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

1.1 Product identifier

Trade name	:	ARALDITE® MY 740
REACH Registration Number	:	01-2119456619-26
Substance name	:	2,2'-[(1-METHYLETHYLIDENE)BIS(4,1-PHENYLENEOXYMETHYLENE)]BISOXIRANE (PREVIOUSLY: BISPHENOL A EPOXY RESIN (MW<700))
CAS-No.	:	1675-54-3
Index-No.	:	603-074-00-8
EC-No.	:	216-823-5

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

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

ES1: Formulation
ES2: Used as monomer at downstream industrial sites
ES3: Used as chemical intermediate
ES4: Industrial use
ES5: Professional
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 3078 Everberg Belgium
Telephone	:	+41 61 299 20 41
Telefax	:	+41 61 299 20 40
E-mail address of person responsible for the SDS	:	Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number	:	Centres Antipoison et de Toxicovigilance: ANGERS: 02 41 48 21 21 BORDEAUX: 05 56 96 40 80 LILLE: 0 825 812 822 LYON: 04 72 11 69 11 MARSEILLE 04 91 75 25 25 NANCY: 03 83 32 36 36 PARIS: 01 40 05 48 48 RENNES: 02 99 59 22 22 STRASBOURG: 03 88 37 37 37 TOULOUSE: 05 61 77 74 47 EUROPE: +32 35 75 1234

France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1/800/424.9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Warning

Hazard statements :	H315	Causes skin irritation.
	H317	May cause an allergic skin reaction.
	H319	Causes serious eye irritation.
	H411	Toxic to aquatic life with long lasting effects.
Precautionary statements :	**Prevention:**	
	P261	Avoid breathing mist or vapours.
	P264	Wash skin thoroughly after handling.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/ eye protection/ face protection.
	Response:	
	P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
	P391	Collect spillage.

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.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : 2,2'-[(1-METHYLETHYLIDENE)BIS(4,1-PHENYLENEOXYMETHYLENE)]BISOXIRANE (PREVIOUSLY: BISPHENOL A EPOXY RESIN (MW<700))

Index-No. : 603-074-00-8

EC-No. : 216-823-5

Hazardous components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	1675-54-3 216-823-5	>= 90 - <= 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.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

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

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
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.

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
Halogenated compounds

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.

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/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Dispose of rinse water in accordance with local and national regulations.
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.
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.

Further information on storage stability : Stable under normal conditions.

Recommended storage temperature : 2 - 40 °C

7.3 Specific end use(s)

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

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
	Equilibrium method	

	Sewage treatment plant	10 mg/l
Assessment Factors		
	Secondary Poisoning	11 mg/kg

8.2 Exposure controls

Engineering measures

Maintain air concentrations below occupational exposure standards.

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 : Nitrile rubber
Break through time : 10 - 480 min

Material : Neoprene gloves
Break through time : 10 - 480 min

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.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : light 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
Flash point	:	> 200 °C Method: Pensky-Martens closed cup, 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	:	No data is available on the product itself.
Density	:	1,15 - 1,2 g/cm3 (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	:	10 000 - 14 500 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.

10.3 Possibility of hazardous reactions

Hazardous reactions : No hazards to be specially mentioned.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products : carbon dioxide
carbon monoxide
Halogenated compounds

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.

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

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
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

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/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 9,4 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: EPA-660/3-75-009
Toxicity to microorganisms	:	IC50 (activated sludge): > 100 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,3 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211

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

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	:	Class 9 - Miscellaneous dangerous substances and articles
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

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.

SECTION 15: Regulatory information

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

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

REACH - List of substances subject to authorisation - Future sunset date : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57).

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

E2	ENVIRONMENTAL HAZARDS

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

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

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.

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

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

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

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NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED HUNTSMAN EMPLOYEE IS AUTHORIZED TO PROVIDE OR MAKE AVAILABLE DATA SHEETS FOR HUNTSMAN PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE.

