

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

Bardac™ 22

Version 1.10

Revision Date 25.02.2022

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

1.1 Product identifier

Product name : Bardac™ 22

Unique Formula Identifier (UFI) : K3JX-N821-Y00V-6JFF

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

Use of the Substance/Mixture : Active ingredient for biocidal products, Active ingredient for medical devices

1.3 Details of the supplier of the safety data sheet

Company : **Arxada Ltd**
Muenchensteinerstrasse 38
CH-4002 Basel
Switzerland
Business Telephone: +41 61 316 81 11

YOU Solutions Germany GmbH
Nattermannallee 1
DE-50829 Köln, Germany
Business Telephone: + 49 221 99 1990

E-mail address / Responsible/issuing person : sds-info@arxada.com

1.4 Emergency telephone number

Emergency telephone number : +41 61 313 94 94 (24h)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Acute toxicity, Category 4	H302: Harmful if swallowed.
Skin corrosion, Sub-category 1B	H314: Causes severe skin burns and eye damage.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

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2.2 Label elements

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms



Signal word

: Danger

Hazard statements

: H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H336 May cause drowsiness or dizziness.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

: **Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P260 Do not breathe mist or vapours.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

Didecyldimethylammonium chloride
Propan-2-ol

2.3 Other hazards

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

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

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

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. REACH Registration Number	Classification	Concentration (% w/w)
Didecyldimethylammonium chloride	7173-51-5 230-525-2 612-131-00-6 01-2119945987-15-XX XX	Acute Tox. 3; H301 Skin Corr. 1B - Corrosive; H314 Eye Dam. 1; H318 Aquatic Acute 1; H400 Aquatic Chronic 2; H411	>= 50 - < 70
		M-Factor (Acute aquatic toxicity): 10	
Propan-2-ol Isopropanol	67-63-0 200-661-7 603-117-00-0 01-2119457558-25-XX XX	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336 (Central nervous system)	>= 19 - < 25

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- If inhaled :
- Move to fresh air.
 - If unconscious, place in recovery position and seek medical advice.
 - If breathing is irregular or stopped, administer artificial respiration.
 - Call a physician or poison control centre immediately.
 - Keep respiratory tract clear.
- In case of skin contact :
- After contact with skin, wash immediately with plenty of soap and water.
 - Take off contaminated clothing and shoes immediately.
 - Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
 - Take victim immediately to hospital.
- In case of eye contact :
- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 - Remove contact lenses.
 - Protect unharmed eye.
 - Keep eye wide open while rinsing.
 - Continue rinsing eyes during transport to hospital.
 - Small amounts splashed into eyes can cause irreversible tissue damage and blindness.

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If swallowed	:	Clean mouth with water and drink afterwards plenty of water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.
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4.2 Most important symptoms and effects, both acute and delayed

Symptoms	:	No information available.
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4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Treat symptomatically.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Dry chemical
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Unsuitable extinguishing media	:	High volume water jet
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5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Heating or fire can release toxic gas. Do not allow run-off from fire fighting to enter drains or water courses.
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Hazardous combustion products	:	Carbon oxides (COx) Nitrogen oxides (NOx) Hydrogen chloride (HCl)
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5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
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Further information	:	Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Remove all sources of ignition. Evacuate personnel to safe areas. Use respirator when performing operations involving potential exposure to vapour of the product. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
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6.2 Environmental precautions

Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.
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6.3 Methods and material for containment and cleaning up

- Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Non-sparking tools should be used.

6.4 Reference to other sections

For personal protection see section 8.

For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges.
- Hygiene measures : Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke.
- Temperature class : T2

7.2 Conditions for safe storage, including any incompatibilities

- Requirements for storage areas and containers : Keep container tightly closed. Keep in a well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards. To maintain product quality, do not store in heat or direct sunlight. No smoking.
- Further information on storage stability : No decomposition if stored and applied as directed.

7.3 Specific end use(s)

- Specific use(s) : No information available.

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Propan-2-ol	67-63-0	TWA	400 ppm 999 mg/m ³	EH40 WEL
		STEL	500 ppm 1 250 mg/m ³	EH40 WEL
			200 ppm	ACGIH
			400 ppm	ACGIH

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Didecyldimethylammonium chloride	Workers	Inhalation	Long-term systemic effects	5,39 mg/m ³
	Workers	Inhalation	Acute systemic effects	5,39 mg/m ³
	Workers	Dermal	Long-term systemic effects	1,55 mg/kg
	Workers	Dermal	Acute systemic effects	1,55 mg/kg
Propan-2-ol	Workers	Dermal	Long-term systemic effects	888 mg/kg
	Workers	Inhalation	Long-term systemic effects	500 mg/m ³
	Consumers	Dermal	Long-term systemic effects	319 mg/kg
	Consumers	Inhalation	Long-term systemic effects	89 mg/m ³
	Consumers	Oral	Long-term systemic effects	26 mg/kg

