm <sup>3</sup> (25 °C)        |
| 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. |
| Auto-ignition temperature                        | : No data is available on the product itself. |
| Decomposition temperature                        | : > 200 °C                                    |
| Viscosity                                        |                                               |
| Viscosity, dynamic                               | : 9 500 - 12 000 mPa.s (25 °C)                |
| Explosive properties                             | : No data is available on the product itself. |
| Oxidizing properties                             | : No data is available on the product itself. |

### 9.2 Other information

No data available

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No dangerous reaction known under conditions of normal use.

### 10.2 Chemical stability

Stable under normal conditions.

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### 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

Hazardous decomposition products : carbon dioxide  
carbon monoxide

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

##### 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

Acute inhalation toxicity : No data available

##### Components:

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

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

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

#### Skin corrosion/irritation

##### Components:

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

Species: Rabbit  
Assessment: Mild skin irritant  
Method: OECD Test Guideline 404  
Result: Irritating to skin.

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### Serious eye damage/eye irritation

#### Components:

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

Species: Rabbit

Assessment: Mild eye irritant

Method: OECD Test Guideline 405

Result: Irritating to eyes.

### Respiratory or skin sensitisation

#### Components:

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

Exposure routes: Skin

Species: Mouse

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 429

Result: Causes sensitisation.

Assessment: No data available

### Germ cell mutagenicity

#### Components:

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

Genotoxicity in vitro : Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: positive

: Concentration: 0 - 5000 ug/plate

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive

#### Components:

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

Genotoxicity in vivo : Cell type: Germ

Application Route: Oral

Method: OECD Test Guideline 478

Result: negative

Cell type: Somatic

Application Route: Oral

Dose: 0 - 5000 mg/kg

Method: OPPTS 870.5395

Result: negative

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### Carcinogenicity

#### Components:

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

Species: Rat, male and female

Application Route: Oral

Exposure time: 24 month(s)

Dose: 15 mg/kg

Frequency of Treatment: 7 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Mouse, male

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 0.1 mg/kg

Frequency of Treatment: 3 days/week

Method: OECD Test Guideline 453

Result: negative

Species: Rat, female

Application Route: Dermal

Exposure time: 24 month(s)

Dose: 1 mg/kg

Frequency of Treatment: 5 days/week

Method: OECD Test Guideline 453

Result: negative

Carcinogenicity - Assessment : No data available

### Reproductive toxicity

#### 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: >750 milligram per kilogram

General Toxicity - Parent: No-observed-effect level: 540 mg/kg body weight

General Toxicity F1: No-observed-effect level: 540 mg/kg body weight

Symptoms: No adverse effects

Method: OECD Test Guideline 416

Result: No effects on fertility and early embryonic development were detected.

#### Components:

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

Effects on foetal development : Species: Rabbit, female

Application Route: Dermal

General Toxicity Maternal: No observed adverse effect level: 30 mg/kg body weight

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Method: Other guidelines  
Result: No teratogenic effects

Species: Rabbit, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
60 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Species: Rat, female  
Application Route: Oral  
General Toxicity Maternal: No observed adverse effect level:  
180 mg/kg body weight  
Method: OECD Test Guideline 414  
Result: No teratogenic effects

Reproductive toxicity - Assessment : No data available

### STOT - single exposure

No data available

### STOT - repeated exposure

No data available

### Repeated dose toxicity

#### Components:

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

Species: Rat, male and female

NOAEL: 50 mg/kg

Application Route: Ingestion

Exposure time: 14 WeeksNumber of exposures: 7 d

Method: Subchronic toxicity

Species: Rat, male and female

NOEL: 10 mg/kg

Application Route: Skin contact

Exposure time: 13 WeeksNumber of exposures: 5 d

Method: Subchronic toxicity

Species: Mouse, male

NOAEL: 100 mg/kg

Application Route: Skin contact

Exposure time: 13 WeeksNumber of exposures: 3 d

Method: Subchronic toxicity

Repeated dose toxicity - Assessment : No data available

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### Aspiration toxicity

No data available

### Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

### Toxicology, Metabolism, Distribution

No data available

### Neurological effects

No data available

### Further information

Ingestion: No data available

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

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

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,5 mg/l  
Exposure time: 96 h  
Test Type: static test  
Test substance: Fresh water  
Method: OECD Test Guideline 203

Toxicity to daphnia and other : EC50 (Daphnia magna (Water flea)): 2,7 mg/l  
aquatic invertebrates  
Exposure time: 48 h  
Test Type: static test  
Test substance: Fresh water

Toxicity to algae : EC50 (Selenastrum capricornutum (green algae)): 9,4 mg/l

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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

### 12.2 Persistence and degradability

#### Components:

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

Biodegradability : Inoculum: Sewage (STP effluent)  
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

### 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

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### 12.4 Mobility in soil

#### Components:

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

Distribution among environmental compartments : Koc: 445

### 12.5 Results of PBT and vPvB assessment

#### Product:

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

### 12.6 Other adverse effects

#### Product:

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

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product : The product should not be allowed to enter drains, water courses or the soil.  
Do not contaminate ponds, waterways or ditches with chemical or used container.  
Send to a licensed waste management company.  
Dispose of as hazardous waste in compliance with local and national regulations.  
Dispose of contents/ container to an approved waste disposal plant.

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

## SECTION 14: Transport information

#### **IATA**

**14.1 UN number** : UN 3082

**14.2 UN proper shipping name** : Environmentally hazardous substance, liquid, n.o.s.  
(BISPHENOL A EPOXY RESIN)

**14.3 Transport hazard class(es)** : 9

**14.4 Packing group** : III

**Labels** : Miscellaneous

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Packing instruction (cargo aircraft) : 964

Packing instruction (passenger aircraft) : 964

### IATA (Passenger)

Environmentally hazardous : yes

### IATA (Cargo)

Environmentally hazardous : yes

### IMDG

14.1 UN number : UN 3082

14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)

14.3 Transport hazard class(es) : 9

14.4 Packing group : III

Labels : 9

EmS Code : F-A, S-F

### 14.5 Environmental hazards

Marine pollutant : yes

### ADR

14.1 UN number : UN 3082

14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)

14.3 Transport hazard class(es) : 9

14.4 Packing group : III

Labels : 9

### 14.5 Environmental hazards

Environmentally hazardous : yes

### RID

14.1 UN number : UN 3082

14.2 UN proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (BISPHENOL A EPOXY RESIN)

14.3 Transport hazard class(es) : 9

14.4 Packing group : III

Labels : 9

### 14.5 Environmental hazards

Environmentally hazardous : yes

### 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

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### SECTION 15: Regulatory information

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

|                                                                                           |                                                                                                                     |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). | : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57). |
| REACH - List of substances subject to authorisation (Annex XIV)                           | : Not applicable                                                                                                    |
| REACH - List of substances subject to authorisation - Future sunset date                  | : Not applicable                                                                                                    |
| Occupational Illnesses (R-461-3, France)                                                  | : 51                                                                                                                |
| Installations classified for the protection of the environment (Environment Code R511-9)  | : 4511                                                                                                              |

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

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### Inventories

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

### 15.2 Chemical safety assessment

For further information see eSDS.