Annex to the Safety Data Sheet (eSDS)

ES 1	Formulation; Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) (SU 10).
ES 2	Used as monomer at downstream industrial sites; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).
ES 3	Used as chemical intermediateIntermediate (PC19); Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).
ES 4	Industrial use; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).
ES 5	Professional; Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (SU 22).
ES 6	Consumer application of coatingsAdhesives, sealants (PC1); Consumer uses (SU21).Coatings and paints, thinners, paint removers (PC9a); Consumer uses (SU21).Fillers, putties, plasters, modelling clay (PC9b); Consumer uses (SU21).

ES 1: ; Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) (SU 10).

1.1. Title section

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

Environment		
CS 1	**Formulation of preparations**	ERC2
Worker		
CSCS 2	**Use in closed batch process (synthesis or formulation)**	PROC3
CSCS 3	**Use in batch and other process (synthesis) where opportunity for exposure arises**	PROC4
CSCS 4	**Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities**	PROC8b
CSCS 5	**Transfer of substance or preparation into small containers (dedicated filling line, including weighing)**	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 (or contained in articles), frequency and duration of use/exposure		
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
STP effluent	:	2 000 m3/d
Conditions and measures related to treatment of waste (including article waste)		
Waste treatment	:	Waste gases incinerated.
Waste - minimum efficiency of	:	95 %
Other conditions affecting environmental exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
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 suitable gloves tested to EN374.		
Other conditions affecting workers exposure		
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)

Product (article) characteristics

Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Liquid substance
Amount used (or contained in articles), frequency and duration of use/exposure		
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 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

Protection Target	**Exposure estimate**	**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 environment v2.0)	4.56E-06

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

Exposure route	Health effect	Exposure indicator	Exposure estimate	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 estimate	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 estimate	RCR
inhalative	systemic	long-term	0,1mg/m³ (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 estimate	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

1.4. 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.

ES 2: ; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).

2.1. Title section

Exposure Scenario name	:	Used as monomer at downstream industrial sites
Structured Short Title	:	; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).
Substance	:	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane EC-No.: 216-823-5 Registration number: 01-2119456619-26

Environment		
CS 1	**Industrial use of processing aids in processes and products, not becoming part of articles**	ERC4
Worker		
CSCS 2	**Use in closed process, no likelihood of exposure**	PROC1
CSCS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CSCS 4	**Use in closed batch process (synthesis or formulation)**	PROC3
CSCS 5	**Bulk transfers**	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 (or contained in articles), frequency and duration of use/exposure		
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.
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 (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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

2.2.4. 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 (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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

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

Protection Target	Exposure estimate	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 estimate	RCR
inhalative	systemic	long-term	0,64ppm (ECETOC TRA worker v2.0)	0,05
dermal	systemic	long-term	0,006mg/kg bw/day	0,001

			(ECETOC TRA worker v2.0)	
combined routes			(ECETOC TRA worker v2.0)	0,05

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

Exposure route	Health effect	Exposure indicator	Exposure estimate	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 estimate	RCR
inhalative	systemic	long-term	0,64mg/m³ (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 estimate	RCR
inhalative	systemic	long-term	0,7mg/m³ (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.

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.

ES 3: Intermediate (PC19); Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).

3.1. Title section

Exposure Scenario name	:	Used as chemical intermediate
Structured Short Title	:	Intermediate (PC19); Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).
Substance	:	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane EC-No.: 216-823-5 Registration number: 01-2119456619-26

Environment		
CS 1	**Use as an intermediate**	ERC6a
Worker		
CSCS 2	**Use in closed process, no likelihood of exposure**	PROC1
CSCS 3	**Use in closed, continuous process with occasional controlled exposure**	PROC2
CSCS 4	**Use in closed batch process (synthesis or formulation)**	PROC3
CSCS 5	**Bulk transfers**	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 (or contained in articles), frequency and duration of use/exposure		
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
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 (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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