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

Substance name	Environmental Compartment	Value
Didecyldimethylammonium chloride	Fresh water	0,002 mg/l
	Marine water	0,0002 mg/l
	Fresh water sediment	2,82 mg/kg
	Marine sediment	0,28 mg/kg
	Sewage treatment plant	0,595 mg/l
	Soil	1,4 mg/kg
Propan-2-ol	Fresh water	140,9 mg/l
	Intermittent use/release	140,9 mg/l
	Marine water	140,9 mg/l
	Sewage treatment plant	2251 mg/l
	Fresh water sediment	552 mg/kg
	Marine sediment	552 mg/kg
	Soil	28 mg/kg
	Sewage treatment plant	2251 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye protection

: Safety glasses with side-shields conforming to EN166
Wear face-shield and protective suit for abnormal processing problems.

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Hand protection

Material	:	butyl-rubber
Break through time	:	> 480 min
Glove thickness	:	0,7 mm

Material	:	Nitrile rubber
Break through time	:	> 30 min
Glove thickness	:	0,4 mm

Remarks	:	Wear protective gloves. Break through time : > 480 min The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
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Skin and body protection	:	Choose body protection according to the amount and concentration of the dangerous substance at the work place.
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Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter. Respirator with ABEK filter.
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Respirator with a vapour filter (EN 141)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	light yellow
Odour	:	solvent-like
Odour Threshold	:	no data available
Melting point/range	:	< 0 °C
Solidification / Setting point	:	< -15 °C
Boiling point/boiling range	:	82 °C Solvent
Flammability	:	no data available
Upper explosion limit / upper flammability limit	:	max. 12,7 %(V) Solvent
Lower explosion limit / Lower flammability limit	:	min. 2 %(V) Solvent
Flash point	:	29 °C Method: DIN 51755 Part 1, closed cup
Auto-ignition temperature	:	350 °C (104,7 kPa)

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Method: Council Regulation (EC) No. 440/2008, A.15
GLP: yes

Decomposition temperature	
Decomposition temperature	: > 400 °C
pH	: 6,5 - 8 (20 °C) Concentration: 10 g/l
Viscosity	
Viscosity, dynamic	: 25 mPa.s (20 °C)
Viscosity, kinematic	: 24,5 mm2/s (20 °C) Method: OECD Test Guideline 114 GLP: yes
Solubility(ies)	
Water solubility	: completely miscible (20 °C)
Partition coefficient: n-octanol/water	: Not applicable
Vapour pressure	: 43 hPa Solvent
Relative density	: no data available
Density	: 0,908 g/cm3
Bulk density	: no data available
Relative vapour density	: 2,1 Solvent
Particle characteristics	: no data available

9.2 Other information

Explosives	: No hazards to be specially mentioned.
Oxidizing properties	: no data available The substance or mixture is not classified as oxidizing.
Self-ignition	: no data available
Evaporation rate	: no data available
Conductivity	: 8 850 µS/cm at 20 °C
Minimum ignition energy	: no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No decomposition if stored and applied as directed.

Bardac™ 22**10.2 Chemical stability**

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Stable under recommended storage conditions.

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Oxidizing agents

10.6 Hazardous decomposition products

No decomposition if used as directed.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Acute oral toxicity : Acute toxicity estimate: 457,69 mg/kg
Method: Calculation method

Acute inhalation toxicity : Remarks: no data available

Skin corrosion/irritation

Species: Rabbit
Exposure time: 4 h
Method: OECD Test Guideline 404
Result: Causes burns.
GLP: yes

Serious eye damage/eye irritation

Remarks: no data available

Respiratory or skin sensitisation

Remarks: no data available

Germ cell mutagenicity

Genotoxicity in vitro : Remarks: no data available

Carcinogenicity

Result: no data available

Reproductive toxicity

Effects on fertility : Remarks: no data available

Bardac™ 22**STOT - single exposure**

Remarks: no data available

STOT - repeated exposure

Remarks: no data available

Aspiration toxicity

No aspiration toxicity classification

11.2 Information on other hazards**Endocrine disrupting properties**

Assessment

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

Further information

Remarks: no data available

Remarks: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.

Remarks: Ingestion may cause nausea, vomiting, sore throat, stomach-ache and eventually lead to a perforation of the intestine.
Solvents may degrease the skin.