## SECTION 16: Other information

### Further information

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

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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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|            |                                                                                                                                                |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ES1</b> | Formulation, Industrial; Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) (SU 10).                                 |
| <b>ES2</b> | Used as monomer at downstream industrial sites; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).     |
| <b>ES3</b> | Used as chemical intermediate; Intermediate (PC19); Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3). |
| <b>ES4</b> | Industrial use; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).                                     |

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|            |                                                                                                                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ES5</b> | Professional use; Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (SU 22).                                                                                                               |
| <b>ES6</b> | Consumer application of coatings; Adhesives, sealants (PC1); Consumer uses (SU21).; Coatings and paints, thinners, paint removers (PC9a); Consumer uses (SU21).; Fillers, putties, plasters, modelling clay (PC9b); Consumer uses (SU21). |

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### ES1: Formulation, Industrial

#### 1.1. Title section

|                               |                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) (SU 10).                                              |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br>EC-No.: 216-823-5<br>Registration number:<br>01-2119456619-26 |

| Environment |                                                                                                                                |        |
|-------------|--------------------------------------------------------------------------------------------------------------------------------|--------|
| <b>CS1</b>  | <b>Formulation of preparations</b>                                                                                             | ERC2   |
| Worker      |                                                                                                                                |        |
| <b>CS2</b>  | <b>Use in closed batch process (synthesis or formulation)</b>                                                                  | PROC3  |
| <b>CS3</b>  | <b>Use in batch and other process (synthesis) where opportunity for exposure arises</b>                                        | PROC4  |
| <b>CS4</b>  | <b>Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities</b> | PROC8b |
| <b>CS5</b>  | <b>Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</b>                 | PROC9  |

#### 1.2. Conditions of use affecting exposure

##### 1.2.1. Control of environmental exposure: Formulation of preparations (ERC2)

| Product (article) characteristics                                 |                                    |
|-------------------------------------------------------------------|------------------------------------|
| Physical form of product                                          | : Low volatile liquid              |
| Amount used, frequency and duration of use (or from service life) |                                    |
| Amount per use                                                    | : 116421 tonnes/year               |
| Fraction of EU tonnage used in region:                            | : 0,1                              |
| Fraction of regional tonnage used locally                         | : 1                                |
| Msperc                                                            | : 32339 kg/d                       |
| Conditions and measures related to sewage treatment plant         |                                    |
| STP type                                                          | : Municipal sewage treatment plant |

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|                                                                                        |                            |
|----------------------------------------------------------------------------------------|----------------------------|
| STP effluent                                                                           | : 2 000 m3/d               |
| <b>Conditions and measures related to treatment of waste (including article waste)</b> |                            |
| Waste treatment                                                                        | : Waste gases incinerated. |
| Waste - minimum efficiency of                                                          | : 95 %                     |
| <b>Other conditions affecting environmental exposure</b>                               |                            |
| Receiving surface water flow                                                           | : 18 000 m3/d              |
| Local freshwater dilution factor                                                       | : 10                       |
| Local marine water dilution factor                                                     | : 100                      |

### 1.2.2. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

|                                                                                              |                                        |
|----------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                                     |                                        |
| Covers percentage substance in the product up to 100 %.                                      |                                        |
| Physical form of product                                                                     | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b>                     |                                        |
| Duration                                                                                     | : Covers daily exposures up to 8 hours |
| <b>Technical and organisational conditions and measures</b>                                  |                                        |
| No other specific measures identified.                                                       |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                         |                                        |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b> |                                        |
| Wear suitable gloves tested to EN374.                                                        |                                        |
| <b>Other conditions affecting workers exposure</b>                                           |                                        |
| Indoor or outdoor use                                                                        | : Indoor                               |
| Temperature                                                                                  | : > 70 °C                              |

### 1.2.3. Control of worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

|                                                         |                       |
|---------------------------------------------------------|-----------------------|
| <b>Product (article) characteristics</b>                |                       |
| Covers percentage substance in the product up to 100 %. |                       |
| Physical form of product                                | : Low volatile liquid |

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| Amount used, frequency and duration of use (or from service life)                                 |                                        |
|---------------------------------------------------------------------------------------------------|----------------------------------------|
| Duration                                                                                          | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                              |                                        |
| No other specific measures identified.                                                            |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation             |                                        |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                        |
| Other conditions affecting workers exposure                                                       |                                        |
| Indoor or outdoor use                                                                             | : Indoor                               |
| Professional or industrial settings                                                               | : Industrial use                       |
| Temperature                                                                                       | : > 70 °C                              |

### 1.2.4. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Product (article) characteristics                                                                 |                                        |
|---------------------------------------------------------------------------------------------------|----------------------------------------|
| Covers percentage substance in the product up to 100 %.                                           |                                        |
| Physical form of product                                                                          | : Low volatile liquid                  |
| Amount used, frequency and duration of use (or from service life)                                 |                                        |
| Duration                                                                                          | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                              |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                        |
| No other specific measures identified.                                                            |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation             |                                        |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                        |
| Other conditions affecting workers exposure                                                       |                                        |
| Indoor or outdoor use                                                                             | : Indoor                               |
| Temperature                                                                                       | : > 70 °C                              |

### 1.2.5. Control of worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

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|                                                                                                   |
|---------------------------------------------------------------------------------------------------|
| <b>Product (article) characteristics</b>                                                          |
| Covers percentage substance in the product up to 100 %.                                           |
| Physical form of product : Liquid substance                                                       |
| <b>Amount used, frequency and duration of use (or from service life)</b>                          |
| Duration : Covers daily exposures up to 8 hours                                                   |
| <b>Technical and organisational conditions and measures</b>                                       |
| Assumes a good basic standard of occupational hygiene is implemented                              |
| No other specific measures identified.                                                            |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>      |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |
| <b>Other conditions affecting workers exposure</b>                                                |
| Indoor or outdoor use : Indoor                                                                    |
| Temperature : Assumes process temperature up to < 70 °C                                           |

### 1.3. Exposure estimation and reference to its source

#### 1.3.1. Environmental release and exposure: Formulation of preparations (ERC2)

| Release route | Release rate | Release estimation method |
|---------------|--------------|---------------------------|
| Water         | 0 kg/day     | FEICA SPERC 2.1b.v1       |
| Air           | 9,7 kg/day   | FEICA SPERC 2.1b.v1       |
| Soil          | 0 kg/day     | FEICA SPERC 2.1b.v1       |

| Compartment            | Exposure level                                                  | RCR      |
|------------------------|-----------------------------------------------------------------|----------|
| Sewage treatment plant | 0mg/L (ECETOC TRA environment v2.0)                             | 0        |
| Freshwater             | 1.06E-06 mg/Lmg/L (ECETOC TRA environment v2.0)                 | 1.76E-04 |
| Freshwater sediment    | 5.75E-05 mg/kg dwmg/kg dry weight (ECETOC TRA environment v2.0) | 5.77E-05 |
| Soil                   | 0,244mg/kg dry weight (ECETOC TRA environment v2.0)             | 0,662    |
| Marine water           | 8.36E-09 mg/Lmg/L (ECETOC TRA environment v2.0)                 | 1.39E-05 |
| Marine sediment        | 4.55E-07 mg/kg dwmg/kg dry weight (ECETOC TRA                   | 4.56E-06 |

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|  |                   |  |
|--|-------------------|--|
|  | environment v2.0) |  |
|--|-------------------|--|

### 1.3.2. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| Exposure route  | Health effect | Exposure indicator | Exposure level                             | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,64ppm (ECETOC TRA worker v2.0)           | 0,05 |
| dermal          | systemic      | long-term          | 0,138mg/kg bw/day (ECETOC TRA worker v2.0) | 0,02 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                   | 0,07 |

### 1.3.3. Worker exposure: Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4)

| Exposure route  | Health effect | Exposure indicator | Exposure level                             | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,64ppm (ECETOC TRA worker v2.0)           | 0,05 |
| dermal          | systemic      | long-term          | 0,686mg/kg bw/day (ECETOC TRA worker v2.0) | 0,08 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                   | 0,13 |

### 1.3.4. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                | RCR  |
|-----------------|---------------|--------------------|-----------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,1mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | 0,01 |
| dermal          | systemic      | long-term          | 0.06855mg/kg bw/day (ECETOC TRA worker v2.0)  | 0,01 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                      | 0,02 |

### 1.3.5. Worker exposure: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9)

| Exposure route | Health effect | Exposure indicator | Exposure level                             | RCR  |
|----------------|---------------|--------------------|--------------------------------------------|------|
| inhalative     | systemic      | long-term          | 0,64ppm (ECETOC TRA worker v2.0)           | 0,05 |
| dermal         | systemic      | long-term          | 0,686mg/kg bw/day (ECETOC TRA worker v2.0) | 0,08 |

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|                 |  |  |                             |      |
|-----------------|--|--|-----------------------------|------|
|                 |  |  | worker v2.0)                |      |
| combined routes |  |  | (ECETOC TRA<br>worker v2.0) | 0,13 |

### 1.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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### ES2: Used as monomer at downstream industrial sites