3.2.4. 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 (or contained in articles), frequency and duration of use/exposure		
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
Amount used (or contained in articles), frequency and duration of use/exposure		
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

Protection Target	Exposure estimate	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 estimate	RCR
inhalative	systemic	long-term	0,14ppm (ECETOC TRA worker v2.0)	0,01
dermal	systemic	long-term	0,006mg/kg bw/day (ECETOC TRA worker v2.0)	0,001
combined routes			(ECETOC TRA 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 estimate	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

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

Exposure route	Health effect	Exposure indicator	Exposure estimate	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

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 estimate	RCR
inhalative	systemic	long-term	0,7ppm (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

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.
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.

ES 4: ; Industrial uses: Uses of substances as such or in preparations at industrial sites (SU 3).

4.1. Title section

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

Environment		
CS 1	**Industrial use**	ERC5
Worker		
CSCS 2	**Spraying**	PROC7
CSCS 3	**Material transfers**	PROC8b
CSCS 4	**Rolling, Brushing**	PROC10
CSCS 5	**Dipping, immersion and pouring**	PROC13
CSCS 6	**Laboratory activities**	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 (or contained in articles), frequency and duration of use/exposure		
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
STP effluent	:	2 000 m3/d
Other conditions affecting environmental exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
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 respiratory protection when its use is identified for certain contributing scenarios.		
Wear suitable gloves tested to EN374.		
Other conditions affecting workers exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		

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

4.2.4. 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 (or contained in articles), frequency and duration of use/exposure		
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

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

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		

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

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 (or contained in articles), frequency and duration of use/exposure		
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

Protection Target	Exposure estimate	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 estimate	RCR
inhalative	systemic	long-term	0,14mg/m³ (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 estimate	RCR
inhalative	systemic	long-term	0,7mg/m³ (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	Exposure	RCR

		indicator	estimate	
inhalative	systemic	long-term	0.00045mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	2,743mg/kg bw/day (ECETOC TRA worker v2.0)	0,33
combined routes			(ECETOC TRA 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 estimate	RCR
inhalative	systemic	long-term	0,64ppm (ECETOC TRA worker v2.0)	0,05
dermal	systemic	long-term	0,274mg/kg bw/day (ECETOC TRA worker v2.0)	0,03
combined routes			(ECETOC TRA worker v2.0)	0,09

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

Exposure route	Health effect	Exposure indicator	Exposure estimate	RCR
inhalative	systemic	long-term	0.000006mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	0,07mg/kg bw/day (ECETOC TRA worker v2.0)	0,01
combined routes			(ECETOC TRA 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.

ES 5: ; Professional uses: Public domain (administration, education, entertainment, services, craftsmen) (SU 22).

5.1. Title section

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

Environment		
CS 1	**Wide dispersive indoor use resulting in inclusion into or onto a matrix**	ERC8c
Worker		
CSCS 2	**Drum/batch transfers**	PROC8a
CSCS 3	**Material transfers**	PROC8b
CSCS 4	**Rolling, Brushing**	PROC10
CSCS 5	**Spraying**	PROC11
CSCS 6	**Dipping, immersion and pouring**	PROC13
CSCS 7	**Hand-mixing with intimate contact and only PPE available**	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 (or contained in articles), frequency and duration of use/exposure		
Amount per use	:	47526 tonnes/year

Wide dispersive use	:	
Conditions and measures related to sewage treatment plant		
STP type	:	Municipal sewage treatment plant
STP effluent	:	2 000 m3/d
Other conditions affecting environmental exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Covers exposure up to 4 hrs
Technical and organisational conditions and measures		
Avoid carrying out activities involving exposure for more than 4 hours per day. 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	:	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)

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

Amount used (or contained in articles), frequency and duration of use/exposure		
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
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 (or contained in articles), frequency and duration of use/exposure		
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
Amount used (or contained in articles), frequency and duration of use/exposure		
Duration	:	Avoid using product more than 4 hrs
Technical and organisational conditions and measures		
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.		
Conditions and measures related to personal protection, hygiene and health evaluation		
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training. Wear a respirator conforming to EN140.		
Other conditions affecting workers exposure		
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)

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
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.