The following toxicological data refer to:**Didecyldimethylammonium chloride** (CAS-No.: 7173-51-5)**Acute toxicity**

Acute oral toxicity

: LD50 (Rat): 238 mg/kg
Method: OECD Test Guideline 401
GLP: yes

Acute dermal toxicity

: LD50 (Rabbit): 3 342 mg/kg

Skin corrosion/irritation

Species: Rabbit
Exposure time: 3 min
Assessment: Causes burns.
Method: OECD Test Guideline 404
Result: Mild skin irritation
GLP: yes

Respiratory or skin sensitisation

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Test Type: Buehler Test
Species: Guinea pig
Assessment: Did not cause sensitisation on laboratory animals.
Method: US-EPA
Result: not sensitizing
GLP: yes

Test Type: Buehler Test
Species: Guinea pig
Method: OECD Test Guideline 406
Result: not sensitizing

Germ cell mutagenicity

Genotoxicity in vitro

- : Test Type: Ames test
Species: Salmonella typhimurium
Metabolic activation: yes
Method: OECD Test Guideline 471
Result: negative
GLP: yes
- : Test Type: Chromosome aberration test in vitro
Species: Chinese hamster ovary cells
Metabolic activation: yes
Result: negative
GLP: yes
- : Test Type: gene mutation test
Species: Chinese hamster ovary cells
Metabolic activation: yes
Result: negative
GLP: yes

Genotoxicity in vivo

- : Test Type: Chromosome aberration test in vivo
Species: Rat
Application Route: Oral
Dose: 600 mg/kg
Method: OECD Test Guideline 475
Result: negative
GLP: yes

Reproductive toxicity

Effects on fertility

- : Remarks: no data available

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish

- : Remarks: no data available

12.2 Persistence and degradability

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Biodegradability : Result: no data available

12.3 Bioaccumulative potential

Bioaccumulation : Remarks: no data available

12.4 Mobility in soil

Distribution among environmental compartments : Remarks: no data available

12.5 Results of PBT and vPvB assessment

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

12.6 Endocrine disrupting properties

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

12.7 Other adverse effects

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

The following ecotoxicological data refer to:**The following ecotoxicological data refer to:**

Didecyldimethylammonium chloride(CAS-No.: 7173-51-5)

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0,19 mg/l
Exposure time: 96 h
Analytical monitoring: yes
Method: US-EPA
GLP: yes

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,062 mg/l
Exposure time: 48 h
Test Type: Immobilization
Analytical monitoring: yes
Method: EPA-FIFRA
GLP: yes

NOEC (Daphnia magna (Water flea)): 0,014 mg/l
Exposure time: 21 d
Remarks: Geometric mean of multiple studies of equivalent

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	relevance/quality (EU Active Substance Assessment Report, June 2015).
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 0,026 mg/l Exposure time: 96 h Test Type: Growth inhibition Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	: 10
Toxicity to fish (Chronic toxicity)	: NOEC: 0,032 mg/l Exposure time: 34 d Species: Danio rerio (zebra fish) Analytical monitoring: yes Method: OECD Test Guideline 210 GLP: yes
Toxicity to microorganisms	: EC50 (activated sludge): 11 mg/l Exposure time: 3 h Test Type: Respiration inhibition Method: OECD Test Guideline 209 GLP: yes
Toxicity to soil dwelling organisms	: Test Type: Acute toxicity NOEC: >= 1 000 mg/kg Exposure time: 14 d Species: Eisenia fetida (earthworms) Method: OECD Test Guideline 207 GLP:yes
Plant toxicity	: EC50: 283 - 1 670 mg/kg Exposure time: 14 d End point: Growth inhibition Method: OECD Test Guideline 208
Biodegradability	: Test Type: Modified Sturm Test Concentration: 10 mg/l Result: Readily biodegradable. Biodegradation: 72 % Exposure time: 28 d Method: OECD Test Guideline 301B GLP: yes Test Type: Die-Away Test Concentration: 0,016 mg/l Biodegradation: 93,3 % Exposure time: 28 d GLP: yes Test Type: OECD Confirmatory Test Biodegradation: 91 % Exposure time: 24 - 70 d Method: OECD Test Guideline 303A GLP: no

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Remarks: This surfactant complies with the biodegradability criteria as laid down in Regulation (EC) No.648/2004 on detergents. Data to support this assertion are held at the disposal of the competent authorities of the Member States and will be made available to them, at their direct request or at the request of a detergent manufacturer.