#### 2.1. Title section

|                               |                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).                                                       |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br><u>EC-No.:</u> 216-823-5<br><u>Registration number:</u><br>01-2119456619-26 |

| Environment |                                                                                                   |        |
|-------------|---------------------------------------------------------------------------------------------------|--------|
| <b>CS1</b>  | <b>Industrial use of processing aids in processes and products, not becoming part of articles</b> | ERC4   |
| Worker      |                                                                                                   |        |
| <b>CS2</b>  | <b>Use in closed process, no likelihood of exposure</b>                                           | PROC1  |
| <b>CS3</b>  | <b>Use in closed, continuous process with occasional controlled exposure</b>                      | PROC2  |
| <b>CS4</b>  | <b>Use in closed batch process (synthesis or formulation)</b>                                     | PROC3  |
| <b>CS5</b>  | <b>Bulk transfers</b>                                                                             | PROC8b |

#### 2.2. Conditions of use affecting exposure

##### 2.2.1. Control of environmental exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

| Amount used, frequency and duration of use (or from service life)               |                                                         |
|---------------------------------------------------------------------------------|---------------------------------------------------------|
| Amount per use                                                                  | : 75303 tonnes/year                                     |
| Fraction of EU tonnage used in region:                                          | : 0,25                                                  |
| Msperc                                                                          | : 62753 kg/d                                            |
| Conditions and measures related to sewage treatment plant                       |                                                         |
| STP type                                                                        | : Municipal sewage treatment plant                      |
| STP effluent                                                                    | : 2 000 m3/d                                            |
| Conditions and measures related to treatment of waste (including article waste) |                                                         |
| Waste treatment                                                                 | : Liquid and/or solid waste is treated by incineration. |

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### Other conditions affecting environmental exposure

|                                    |   |             |
|------------------------------------|---|-------------|
| Receiving surface water flow       | : | 18 000 m3/d |
| Local freshwater dilution factor   | : | 10          |
| Local marine water dilution factor | : | 100         |

### 2.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Low volatile liquid

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Assumes a good basic standard of occupational hygiene is implemented

No other specific measures identified.

#### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

#### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor

Temperature : > 70 °C

### 2.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Low volatile liquid

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Assumes a good basic standard of occupational hygiene is implemented

No other specific measures identified.

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### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor

Temperature : > 70 °C

### 2.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Low volatile liquid

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

Assumes a good basic standard of occupational hygiene is implemented

No other specific measures identified.

### Conditions and measures related to personal protection, hygiene and health evaluation

Wear suitable gloves tested to EN374.

### Other conditions affecting workers exposure

Indoor or outdoor use : Indoor

Temperature : > 70 °C

### 2.2.5. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

#### Product (article) characteristics

Covers percentage substance in the product up to 100 %.

Physical form of product : Low volatile liquid

#### Amount used, frequency and duration of use (or from service life)

Duration : Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

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|                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| Assumes a good basic standard of occupational hygiene is implemented                              |           |
| No other specific measures identified.                                                            |           |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>      |           |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |           |
| <b>Other conditions affecting workers exposure</b>                                                |           |
| Indoor or outdoor use                                                                             | : Indoor  |
| Temperature                                                                                       | : > 70 °C |

### 2.3. Exposure estimation and reference to its source

#### 2.3.1. Environmental release and exposure: Industrial use of processing aids in processes and products, not becoming part of articles (ERC4)

| Release route | Release rate   | Release estimation method |
|---------------|----------------|---------------------------|
| Water         | 3.77E-02kg/day | ESVOC SPERC 4.20.v1       |
| Air           | 2,51 kg/day    | ESVOC SPERC 4.20.v1       |
| Soil          |                | ESVOC SPERC 4.20.v1       |

| Compartment            | Exposure level                                       | RCR      |
|------------------------|------------------------------------------------------|----------|
| Sewage treatment plant | 0,0177mg/L (ECETOC TRA environment v2.0)             | 1.77E-03 |
| Freshwater             | 0,00177mg/L (ECETOC TRA environment v2.0)            | 2.95E-03 |
| Freshwater sediment    | 0,0963mg/kg dry weight (ECETOC TRA environment v2.0) | 9.67e-02 |
| Soil                   | 0,0529mg/kg dry weight (ECETOC TRA environment v2.0) | 1.45E-01 |
| Marine water           | 0,000188mg/L (ECETOC TRA environment v2.0)           | 3.14E-01 |
| Marine sediment        | 0,0102mg/kg dry weight (ECETOC TRA environment v2.0) | 1.03E-01 |

#### 2.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

| Exposure route  | Health effect | Exposure indicator | Exposure level                             | RCR   |
|-----------------|---------------|--------------------|--------------------------------------------|-------|
| inhalative      | systemic      | long-term          | 0,64ppm (ECETOC TRA worker v2.0)           | 0,05  |
| dermal          | systemic      | long-term          | 0,006mg/kg bw/day (ECETOC TRA worker v2.0) | 0,001 |
| combined routes |               |                    | (ECETOC TRA                                | 0,05  |

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|  |  |  |              |  |
|--|--|--|--------------|--|
|  |  |  | worker v2.0) |  |
|--|--|--|--------------|--|

### 2.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

| Exposure route  | Health effect | Exposure indicator | Exposure level                             | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,43ppm (ECETOC TRA worker v2.0)           | 0,03 |
| dermal          | systemic      | long-term          | 0,274mg/kg bw/day (ECETOC TRA worker v2.0) | 0,03 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                   | 0,07 |

### 2.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                 | RCR  |
|-----------------|---------------|--------------------|------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,64mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | 0,05 |
| dermal          | systemic      | long-term          | 0,138mg/kg bw/day (ECETOC TRA worker v2.0)     | 0,02 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                       | 0,07 |

### 2.3.5. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                | RCR  |
|-----------------|---------------|--------------------|-----------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,7mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | 0,06 |
| dermal          | systemic      | long-term          | 1,371mg/kg bw/day (ECETOC TRA worker v2.0)    | 0,16 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                      | 0,22 |

### 2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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### ES3: Used as chemical intermediate

#### 3.1. Title section

|                               |                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Intermediate (PC19); Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).                                  |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br><u>EC-No.:</u> 216-823-5<br><u>Registration number:</u><br>01-2119456619-26 |

| Environment |                                                                              |        |
|-------------|------------------------------------------------------------------------------|--------|
| <b>CS1</b>  | <b>Use as an intermediate</b>                                                | ERC6a  |
| Worker      |                                                                              |        |
| <b>CS2</b>  | <b>Use in closed process, no likelihood of exposure</b>                      | PROC1  |
| <b>CS3</b>  | <b>Use in closed, continuous process with occasional controlled exposure</b> | PROC2  |
| <b>CS4</b>  | <b>Use in closed batch process (synthesis or formulation)</b>                | PROC3  |
| <b>CS5</b>  | <b>Bulk transfers</b>                                                        | PROC8b |

#### 3.2. Conditions of use affecting exposure

##### 3.2.1. Control of environmental exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a)

| Product (article) characteristics                                 |                                    |
|-------------------------------------------------------------------|------------------------------------|
| Physical form of product                                          | : Low volatile liquid              |
| Amount used, frequency and duration of use (or from service life) |                                    |
| Annual amount per site                                            | : 10125 tonnes/day                 |
| Fraction of EU tonnage used in region:                            | : 0,25                             |
| Fraction of regional tonnage used locally                         | : 1                                |
| Msperc                                                            | : 8438 kg/d                        |
| Conditions and measures related to sewage treatment plant         |                                    |
| STP type                                                          | : Municipal sewage treatment plant |
| STP effluent                                                      | : 2 000 m3/d                       |

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| Conditions and measures related to treatment of waste (including article waste) |                                                         |
|---------------------------------------------------------------------------------|---------------------------------------------------------|
| Waste treatment                                                                 | : Do not apply industrial sludge to natural soils.      |
| Waste treatment                                                                 | : Liquid and/or solid waste is treated by incineration. |
| Other conditions affecting environmental exposure                               |                                                         |
| Receiving surface water flow                                                    | : 18 000 m3/d                                           |
| Local freshwater dilution factor                                                | : 10                                                    |
| Local marine water dilution factor                                              | : 100                                                   |