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

Product (article) characteristics		
Covers percentage substance in the product up to 100 %.		
Physical form of product	:	Low volatile liquid
Amount used (or contained in articles), frequency and duration of use/exposure		
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

Protection Target	Exposure estimate	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 environment v2.0)	2.90E-02
Marine sediment	1.27E-03mg/kg dry weight (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 estimate	RCR
inhalative	systemic	long-term	0,84mg/m³ (ECETOC TRA worker v2.0)	0,07
dermal	systemic	long-term	0,274mg/kg bw/day (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 estimate	RCR
inhalative	systemic	long-term	0,7mg/m³ (ECETOC TRA worker v2.0)	0,06
dermal	systemic	long-term	0,273mg/kg bw/day (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 estimate	RCR
inhalative	systemic	long-term	0.000000005mg/m³ (ECETOC TRA worker v2.0)	< 0,001
dermal	systemic	long-term	2,743mg/kg bw/day (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 estimate	RCR
inhalative	systemic	long-term	0,36mg/m³ (ECETOC TRA worker v2.0)	0,03
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 estimate	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 estimate	RCR
inhalative	systemic	long-term	0.000000002mg/m³ (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.

ES 6: 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).

6.1. Title section

Exposure Scenario name	:	Consumer application of coatings
Structured Short Title	:	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).
Substance	:	2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane EC-No.: 216-823-5 Registration number: 01-2119456619-26

Environment		
CS 1	**Wide dispersive indoor use resulting in inclusion into or onto a matrix, Wide dispersive outdoor use resulting in inclusion into or onto a matrix**	ERC8c, ERC8f
Consumer		
CS 2	**Two component glue, Mixing and loading**	PC1
CS 3	**Two component glue, Application**	PC1
CS 4	**Coatings and paints, thinners, paint removers, Mixing and loading**	PC9a
CS 5	**Coatings and paints, thinners, paint removers, Application**	PC9a
CS 6	**Fillers, putties, plasters, modelling clay, Mixing and loading**	PC9b
CS 7	**Fillers, putties, plasters, modelling clay, Application**	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 (or contained in articles), frequency and duration of use/exposure		
Annual amount used in the EU	:	1667 tonnes/year
Wide dispersive use	:	
Other conditions affecting environmental exposure		
Receiving surface water flow	:	18 000 m3/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 (or contained in articles), frequency and duration of use/exposure		
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 m3
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 (or contained in articles), frequency and duration of use/exposure		
Amounts used	:	20 g
Use frequency	:	Use frequency 3 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	:	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 (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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
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 (or contained in articles), frequency and duration of use/exposure		
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 (or contained in articles), frequency and duration of use/exposure		
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

6.3. 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

Protection Target	Exposure estimate	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 estimate	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 estimate	RCR
inhalative	systemic	long-term	9.18E-8mg/m³	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 indicator	Exposure estimate	RCR
inhalative	systemic	long-term	2.32E-8mg/m³	9.51E-9
dermal	systemic	long-term	0.000243mg/kg 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 estimate	RCR
inhalative	systemic	long-term	1.99E-7mg/m³	8.16E-8
dermal	systemic	long-term	0.00615mg/kg 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 estimate	RCR
inhalative	systemic	long-term	2.60E-8mg/m³	1.07E-8
dermal	systemic	long-term	7.59E-3mg/kg 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 estimate	RCR
inhalative	systemic	long-term	1.49E-8mg/m³	6.11E-9
dermal	systemic	long-term	7.59E-3mg/kg 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.