Stability in water : Test Type: Abiotic degradation
hydrolytically stable
Method: EPA-FIFRA
GLP: yes

Distribution among environmental compartments : Mobile in soils
Method: US-EPA

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents/container in accordance with local regulation.
Contact waste disposal services.
Do not dispose of waste into sewer.
The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

IATA

14.1 UN number : 2920
14.2 Proper shipping name : Corrosive liquid, flammable, n.o.s.
(Didecyltrimethylammonium chloride, Isopropanol)
14.3 Transport hazard class : 8
14.4 Packing group : II
Labels : 8 (3)
14.5 Environmental hazards : no

IMDG-CODE

14.1 UN number : 2920
14.2 Proper shipping name : Corrosive liquid, flammable, n.o.s.
(Didecyltrimethylammonium chloride, Isopropanol)
14.3 Transport hazard class : 8
14.4 Packing group : II
Labels : 8 (3)
EmS Number 1 : F-E
EmS Number 2 : S-C
14.5 Environmental hazards : Marine pollutant: yes

Bardac™ 22**ADR**

14.1	UN number	: 2920
14.2	Proper shipping name	: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Didecyldimethylammonium chloride, Isopropanol)
14.3	Transport hazard class	: 8
14.4	Packing group	: II
	Classification Code	: CF1
	Hazard Identification Number	: 83
	Labels	: 8 (3)
14.5	Environmental hazards	: yes

RID

14.1	UN number	: 2920
14.2	Proper shipping name	: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Didecyldimethylammonium chloride, Isopropanol)
14.3	Transport hazard class	: 8
14.4	Packing group	: II
	Classification Code	: CF1
	Hazard Identification Number	: 83
	Labels	: 8 (3)
14.5	Environmental hazards	: yes

DOT

14.1	UN number	: 2920
14.2	Proper shipping name	: Corrosive liquids, flammable, n.o.s. (Didecyldimethylammonium chloride, Isopropanol)
14.3	Transport hazard class	: 8
14.4	Packing group	: II
	Labels	: 8 (3)
	Emergency Response Guidebook Number	: 132
14.5	Environmental hazards	: no

TDG

14.1	UN number	: 2920
14.2	Proper shipping name	: CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Didecyldimethylammonium chloride, Isopropanol)
14.3	Transport hazard class	: 8
14.4	Packing group	: II
	Labels	: 8 (3)
14.5	Environmental hazards	: yes

14.6 Special precautions for user

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

14.7 Maritime transport in bulk according to IMO instruments

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Not applicable for product as supplied.

SECTION 15: Regulatory information

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

Relevant EU provisions transposed through retained EU law

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

		Quantity 1	Quantity 2
P5c	FLAMMABLE LIQUIDS	5 000 t	50 000 t
E1	ENVIRONMENTAL HAZARDS	100 t	200 t

National regulatory information

Water hazard class (Germany) : WGK 2 obviously hazardous to water
Remarks: Classification according to AwSV, Annex 1 (5.2)

15.2 Chemical safety assessment

This information is not available.

SECTION 16: Other information
Classification of the mixture:

Flam. Liq. 3	H226
Acute Tox. 4	H302
Skin Corr. 1B	H314
Eye Dam. 1	H318
STOT SE 3	H336
Aquatic Acute 1	H400
Aquatic Chronic 2	H411

Classification procedure:

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

Full text of H-Statements

H225	: Highly flammable liquid and vapour.
H301	: Toxic if swallowed.
H314	: Causes severe skin burns and eye damage.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H336	: May cause drowsiness or dizziness.
H400	: Very toxic to aquatic life.
H411	: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Flam. Liq.	: Flammable liquids
Skin Corr.	: Skin corrosion
STOT SE	: Specific target organ toxicity - single exposure
ACGIH	: US. ACGIH Threshold Limit Values
EH40 WEL	: UK. EH40 Workplace Exposure Limits (WELs), as amended
ACGIH / STEL	: Short term exposure limit
ACGIH / TWA	: Time weighted average

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; ATE - Acute Toxicity Estimate; AwSV - Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen / Ordinance on facilities for handling substances that are hazardous to water; BPR – Biocidal Product Regulation; bw - Body weight; CAS - Chemical Abstract Service; CLP - Classification Labelling Packaging Regulation, Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DNEL-Derived No Effect Level; DOT - Department of Transportation; EC – European Community; ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; EmS (Emergency Response Procedures for Ships Carrying Dangerous Goods); EN – European Standard; ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; EU OEL - European Occupational Exposure Limit; GHS -Globally Harmonized System of Classification and Labelling of Chemicals; GLP - Good Laboratory Practice; GV – Danish Exposure Limits for Substances and Materials; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; IMDG - International Maritime Dangerous Goods; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); LOFT - Danish Threshold Limit Value; MAK - German Threshold Limit