### 3.2.2. Control of worker exposure: Use in closed process, no likelihood of exposure (PROC1)

| Product (article) characteristics                                                     |                                        |
|---------------------------------------------------------------------------------------|----------------------------------------|
| Covers percentage substance in the product up to 100 %.                               |                                        |
| Physical form of product                                                              | : Low volatile liquid                  |
| Amount used, frequency and duration of use (or from service life)                     |                                        |
| Duration                                                                              | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                  |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                  |                                        |
| No other specific measures identified.                                                |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation |                                        |
| Wear suitable gloves tested to EN374.                                                 |                                        |
| Other conditions affecting workers exposure                                           |                                        |
| Indoor or outdoor use                                                                 | : Indoor                               |
| Temperature                                                                           | : > 70 °C                              |

### 3.2.3. Control of worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

| Product (article) characteristics                                 |                                        |
|-------------------------------------------------------------------|----------------------------------------|
| Covers percentage substance in the product up to 100 %.           |                                        |
| Physical form of product                                          | : Low volatile liquid                  |
| Amount used, frequency and duration of use (or from service life) |                                        |
| Duration                                                          | : Covers daily exposures up to 8 hours |

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| Technical and organisational conditions and measures                                  |           |
|---------------------------------------------------------------------------------------|-----------|
| Assumes a good basic standard of occupational hygiene is implemented                  |           |
| No other specific measures identified.                                                |           |
| Conditions and measures related to personal protection, hygiene and health evaluation |           |
| Wear suitable gloves tested to EN374.                                                 |           |
| Other conditions affecting workers exposure                                           |           |
| Indoor or outdoor use                                                                 | : Indoor  |
| Temperature                                                                           | : > 70 °C |

### 3.2.4. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| Product (article) characteristics                                                     |                                        |
|---------------------------------------------------------------------------------------|----------------------------------------|
| Covers percentage substance in the product up to 100 %.                               |                                        |
| Physical form of product                                                              | : Low volatile liquid                  |
| Amount used, frequency and duration of use (or from service life)                     |                                        |
| Duration                                                                              | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                  |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                  |                                        |
| No other specific measures identified.                                                |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation |                                        |
| Wear suitable gloves tested to EN374.                                                 |                                        |
| Other conditions affecting workers exposure                                           |                                        |
| Indoor or outdoor use                                                                 | : Indoor                               |
| Temperature                                                                           | : > 70 °C                              |

### 3.2.5. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Product (article) characteristics                       |                       |
|---------------------------------------------------------|-----------------------|
| Covers percentage substance in the product up to 100 %. |                       |
| Physical form of product                                | : Low volatile liquid |

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| Amount used, frequency and duration of use (or from service life)                     |                                        |
|---------------------------------------------------------------------------------------|----------------------------------------|
| Duration                                                                              | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                  |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                  |                                        |
| No other specific measures identified.                                                |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation |                                        |
| Wear suitable gloves tested to EN374.                                                 |                                        |
| Other conditions affecting workers exposure                                           |                                        |
| Indoor or outdoor use                                                                 | : Indoor                               |
| Temperature                                                                           | : > 70 °C                              |

### 3.3. Exposure estimation and reference to its source

#### 3.3.1. Environmental release and exposure: Industrial use resulting in manufacture of another substance (use of intermediates) (ERC6a)

| Release route | Release rate   | Release estimation method |
|---------------|----------------|---------------------------|
| Water         | 5.06E-03kg/day | ESVOC SPERC 6.1a.v1       |
| Air           | 0 kg/day       | ESVOC SPERC 6.1a.v1       |
| Soil          |                | ESVOC SPERC 6.1a.v1       |

| Compartment            | Exposure level                                         | RCR      |
|------------------------|--------------------------------------------------------|----------|
| Sewage treatment plant | 2.38E-03mg/L (ECETOC TRA environment v2.0)             | 2.38E-04 |
| Freshwater             | 2.39E-04mg/L (ECETOC TRA environment v2.0)             | 3.98E-02 |
| Freshwater sediment    | 1.30E-02mg/kg dry weight (ECETOC TRA environment v2.0) | 1.30E-02 |
| Soil                   | 4.61E-04mg/kg dry weight (ECETOC TRA environment v2.0) | 2.35E-03 |
| Marine water           | 2.53E-05mg/L (ECETOC TRA environment v2.0)             | 4.22E-02 |
| Marine sediment        | 1.38E-05mg/kg dry weight (ECETOC TRA environment v2.0) | 1.38E-02 |

#### 3.3.2. Worker exposure: Use in closed process, no likelihood of exposure (PROC1)

| Exposure route | Health effect | Exposure indicator | Exposure level   | RCR  |
|----------------|---------------|--------------------|------------------|------|
| inhalative     | systemic      | long-term          | 0,14ppm (ECETOC) | 0,01 |

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|                 |          |           |                                                  |       |
|-----------------|----------|-----------|--------------------------------------------------|-------|
|                 |          |           | TRA worker v2.0)                                 |       |
| dermal          | systemic | long-term | 0,006mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,001 |
| combined routes |          |           | (ECETOC TRA<br>worker v2.0)                      | 0,01  |

### 3.3.3. Worker exposure: Use in closed, continuous process with occasional controlled exposure (PROC2)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                   | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,43ppm (ECETOC<br>TRA worker v2.0)              | 0,03 |
| dermal          | systemic      | long-term          | 0,274mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,03 |
| combined routes |               |                    | (ECETOC TRA<br>worker v2.0)                      | 0,07 |

### 3.3.4. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                   | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,64ppm (ECETOC<br>TRA worker v2.0)              | 0,05 |
| dermal          | systemic      | long-term          | 0,138mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,02 |
| combined routes |               |                    | (ECETOC TRA<br>worker v2.0)                      | 0,07 |

### 3.3.5. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                   | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,7ppm (ECETOC<br>TRA worker v2.0)               | 0,06 |
| dermal          | systemic      | long-term          | 1,371mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,16 |
| combined routes |               |                    | (ECETOC TRA<br>worker v2.0)                      | 0,22 |

### 3.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

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Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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### ES4: Industrial use

#### 4.1. Title section

|                               |                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).                                                       |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br><u>EC-No.:</u> 216-823-5<br><u>Registration number:</u><br>01-2119456619-26 |

| Environment |                                       |        |
|-------------|---------------------------------------|--------|
| <b>CS1</b>  | <b>Industrial use</b>                 | ERC5   |
| Worker      |                                       |        |
| <b>CS2</b>  | <b>Spraying</b>                       | PROC7  |
| <b>CS3</b>  | <b>Material transfers</b>             | PROC8b |
| <b>CS4</b>  | <b>Rolling, Brushing</b>              | PROC10 |
| <b>CS5</b>  | <b>Dipping, immersion and pouring</b> | PROC13 |
| <b>CS6</b>  | <b>Laboratory activities</b>          | PROC15 |

#### 4.2. Conditions of use affecting exposure

##### 4.2.1. Control of environmental exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

| Product (article) characteristics                                 |                                    |
|-------------------------------------------------------------------|------------------------------------|
| Covers percentage substance in the product up to 100 %.           |                                    |
| Physical form of product                                          | : Low volatile liquid              |
| Amount used, frequency and duration of use (or from service life) |                                    |
| Annual amount per site                                            | : 40139 tonnes/day                 |
| Fraction of EU tonnage used in region:                            | : 0,25                             |
| Msperc                                                            | : 33449 kg/day                     |
| Conditions and measures related to sewage treatment plant         |                                    |
| STP type                                                          | : Municipal sewage treatment plant |

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|                                                          |               |
|----------------------------------------------------------|---------------|
| STP effluent                                             | : 2 000 m3/d  |
| <b>Other conditions affecting environmental exposure</b> |               |
| Receiving surface water flow                             | : 18 000 m3/d |
| Local freshwater dilution factor                         | : 10          |
| Local marine water dilution factor                       | : 100         |