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Value; MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NIOSH/Guide – National Institute of Safety and Health Guidebook; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NTP - National Toxicology Program; OECD - Organization for Economic Co-operation and Development; PBT - Persistent, Bioaccumulative and Toxic substance; PEL - Permissible Exposure Limit; PNEC - Predicted no Effect Concentration; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; REL - Recommended Exposure Limit; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; STEL - Short-Term Exposure Limit; TDG - Transportation of Dangerous Goods; TGG – Dutch Threshold Limit Value; TGV – Swedish OEL; TLV Threshold Limit Value; TLV-C - Threshold Limit Value Ceiling; TWA -Time Weighted Average; UDS - Unscheduled DNA Synthesis; UN - United Nations; VLE - Valeurs limites d'exposition professionnelle aux agents chimiques en France; VME - Valeur (Limite) Moyenne d'Exposition; VOC - Volatile Organic Compound[s]; WEEL - Workplace Environmental Exposure Level; % w/w Percent weight by weight; %(V) Percent Volume

Further information

Date format : dd.mm.yyyy

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GB / EN

Bardac™ 22**Annex**

Annex**Lead substance(s)**

Chemical name	CAS-No. EC-No.
Propan-2-ol	67-63-0 200-661-7
Didecyldimethylammonium chloride	7173-51-5 230-525-2

Lead substance(s) : Propan-2-ol

Lead substance(s) : Propan-2-ol

Exposure Scenario

Number	Title
ES1	Formulation or re-packing, General exposures
ES2	Use at industrial sites, General exposures
ES3	Use at industrial sites
ES4	Use at industrial sites
ES5	Widespread use by professional workers, General exposures
ES6	Widespread use by professional workers
ES7	Widespread use by professional workers
ES8	Consumer use
ES9	Consumer use

Lead substance(s) : Propan-2-ol

ES1: Formulation or re-packing, General exposures

1.1. Title section

Environment		
CS1	Formulation into mixture	ERC2
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in closed batch process (synthesis or formulation)	PROC3
CS5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS8	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS10	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS11	Use as laboratory reagent	PROC15

1.2. Conditions of use affecting exposure

1.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Remarks	: No hazards resulting from the material as supplied.
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1.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	

Lead substance(s) : Propan-2-ol

Duration	: Covers daily exposures up to 8 hours
Technical and organisational conditions and measures	
Handle substance within a closed system.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Professional or industrial settings	: Use in closed process, no likelihood of exposure
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system., Ensure material transfers are under containment or extract ventilation.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours

Lead substance(s) : Propan-2-ol

Technical and organisational conditions and measures	
Handle substance within a closed system., Ensure material transfers are under containment or extract ventilation.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Professional or industrial settings	: Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur.	
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	: Covers use at ambient temperatures.

1.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

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	
Provide extract ventilation to points where emissions occur.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur., Use drum pumps.	
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	: Covers use at ambient temperatures.

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

Product (article) characteristics

Lead substance(s) : Propan-2-ol

Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Ensure material transfers are under containment or extract ventilation., Clear transfer lines prior to de-coupling.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Fill containers/cans at dedicated fill points supplied with local extract ventilation.	
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	: Covers use at ambient temperatures.

1.2.10. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Lead substance(s) : Propan-2-ol

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a predominantly closed system provided with extract ventilation.	
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	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle in a fume cupboard or under extract ventilation.	
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	: Covers use at ambient temperatures.

Lead substance(s) : Propan-2-ol

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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1.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	0,01 mg/m ³ (ECETOC TRA worker v3)	0,00
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,00

1.3.3. 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	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	25 mg/m ³ (ECETOC TRA worker v3)	0,12
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,12

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

Lead substance(s) : Propan-2-ol

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	20 mg/m ³ (ECETOC TRA worker v3)	0,10
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

1.3.6. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

1.3.7. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,27

1.3.8. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

Lead substance(s) : Propan-2-ol

1.3.9. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

1.3.10. Worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	3,43 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

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

Not applicable

Lead substance(s) : Propan-2-ol

ES2: Use at industrial sites, General exposures

2.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in closed batch process (synthesis or formulation)	PROC3
CS5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS7	Industrial spraying	PROC7
CS8	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS9	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS10	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS11	Roller application or brushing	PROC10
CS12	Treatment of articles by dipping and pouring	PROC13
CS13	Production of preparations or articles by tableting, compression, extrusion, pelletisation	PROC14
CS14	Use as laboratory reagent	PROC15
CS15	Lubrication at high energy conditions and in partly open process	PROC17
CS16	Greasing at high energy conditions	PROC18

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)

Remarks : No hazards resulting from the material as supplied.

2.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Lead substance(s) : Propan-2-ol

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system.	
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	: Covers use at ambient temperatures.
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system.	
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

Lead substance(s) : Propan-2-ol

Temperature	: Covers use at ambient temperatures.
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system., Provide extract ventilation to points where emissions occur.	
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	: Covers use at ambient temperatures.
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur., Use drum pumps.	