### 4.2.2. Control of worker exposure: Industrial spraying (PROC7)

|                                                                                              |                                        |
|----------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                                     |                                        |
| Covers percentage substance in the product up to 100 %.                                      |                                        |
| Physical form of product                                                                     | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b>                     |                                        |
| Duration                                                                                     | : Covers daily exposures up to 8 hours |
| <b>Technical and organisational conditions and measures</b>                                  |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                         |                                        |
| No other specific measures identified.                                                       |                                        |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b> |                                        |
| Wear respiratory protection when its use is identified for certain contributing scenarios.   |                                        |
| Wear suitable gloves tested to EN374.                                                        |                                        |
| <b>Other conditions affecting workers exposure</b>                                           |                                        |
| Indoor or outdoor use                                                                        | : Indoor                               |
| Temperature                                                                                  | : > 70 °C                              |

### 4.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

|                                                                          |                                        |
|--------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                 |                                        |
| Covers percentage substance in the product up to 100 %.                  |                                        |
| Physical form of product                                                 | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b> |                                        |
| Duration                                                                 | : Covers daily exposures up to 8 hours |
| <b>Technical and organisational conditions and measures</b>              |                                        |

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|                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| Assumes a good basic standard of occupational hygiene is implemented                              |           |
| No other specific measures identified.                                                            |           |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>      |           |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |           |
| <b>Other conditions affecting workers exposure</b>                                                |           |
| Indoor or outdoor use                                                                             | : Indoor  |
| Temperature                                                                                       | : > 70 °C |

### 4.2.4. Control of worker exposure: Roller application or brushing (PROC10)

|                                                                                                   |                                        |
|---------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                                          |                                        |
| Covers percentage substance in the product up to 100 %.                                           |                                        |
| Physical form of product                                                                          | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b>                          |                                        |
| Duration                                                                                          | : Covers daily exposures up to 8 hours |
| <b>Technical and organisational conditions and measures</b>                                       |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                        |
| No other specific measures identified.                                                            |                                        |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>      |                                        |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                        |
| <b>Other conditions affecting workers exposure</b>                                                |                                        |
| Indoor or outdoor use                                                                             | : Indoor                               |
| Temperature                                                                                       | : > 70 °C                              |

### 4.2.5. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

|                                                                          |                                        |
|--------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                 |                                        |
| Covers percentage substance in the product up to 100 %.                  |                                        |
| Physical form of product                                                 | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b> |                                        |
| Duration                                                                 | : Covers daily exposures up to 8 hours |

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| Technical and organisational conditions and measures                                  |           |
|---------------------------------------------------------------------------------------|-----------|
| Assumes a good basic standard of occupational hygiene is implemented                  |           |
| No other specific measures identified.                                                |           |
| Conditions and measures related to personal protection, hygiene and health evaluation |           |
| Wear suitable gloves tested to EN374.                                                 |           |
| Other conditions affecting workers exposure                                           |           |
| Indoor or outdoor use                                                                 | : Indoor  |
| Temperature                                                                           | : > 70 °C |

### 4.2.6. Control of worker exposure: Use as laboratory reagent (PROC15)

| Product (article) characteristics                                                                 |                                        |
|---------------------------------------------------------------------------------------------------|----------------------------------------|
| Covers percentage substance in the product up to 100 %.                                           |                                        |
| Physical form of product                                                                          | : Low volatile liquid                  |
| Amount used, frequency and duration of use (or from service life)                                 |                                        |
| Duration                                                                                          | : Covers daily exposures up to 8 hours |
| Technical and organisational conditions and measures                                              |                                        |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                        |
| No other specific measures identified.                                                            |                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation             |                                        |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                        |
| Other conditions affecting workers exposure                                                       |                                        |
| Indoor or outdoor use                                                                             | : Indoor                               |
| Temperature                                                                                       | : < 40 °C                              |

### 4.3. Exposure estimation and reference to its source

#### 4.3.1. Environmental release and exposure: Use at industrial site leading to inclusion into/onto article (ERC5)

| Release route | Release rate   | Release estimation method |
|---------------|----------------|---------------------------|
| Water         | 0 kg/day       | FEICA SPERC 5.1a.v1       |
| Air           | 2.16E-03kg/day | FEICA SPERC 5.1a.v1       |
| Soil          |                | FEICA SPERC 5.1a.v1       |

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| Compartment            | Exposure level                                         | RCR      |
|------------------------|--------------------------------------------------------|----------|
| Sewage treatment plant | 0mg/L (ECETOC TRA environment v2.0)                    | 0        |
| Freshwater             | 1.06E-06mg/L (ECETOC TRA environment v2.0)             | 1.76E-04 |
| Freshwater sediment    | 5.75E-05mg/kg dry weight (ECETOC TRA environment v2.0) | 5.77E-05 |
| Soil                   | 6.34E-02mg/kg dry weight (ECETOC TRA environment v2.0) | 1.73E-01 |
| Marine water           | 8.36E-09mg/L (ECETOC TRA environment v2.0)             | 1.39E-05 |
| Marine sediment        | 4.55E-07mg/kg dry weight (ECETOC TRA environment v2.0) | 4.56E-06 |

### 4.3.2. Worker exposure: Industrial spraying (PROC7)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                 | RCR  |
|-----------------|---------------|--------------------|------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,14mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | 0,01 |
| dermal          | systemic      | long-term          | 0,429mg/kg bw/day (ECETOC TRA worker v2.0)     | 0,05 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                       | 0,06 |

### 4.3.3. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                | RCR  |
|-----------------|---------------|--------------------|-----------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,7mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | 0,06 |
| dermal          | systemic      | long-term          | 1,371mg/kg bw/day (ECETOC TRA worker v2.0)    | 0,16 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                      | 0,22 |

### 4.3.4. Worker exposure: Roller application or brushing (PROC10)

| Exposure route | Health effect | Exposure indicator | Exposure level                                    | RCR     |
|----------------|---------------|--------------------|---------------------------------------------------|---------|
| inhalative     | systemic      | long-term          | 0.00045mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | < 0,001 |

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|                 |          |           |                                                  |      |
|-----------------|----------|-----------|--------------------------------------------------|------|
| dermal          | systemic | long-term | 2,743mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,33 |
| combined routes |          |           | (ECETOC TRA<br>worker v2.0)                      | 0,33 |

### 4.3.5. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                   | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,64ppm (ECETOC<br>TRA worker v2.0)              | 0,05 |
| dermal          | systemic      | long-term          | 0,274mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0) | 0,03 |
| combined routes |               |                    | (ECETOC TRA<br>worker v2.0)                      | 0,09 |

### 4.3.6. Worker exposure: Use as laboratory reagent (PROC15)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                           | RCR     |
|-----------------|---------------|--------------------|----------------------------------------------------------|---------|
| inhalative      | systemic      | long-term          | 0.000006mg/m <sup>3</sup><br>(ECETOC TRA<br>worker v2.0) | < 0,001 |
| dermal          | systemic      | long-term          | 0,07mg/kg bw/day<br>(ECETOC TRA<br>worker v2.0)          | 0,01    |
| combined routes |               |                    | (ECETOC TRA<br>worker v2.0)                              | 0,01    |

### 4.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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### ES5: Professional use

#### 5.1. Title section

|                               |                                                                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (SU 22).                                        |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br><u>EC-No.:</u> 216-823-5<br><u>Registration number:</u><br>01-2119456619-26 |

| Environment |                                                                                |        |
|-------------|--------------------------------------------------------------------------------|--------|
| <b>CS1</b>  | <b>Wide dispersive indoor use resulting in inclusion into or onto a matrix</b> | ERC8c  |
| Worker      |                                                                                |        |
| <b>CS2</b>  | <b>Drum/batch transfers</b>                                                    | PROC8a |
| <b>CS3</b>  | <b>Material transfers</b>                                                      | PROC8b |
| <b>CS4</b>  | <b>Rolling, Brushing</b>                                                       | PROC10 |
| <b>CS5</b>  | <b>Spraying</b>                                                                | PROC11 |
| <b>CS6</b>  | <b>Dipping, immersion and pouring</b>                                          | PROC13 |
| <b>CS7</b>  | <b>Hand-mixing with intimate contact and only PPE available</b>                | PROC19 |

#### 5.2. Conditions of use affecting exposure

5.2.1. Control of environmental exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c)

| Product (article) characteristics                                 |                                    |
|-------------------------------------------------------------------|------------------------------------|
| Covers percentage substance in the product up to 100 %.           |                                    |
| Physical form of product                                          | : Low volatile liquid              |
| Amount used, frequency and duration of use (or from service life) |                                    |
| Amount per use                                                    | : 47526 tonnes/year                |
| Wide dispersive use                                               | :                                  |
| Conditions and measures related to sewage treatment plant         |                                    |
| STP type                                                          | : Municipal sewage treatment plant |

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|                                                          |               |
|----------------------------------------------------------|---------------|
| STP effluent                                             | : 2 000 m3/d  |
| <b>Other conditions affecting environmental exposure</b> |               |
| Receiving surface water flow                             | : 18 000 m3/d |
| Local freshwater dilution factor                         | : 10          |
| Local marine water dilution factor                       | : 100         |

### 5.2.2. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

|                                                                                                                                                         |                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Product (article) characteristics</b>                                                                                                                |                                                                |
| Covers percentage substance in the product up to 100 %.                                                                                                 |                                                                |
| Physical form of product                                                                                                                                | : Low volatile liquid                                          |
| <b>Amount used, frequency and duration of use (or from service life)</b>                                                                                |                                                                |
| Duration                                                                                                                                                | : Covers exposure up to 4 hrs                                  |
| <b>Technical and organisational conditions and measures</b>                                                                                             |                                                                |
| Avoid carrying out activities involving exposure for more than 4 hours per day.<br>Assumes a good basic standard of occupational hygiene is implemented |                                                                |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                                                            |                                                                |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.                                                       |                                                                |
| <b>Other conditions affecting workers exposure</b>                                                                                                      |                                                                |
| Indoor or outdoor use                                                                                                                                   | : Indoor                                                       |
| Professional or industrial settings                                                                                                                     | : Professional use                                             |
| Temperature                                                                                                                                             | : Assumes use at not more than 20°C above ambient temperature. |

### 5.2.3. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

|                                                                          |                                        |
|--------------------------------------------------------------------------|----------------------------------------|
| <b>Product (article) characteristics</b>                                 |                                        |
| Covers percentage substance in the product up to 100 %.                  |                                        |
| Physical form of product                                                 | : Low volatile liquid                  |
| <b>Amount used, frequency and duration of use (or from service life)</b> |                                        |
| Duration                                                                 | : Covers daily exposures up to 8 hours |

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| Technical and organisational conditions and measures                                                           |                                                                |
|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| No other specific measures identified.<br>Assumes a good basic standard of occupational hygiene is implemented |                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation                          |                                                                |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.              |                                                                |
| Other conditions affecting workers exposure                                                                    |                                                                |
| Indoor or outdoor use                                                                                          | : Indoor                                                       |
| Temperature                                                                                                    | : Assumes use at not more than 20°C above ambient temperature. |

### 5.2.4. Control of worker exposure: Roller application or brushing (PROC10)

| Product (article) characteristics                                                                 |                                                                |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Covers percentage substance in the product up to 100 %.                                           |                                                                |
| Physical form of product                                                                          | : Low volatile liquid                                          |
| Amount used, frequency and duration of use (or from service life)                                 |                                                                |
| Duration                                                                                          | : Covers daily exposures up to 8 hours                         |
| Technical and organisational conditions and measures                                              |                                                                |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                                                |
| No other specific measures identified.                                                            |                                                                |
| Conditions and measures related to personal protection, hygiene and health evaluation             |                                                                |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                                                |
| Other conditions affecting workers exposure                                                       |                                                                |
| Indoor or outdoor use                                                                             | : Indoor                                                       |
| Temperature                                                                                       | : Assumes use at not more than 20°C above ambient temperature. |

### 5.2.5. Control of worker exposure: Non industrial spraying (PROC11)

| Product (article) characteristics                       |                       |
|---------------------------------------------------------|-----------------------|
| Covers percentage substance in the product up to 100 %. |                       |
| Physical form of product                                | : Low volatile liquid |

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|                                                                                                                                              |                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Amount used, frequency and duration of use (or from service life)</b>                                                                     |                                                                |
| Duration                                                                                                                                     | : Avoid using product more than 4 hrs                          |
| <b>Technical and organisational conditions and measures</b>                                                                                  |                                                                |
| Avoid carrying out activities involving exposure for more than 4 hours per day.                                                              |                                                                |
| Assumes a good basic standard of occupational hygiene is implemented                                                                         |                                                                |
| No other specific measures identified.                                                                                                       |                                                                |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>                                                 |                                                                |
| Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.<br>Wear a respirator conforming to EN140. |                                                                |
| <b>Other conditions affecting workers exposure</b>                                                                                           |                                                                |
| Indoor or outdoor use                                                                                                                        | : Indoor                                                       |
| Temperature                                                                                                                                  | : Assumes use at not more than 20°C above ambient temperature. |

### 5.2.6. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

|                                                                                                   |                                                                |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| <b>Product (article) characteristics</b>                                                          |                                                                |
| Covers percentage substance in the product up to 100 %.                                           |                                                                |
| Physical form of product                                                                          | : Low volatile liquid                                          |
| <b>Amount used, frequency and duration of use (or from service life)</b>                          |                                                                |
| Duration                                                                                          | : Covers daily exposures up to 8 hours                         |
| <b>Technical and organisational conditions and measures</b>                                       |                                                                |
| Assumes a good basic standard of occupational hygiene is implemented                              |                                                                |
| No other specific measures identified.                                                            |                                                                |
| <b>Conditions and measures related to personal protection, hygiene and health evaluation</b>      |                                                                |
| Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. |                                                                |
| <b>Other conditions affecting workers exposure</b>                                                |                                                                |
| Indoor or outdoor use                                                                             | : Indoor                                                       |
| Temperature                                                                                       | : Assumes use at not more than 20°C above ambient temperature. |

### 5.2.7. Control of worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

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| Product (article) characteristics                                                                  |                                                                        |
|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Covers percentage substance in the product up to 100 %.                                            |                                                                        |
| Physical form of product                                                                           | : Low volatile liquid                                                  |
| Amount used, frequency and duration of use (or from service life)                                  |                                                                        |
| Duration                                                                                           | : Avoid carrying out activities involving exposure for more than 1 hrs |
| Technical and organisational conditions and measures                                               |                                                                        |
| Assumes a good basic standard of occupational hygiene is implemented                               |                                                                        |
| Avoid carrying out activities involving exposure for more than 4 hours per day.                    |                                                                        |
| No other specific measures identified.                                                             |                                                                        |
| Conditions and measures related to personal protection, hygiene and health evaluation              |                                                                        |
| Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. |                                                                        |
| Other conditions affecting workers exposure                                                        |                                                                        |
| Indoor or outdoor use                                                                              | : Indoor                                                               |
| Temperature                                                                                        | : Assumes use at not more than 20°C above ambient temperature.         |

### 5.3. Exposure estimation and reference to its source

#### 5.3.1. Environmental release and exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c)

| Release route | Release rate   | Release estimation method |
|---------------|----------------|---------------------------|
| Water         | 4.69E-03kg/day | FEICA SPERC 8c.1b.v1      |
| Air           | 0 kg/day       | FEICA SPERC 8c.1b.v1      |
| Soil          | 0 kg/day       | FEICA SPERC 8c.1b.v1      |

| Compartment            | Exposure level                                         | RCR      |
|------------------------|--------------------------------------------------------|----------|
| Sewage treatment plant | 2.20E-03mg/L (ECETOC TRA environment v2.0)             | 2.20E-04 |
| Freshwater             | 2.21E-04mg/L (ECETOC TRA environment v2.0)             | 3.69E-02 |
| Freshwater sediment    | 1.20E-02mg/kg dry weight (ECETOC TRA environment v2.0) | 1.21E-02 |
| Soil                   | 1.42E-03mg/kg dry weight (ECETOC TRA environment v2.0) | 7.22E-03 |
| Marine water           | 2.34E-05mg/L (ECETOC TRA                               | 2.90E-02 |