Lead substance(s) : Propan-2-ol

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	: Covers use at ambient temperatures.
Remarks	: Advanced (industrial) exposure controls assumed

2.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur., Use drum pumps.	
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	: Covers use at ambient temperatures.
Remarks	: Advanced (industrial) exposure controls assumed

2.2.7. Control of worker exposure: Industrial spraying (PROC7)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Use frequency	: Avoid using product more than 4 hours/day
Technical and organisational conditions and measures	
Provide extract ventilation to points where emissions occur., Use drum pumps., Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Use suitable eye protection.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Use frequency	: Avoid using product more than 4 hours/day
Technical and organisational conditions and measures	
Transfer via enclosed lines., Provide enhanced general ventilation by mechanical means., Use drum pumps.	
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

Lead substance(s) : Propan-2-ol

Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Use frequency	: Avoid using product more than 4 hours/day
Technical and organisational conditions and measures	
Transfer via enclosed lines., Provide enhanced general ventilation by mechanical means., Use drum pumps.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Use frequency	: Avoid using product more than 4 hours/day
Technical and organisational conditions and measures	
Provide enhanced general ventilation by mechanical means., Transfer via enclosed lines., Use drum pumps.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 50 %
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide enhanced general ventilation by mechanical means., Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Lead substance(s) : Propan-2-ol

Remarks	: Advanced (industrial) exposure controls assumed
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2.2.12. Control of worker exposure: Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide enhanced general ventilation by mechanical means., Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings., Ensure material transfers are under containment or extract ventilation.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

2.2.13. Control of worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min

Lead substance(s) : Propan-2-ol

Technical and organisational conditions and measures	
Provide extract ventilation to points where emissions occur.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Use suitable eye protection.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 15 minutes/day
Technical and organisational conditions and measures	
Provide extract ventilation to points where emissions occur.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Use suitable eye protection.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

Lead substance(s) : Propan-2-ol

2.2.15. Control of worker exposure: Lubrication at high energy conditions and in partly open process (PROC17)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur., Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Use suitable eye protection.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

2.2.16. Control of worker exposure: Greasing at high energy conditions (PROC18)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur., Minimise exposure by extracted full enclosure for the operation or equipment.	

Lead substance(s) : Propan-2-ol

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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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2.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	20 mg/m ³ (ECETOC TRA worker v3)	0,1
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,1

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	10 mg/m ³ (ECETOC TRA worker v3)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

Lead substance(s) : Propan-2-ol

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	25 mg/m ³ (ECETOC TRA worker v3)	0,12
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,12

2.3.5. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,51

2.3.6. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

2.3.7. Worker exposure: Industrial spraying (PROC7)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	75 mg/m ³ (ECETOC TRA worker v3)	0,40
dermal	systemic	long-term	42,86 mg/kg bw/day (ECETOC TRA worker v3)	0
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,40

Lead substance(s) : Propan-2-ol

2.3.8. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,27

2.3.9. 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	150 mg/m ³ (ECETOC TRA worker v3)	0,74
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,75

2.3.10. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

2.3.11. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v3)	0,03

Lead substance(s) : Propan-2-ol

combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,28
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2.3.12. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

2.3.13. Worker exposure: Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	3,43 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

2.3.15. Worker exposure: Lubrication at high energy conditions and in partly open process (PROC17)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00

Lead substance(s) : Propan-2-ol

combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25
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2.3.16. Worker exposure: Greasing at high energy conditions (PROC18)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,40
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,40

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

Not applicable

Lead substance(s) : Propan-2-ol

ES3: Use at industrial sites

3.1. Title section

Structured Short Title	: Use at industrial sitesWater treatment chemicals (PC37)
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Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in closed batch process (synthesis or formulation)	PROC3
CS5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS8	Treatment of articles by dipping and pouring	PROC13

3.2. Conditions of use affecting exposure

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

Remarks	: No hazards resulting from the material as supplied.
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3.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	

Lead substance(s) : Propan-2-ol

Store substance within a closed system.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Transfer via enclosed lines., Clear transfer lines prior to de-coupling.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.

Lead substance(s) : Propan-2-ol

Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Technical and organisational conditions and measures	
Drain or remove substance from equipment prior to break-in or maintenance.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374.	