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|                 |                                                           |          |
|-----------------|-----------------------------------------------------------|----------|
|                 | environment v2.0)                                         |          |
| Marine sediment | 1.27E-03mg/kg dry weight<br>(ECETOC TRA environment v2.0) | 1.28E-02 |

### 5.3.2. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                    | RCR  |
|-----------------|---------------|--------------------|---------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,84mg/m <sup>3</sup><br>(ECETOC TRA worker v2.0) | 0,07 |
| dermal          | systemic      | long-term          | 0,274mg/kg bw/day<br>(ECETOC TRA worker v2.0)     | 0,03 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                          | 0,10 |

### 5.3.3. Worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities (PROC8b)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                   | RCR  |
|-----------------|---------------|--------------------|--------------------------------------------------|------|
| inhalative      | systemic      | long-term          | 0,7mg/m <sup>3</sup><br>(ECETOC TRA worker v2.0) | 0,06 |
| dermal          | systemic      | long-term          | 0,273mg/kg bw/day<br>(ECETOC TRA worker v2.0)    | 0,03 |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                         | 0,09 |

### 5.3.4. Worker exposure: Roller application or brushing (PROC10)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                           | RCR     |
|-----------------|---------------|--------------------|----------------------------------------------------------|---------|
| inhalative      | systemic      | long-term          | 0.000000005mg/m <sup>3</sup><br>(ECETOC TRA worker v2.0) | < 0,001 |
| dermal          | systemic      | long-term          | 2,743mg/kg bw/day<br>(ECETOC TRA worker v2.0)            | 0,33    |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                                 | 0,33    |

### 5.3.5. Worker exposure: Non industrial spraying (PROC11)

| Exposure route | Health effect | Exposure indicator | Exposure level        | RCR  |
|----------------|---------------|--------------------|-----------------------|------|
| inhalative     | systemic      | long-term          | 0,36mg/m <sup>3</sup> | 0,03 |

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|                 |          |           |                                           |      |
|-----------------|----------|-----------|-------------------------------------------|------|
|                 |          |           | (ECETOC TRA worker v2.0)                  |      |
| dermal          | systemic | long-term | 2,68mg/kg bw/day (ECETOC TRA worker v2.0) | 0,32 |
| combined routes |          |           | (ECETOC TRA worker v2.0)                  | 0,35 |

### 5.3.6. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

| Exposure route  | Health effect | Exposure indicator | Exposure level                             | RCR     |
|-----------------|---------------|--------------------|--------------------------------------------|---------|
| inhalative      | systemic      | long-term          | 0.000006ppm (ECETOC TRA worker v2.0)       | < 0,001 |
| dermal          | systemic      | long-term          | 1,371mg/kg bw/day (ECETOC TRA worker v2.0) | 0,16    |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                   | 0,16    |

### 5.3.7. Worker exposure: Hand-mixing with intimate contact and only PPE available (PROC19)

| Exposure route  | Health effect | Exposure indicator | Exposure level                                        | RCR     |
|-----------------|---------------|--------------------|-------------------------------------------------------|---------|
| inhalative      | systemic      | long-term          | 0.000000002mg/m <sup>3</sup> (ECETOC TRA worker v2.0) | < 0,001 |
| dermal          | systemic      | long-term          | 1,41mg/kg bw/day (ECETOC TRA worker v2.0)             | 0,42    |
| combined routes |               |                    | (ECETOC TRA worker v2.0)                              | 0,42    |

### 5.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

Guidance is based on assumed operating conditions which may not be applicable to all sites; thus, scaling may be necessary to define appropriate site-specific risk management measures.

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### ES6: Consumer application of coatings

#### 6.1. Title section

|                               |                                                                                                                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structured Short Title</b> | : ; Adhesives, sealants (PC1); Consumer uses (SU21).; Coatings and paints, thinners, paint removers (PC9a); Consumer uses (SU21).; Fillers, putties, plasters, modelling clay (PC9b); Consumer uses (SU21). |
| <b>Substance</b>              | : 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane<br><u>EC-No.:</u> 216-823-5<br><u>Registration number:</u><br>01-2119456619-26                                                        |

| Environment |                                                                                                                                                          |              |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| <b>CS1</b>  | <b>Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use resulting in inclusion into or onto a matrix</b> | ERC8c, ERC8f |
| Consumer    |                                                                                                                                                          |              |
| <b>CS2</b>  | <b>Two component glue, Mixing and loading</b>                                                                                                            | PC1          |
| <b>CS3</b>  | <b>Two component glue, Application</b>                                                                                                                   | PC1          |
| <b>CS4</b>  | <b>Coatings and paints, thinners, paint removers, Mixing and loading</b>                                                                                 | PC9a         |
| <b>CS5</b>  | <b>Coatings and paints, thinners, paint removers, Application</b>                                                                                        | PC9a         |
| <b>CS6</b>  | <b>Fillers, putties, plasters, modelling clay, Mixing and loading</b>                                                                                    | PC9b         |
| <b>CS7</b>  | <b>Fillers, putties, plasters, modelling clay, Application</b>                                                                                           | PC9b         |

#### 6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f)

| Product (article) characteristics                                 |                       |
|-------------------------------------------------------------------|-----------------------|
| Covers percentage substance in the product up to 100 %.           |                       |
| Physical form of product                                          | : Low volatile liquid |
| Amount used, frequency and duration of use (or from service life) |                       |
| Annual amount used in the EU                                      | : 1667 tonnes/year    |
| Wide dispersive use                                               | :                     |

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### Other conditions affecting environmental exposure

|                                    |   |                          |
|------------------------------------|---|--------------------------|
| Receiving surface water flow       | : | 18 000 m <sup>3</sup> /d |
| Local freshwater dilution factor   | : | 10                       |
| Local marine water dilution factor | : | 100                      |

### 6.2.2. Control of consumer exposure: Adhesives, sealants (PC1)

#### Product (article) characteristics

Covers concentrations up to 45 %

Physical form of product : Liquid substance

Vapour pressure : Vapour pressure < 0.01 Pa at standard temperature and pressure

#### Amount used, frequency and duration of use (or from service life)

Amount per use : 20 g

Use frequency : Use frequency 3 times per year

#### Conditions and measures related to personal protection, hygiene and health evaluation

No specific measures identified.

#### Other conditions affecting consumers exposure

Body parts exposed : Assumes that potential dermal contact is limited to fingertips.

Indoor or outdoor use : Indoor use

Room size : Assumes a room volume of maximum 20 m<sup>3</sup>

Temperature : 20 °C

### 6.2.3. Control of consumer exposure: Adhesives, sealants (PC1)

#### Product (article) characteristics

Covers concentrations up to 12,25 %

Physical form of product : Liquid substance

Vapour pressure : Vapour pressure < 0.01 Pa at standard temperature and pressure

#### Amount used, frequency and duration of use (or from service life)

Amounts used : 20 g

Use frequency : Use frequency 3 times per year

#### Other conditions affecting consumers exposure

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|                       |                                                                   |
|-----------------------|-------------------------------------------------------------------|
| Body parts exposed    | : Assumes that potential dermal contact is limited to fingertips. |
| Indoor or outdoor use | : Indoor use                                                      |
| Room size             | : Covers use in room size of 20 m3                                |
| Temperature           | : 20 °C                                                           |

**6.2.4. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)**

| Product (article) characteristics                                 |                                                                   |
|-------------------------------------------------------------------|-------------------------------------------------------------------|
| Covers concentrations up to 35 %                                  |                                                                   |
| Physical form of product                                          | : Liquid substance                                                |
| Vapour pressure                                                   | : Vapour pressure < 0.01 Pa at standard temperature and pressure  |
| Amount used, frequency and duration of use (or from service life) |                                                                   |
| For each use event, covers use amounts up to                      | : 2250 g                                                          |
| Use frequency                                                     | : Use frequency 0,33 times per year                               |
| Other conditions affecting consumers exposure                     |                                                                   |
| Body parts exposed                                                | : Assumes that potential dermal contact is limited to fingertips. |
| Indoor or outdoor use                                             | : Indoor use                                                      |
| Temperature                                                       | : 20 °C                                                           |