Lead substance(s) : Propan-2-ol

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours 60 min
Technical and organisational conditions and measures	
Use drum pumps.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: < 1 hours/day
Technical and organisational conditions and measures	
Provide extract ventilation to points where emissions occur.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Remarks	: Advanced (industrial) exposure controls assumed

3.3. Exposure estimation and reference to its source

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

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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3.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	0,01 mg/m ³ (ECETOC TRA worker v3)	0,00
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,00

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
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Lead substance(s) : Propan-2-ol

inhalative	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

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	25 mg/m ³ (ECETOC TRA worker v3)	0,12
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,12

3.3.5. 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	20 mg/m ³ (ECETOC TRA worker v3)	0,1
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,11

3.3.6. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,27

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

Lead substance(s) : Propan-2-ol

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,27

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

Not applicable

Lead substance(s) : Propan-2-ol

ES4: Use at industrial sites

4.1. Title section

Structured Short Title	: Use at industrial sitesOil and gas exploration or production products (PC41)
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Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in closed batch process (synthesis or formulation)	PROC3
CS5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b

4.2. Conditions of use affecting exposure

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

Remarks	: No hazards resulting from the material as supplied.
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4.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	

Lead substance(s) : Propan-2-ol

Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	

Lead substance(s) : Propan-2-ol

Duration	: Covers daily exposures up to 8 hours
Use frequency	: 4 hours/day
Technical and organisational conditions and measures	
Handle substance within a closed system.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Propan-2-ol

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Ensure material transfers are under containment or extract ventilation.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Ensure material transfers are under containment or extract ventilation.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374.	

Lead substance(s) : Propan-2-ol

Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

4.3. Exposure estimation and reference to its source

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

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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4.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

4.3.3. 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	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	25 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00

Lead substance(s) : Propan-2-ol

combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25
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4.3.5. 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	20 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

4.3.6. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,27

4.3.7. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

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

Not applicable

Lead substance(s) : Propan-2-ol

ES5: Widespread use by professional workers, General exposures

5.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems, Wide dispersive outdoor use resulting in inclusion into or onto a matrix, Wide dispersive indoor use of substances in closed systems, Wide dispersive outdoor use of substances in closed systems	ERC8a, ERC8d, ERC8f, ERC9a, ERC9b
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in closed batch process (synthesis or formulation)	PROC3
CS5	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS6	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS7	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS8	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS10	Roller application or brushing	PROC10
CS11	Non industrial spraying	PROC11
CS12	Treatment of articles by dipping and pouring	PROC13
CS13	Use as laboratory reagent	PROC15
CS14	Lubrication at high energy conditions and in partly open process	PROC17
CS15	Greasing at high energy conditions	PROC18
CS16	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 of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d) / Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f) / Wide dispersive indoor use of substances in closed systems (ERC9a) / Wide dispersive outdoor use of substances in closed systems (ERC9b)

Remarks	: No hazards resulting from the material as supplied.
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Lead substance(s) : Propan-2-ol

5.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system., Ensure material transfers are under containment or extract ventilation.	
Conditions and measures related to personal protection, hygiene and health evaluation	

Lead substance(s) : Propan-2-ol

Wear suitable gloves tested to EN374.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Handle substance within a closed system., Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

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	
Provide extract ventilation to points where emissions occur., Ensure material transfers are under containment or extract ventilation.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

5.2.6. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Ensure material transfers are under containment or extract ventilation.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

Lead substance(s) : Propan-2-ol

Remarks	: Basic (professional) exposure controls assumed
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5.2.7. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan., Use drum pumps.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day

Lead substance(s) : Propan-2-ol

Technical and organisational conditions and measures	
Ensure material transfers are under containment or extract ventilation.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan., Use drum pumps.	
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	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

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

Lead substance(s) : Propan-2-ol

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan., Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Provide enhanced general ventilation by mechanical means., Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374. Use suitable eye protection.	

Lead substance(s) : Propan-2-ol

Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings., Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa

Lead substance(s) : Propan-2-ol

Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

5.2.14. Control of worker exposure: Lubrication at high energy conditions and in partly open process (PROC17)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur.	
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	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

5.2.15. Control of worker exposure: Greasing at high energy conditions (PROC18)

Lead substance(s) : Propan-2-ol

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Provide extract ventilation to points where emissions occur.	
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	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
Remarks	: Basic (professional) exposure controls assumed

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear suitable gloves tested to EN374.	