**6.2.5. Control of consumer exposure: Coatings and paints, thinners, paint removers (PC9a)**

| Product (article) characteristics                                 |                                                                  |
|-------------------------------------------------------------------|------------------------------------------------------------------|
| Covers concentrations up to 12,25 %                               |                                                                  |
| Physical form of product                                          | : Liquid substance                                               |
| Vapour pressure                                                   | : Vapour pressure < 0.01 Pa at standard temperature and pressure |
| Amount used, frequency and duration of use (or from service life) |                                                                  |
| For each use event, covers use amounts up to                      | : 2250 g                                                         |
| Use frequency                                                     | : Use frequency 0,33 times per year                              |
| Other conditions affecting consumers exposure                     |                                                                  |
| Body parts exposed                                                | : Assumes that potential dermal contact is limited to hands.     |
| Indoor or outdoor use                                             | : Indoor use                                                     |
| Room size                                                         | : 20 m3                                                          |

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|             |         |
|-------------|---------|
| Temperature | : 20 °C |
|-------------|---------|

### 6.2.6. Control of consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

#### Product (article) characteristics

Covers concentrations up to 45 %

|                          |                    |
|--------------------------|--------------------|
| Physical form of product | : Liquid substance |
|--------------------------|--------------------|

|                 |                                                                  |
|-----------------|------------------------------------------------------------------|
| Vapour pressure | : Vapour pressure < 0.01 Pa at standard temperature and pressure |
|-----------------|------------------------------------------------------------------|

#### Amount used, frequency and duration of use (or from service life)

|                                              |         |
|----------------------------------------------|---------|
| For each use event, covers use amounts up to | : 200 g |
|----------------------------------------------|---------|

|               |                                  |
|---------------|----------------------------------|
| Use frequency | : Use frequency 2 times per year |
|---------------|----------------------------------|

#### Other conditions affecting consumers exposure

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Body parts exposed | : Assumes that potential dermal contact is limited to fingertips. |
|--------------------|-------------------------------------------------------------------|

|                       |              |
|-----------------------|--------------|
| Indoor or outdoor use | : Indoor use |
|-----------------------|--------------|

|           |         |
|-----------|---------|
| Room size | : 20 m3 |
|-----------|---------|

|             |         |
|-------------|---------|
| Temperature | : 20 °C |
|-------------|---------|

### 6.2.7. Control of consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

#### Product (article) characteristics

Covers concentrations up to 45 %

|                          |                    |
|--------------------------|--------------------|
| Physical form of product | : Liquid substance |
|--------------------------|--------------------|

|                 |                                                                  |
|-----------------|------------------------------------------------------------------|
| Vapour pressure | : Vapour pressure < 0.01 Pa at standard temperature and pressure |
|-----------------|------------------------------------------------------------------|

#### Amount used, frequency and duration of use (or from service life)

|                                              |         |
|----------------------------------------------|---------|
| For each use event, covers use amounts up to | : 200 g |
|----------------------------------------------|---------|

|               |                                  |
|---------------|----------------------------------|
| Use frequency | : Use frequency 2 times per year |
|---------------|----------------------------------|

#### Other conditions affecting consumers exposure

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| Body parts exposed | : Assumes that potential dermal contact is limited to fingertips. |
|--------------------|-------------------------------------------------------------------|

|                       |              |
|-----------------------|--------------|
| Indoor or outdoor use | : Indoor use |
|-----------------------|--------------|

|           |         |
|-----------|---------|
| Room size | : 20 m3 |
|-----------|---------|

|             |         |
|-------------|---------|
| Temperature | : 20 °C |
|-------------|---------|

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### 6.3. Exposure estimation and reference to its source

**6.3.1. Environmental release and exposure: Wide dispersive indoor use resulting in inclusion into or onto a matrix (ERC8c) / Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f)**

| Release route | Release rate   | Release estimation method |
|---------------|----------------|---------------------------|
| Water         | 8.22E-03kg/day | FEICA SPERC 8c.1b.v1      |
| Air           | 0 kg/day       | FEICA SPERC 8c.1b.v1      |
| Soil          |                | FEICA SPERC 8c.1b.v1      |

| Compartment            | Exposure level                                         | RCR      |
|------------------------|--------------------------------------------------------|----------|
| Sewage treatment plant | 3.87E-03mg/L (ECETOC TRA environment v2.0)             | 3.87E-04 |
| Freshwater             | 3.87E-04mg/L (ECETOC TRA environment v2.0)             | 6.46E-02 |
| Freshwater sediment    | 2.11E-02mg/kg dry weight (ECETOC TRA environment v2.0) | 2.12E-02 |
| Soil                   | 2.14E-03mg/kg dry weight (ECETOC TRA environment v2.0) | 1.09E-02 |
| Marine water           | 3.86E-05mg/L (ECETOC TRA environment v2.0)             | 6.44E-02 |
| Marine sediment        | 2.10E-03mg/kg dry weight (ECETOC TRA environment v2.0) | 2.11E-02 |

### 6.3.2. Consumer exposure: Adhesives, sealants (PC1)

| Exposure route  | Health effect | Exposure indicator | Exposure level | RCR     |
|-----------------|---------------|--------------------|----------------|---------|
| inhalative      | systemic      | long-term          | 5.2E-9         | 2.17E-9 |
| dermal          | systemic      | long-term          | 0.00284        | 7.96E-4 |
| combined routes |               |                    |                | 7.96E-4 |

### 6.3.3. Consumer exposure: Adhesives, sealants (PC1)

| Exposure route  | Health effect | Exposure indicator | Exposure level           | RCR     |
|-----------------|---------------|--------------------|--------------------------|---------|
| inhalative      | systemic      | long-term          | 9.18E-8mg/m <sup>3</sup> | 3.76E-8 |
| dermal          | systemic      | long-term          | 0.00155mg/kg bw/day      | 4.34E-4 |
| combined routes |               |                    |                          | 4.34E-4 |

### 6.3.4. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

| Exposure route | Health effect | Exposure | Exposure level | RCR |
|----------------|---------------|----------|----------------|-----|
|----------------|---------------|----------|----------------|-----|

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|                 |          | indicator |                          |         |
|-----------------|----------|-----------|--------------------------|---------|
| inhalative      | systemic | long-term | 2.32E-8mg/m <sup>3</sup> | 9.51E-9 |
| dermal          | systemic | long-term | 0.000243mg/kg<br>bw/day  | 6.81E-5 |
| combined routes |          |           |                          | 6.81E-5 |

### 6.3.5. Consumer exposure: Coatings and paints, thinners, paint removers (PC9a)

| Exposure route  | Health effect | Exposure indicator | Exposure level           | RCR     |
|-----------------|---------------|--------------------|--------------------------|---------|
| inhalative      | systemic      | long-term          | 1.99E-7mg/m <sup>3</sup> | 8.16E-8 |
| dermal          | systemic      | long-term          | 0.00615mg/kg<br>bw/day   | 1.72E-3 |
| combined routes |               |                    |                          | 1.72E-3 |

### 6.3.6. Consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

| Exposure route  | Health effect | Exposure indicator | Exposure level           | RCR     |
|-----------------|---------------|--------------------|--------------------------|---------|
| inhalative      | systemic      | long-term          | 2.60E-8mg/m <sup>3</sup> | 1.07E-8 |
| dermal          | systemic      | long-term          | 7.59E-3mg/kg<br>bw/day   | 2.12E-4 |
| combined routes |               |                    |                          | 2.12E-4 |

### 6.3.7. Consumer exposure: Fillers, putties, plasters, modelling clay (PC9b)

| Exposure route  | Health effect | Exposure indicator | Exposure level           | RCR     |
|-----------------|---------------|--------------------|--------------------------|---------|
| inhalative      | systemic      | long-term          | 1.49E-8mg/m <sup>3</sup> | 6.11E-9 |
| dermal          | systemic      | long-term          | 7.59E-3mg/kg<br>bw/day   | 2.12E-4 |
| combined routes |               |                    |                          | 2.12E-4 |

### 6.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

Predicted exposures are not expected to exceed the applicable exposure limits (given in section 8 of the SDS) when the operational conditions/risk management measures given in section 2 are implemented.

Where other risk management measures/operational conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.