Lead substance(s) : Propan-2-ol

Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.
Remarks	: Basic (professional) exposure controls assumed

5.3. Exposure estimation and reference to its source

5.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d) / Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f) / Wide dispersive indoor use of substances in closed systems (ERC9a) / Wide dispersive outdoor use of substances in closed systems (ERC9b)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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5.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	20 mg/m ³ (ECETOC TRA worker v3)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

5.3.3. 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	10 mg/m ³ (ECETOC TRA worker v3)	0,10
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
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Lead substance(s) : Propan-2-ol

inhalative	systemic	long-term	25 mg/m ³ (ECETOC TRA worker v3)	0,12
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,12

5.3.5. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

5.3.6. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

5.3.7. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

Lead substance(s) : Propan-2-ol

5.3.8. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,26
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

5.3.9. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,49
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

5.3.10. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	27,43 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

5.3.11. Worker exposure: Non industrial spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	150 mg/m ³ (ECETOC TRA worker v3)	0,70
dermal	systemic	long-term	107,14 mg/kg bw/day (ECETOC TRA worker v3)	0,10

Lead substance(s) : Propan-2-ol

combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,80
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5.3.12. Worker exposure: Treatment of articles by dipping and pouring (PROC13)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,05
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,05

5.3.14. Worker exposure: Lubrication at high energy conditions and in partly open process (PROC17)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	40 mg/m ³ (ECETOC TRA worker v3)	0,20
dermal	systemic	long-term	1,37 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,20

5.3.15. Worker exposure: Greasing at high energy conditions (PROC18)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	60 mg/m ³ (ECETOC TRA worker v3)	0,30
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,00

Lead substance(s) : Propan-2-ol

combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,30
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5.3.16. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,50
dermal	systemic	long-term	141,43 mg/kg bw/day (ECETOC TRA worker v3)	0,20
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,70

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

Not applicable

Lead substance(s) : Propan-2-ol

ES6: Widespread use by professional workers

6.1. Title section

Structured Short Title	: Widespread use by professional workersPlant protection products (PC27)
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Environment		
CS1	Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems	ERC8a, ERC8d
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS7	Non industrial spraying	PROC11
CS8	Treatment of articles by dipping and pouring	PROC13

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: No hazards resulting from the material as supplied.
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6.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours

Lead substance(s) : Propan-2-ol

Technical and organisational conditions and measures	
Store substance within a closed system.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Store substance within a closed system.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Outdoor
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	

Lead substance(s) : Propan-2-ol

Ensure operation is undertaken outdoors.	
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	: Outdoor
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: < 60 minutes/day
Technical and organisational conditions and measures	
Ensure operation is undertaken outdoors., Drain down system prior to equipment break-in or maintenance.	
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	: Outdoor
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	

Lead substance(s) : Propan-2-ol

Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Ensure operation is undertaken outdoors.	
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	: Outdoor
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: < 60 minutes/day
Technical and organisational conditions and measures	
Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20.	
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	: Outdoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.

Lead substance(s) : Propan-2-ol

use preparation:	
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: < 60 minutes/day
Technical and organisational conditions and measures	
Ensure operation is undertaken outdoors.	
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	: Outdoor
Temperature	: Covers use at ambient temperatures.

6.3. Exposure estimation and reference to its source

6.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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6.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	20 mg/m ³ (ECETOC TRA worker v3)	0,1
dermal	systemic	long-term	0,14 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

6.3.3. 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	20 mg/m ³ (ECETOC	0,1

Lead substance(s) : Propan-2-ol

			TRA worker v3)	
dermal	systemic	long-term	0,14 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,10

6.3.4. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

6.3.5. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,49
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,51

6.3.6. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

6.3.7. Worker exposure: Non industrial spraying (PROC11)

Lead substance(s) : Propan-2-ol

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,49
dermal	systemic	long-term	2,14 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,50

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,49
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,51

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

Not applicable

Lead substance(s) : Propan-2-ol

ES7: Widespread use by professional workers

7.1. Title section

Structured Short Title	: Widespread use by professional workersWater treatment chemicals (PC37)
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Environment		
CS1	Wide dispersive outdoor use resulting in inclusion into or onto a matrix	ERC8f
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed batch process (synthesis or formulation)	PROC3
CS4	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS6	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS7	Treatment of articles by dipping and pouring	PROC13

7.2. Conditions of use affecting exposure

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

Remarks	: No hazards resulting from the material as supplied.
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7.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
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	
Store substance within a closed system., Natural ventilation is from doors, windows etc. Controlled ventilation	

Lead substance(s) : Propan-2-ol

means air is supplied or removed by a powered fan.	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Covers indoor and outdoor use.
Temperature	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor
Temperature	: Covers use at ambient temperatures.
Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
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	: Covers use at ambient temperatures.

Lead substance(s) : Propan-2-ol

Ventilation rate per hour	: Provide a good standard of controlled ventilation (5 to 10 air changes per hour).
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7.2.5. Control of worker exposure: Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities (PROC8a)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Drain or remove substance from equipment prior to break-in or maintenance.	
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	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: 60 minutes/day
Technical and organisational conditions and measures	
Use drum pumps.	

Lead substance(s) : Propan-2-ol

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	: Covers use at ambient temperatures.

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Covers percentage substance in the product up to 100 %.
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Duration	: Covers daily exposures up to 8 hours
Use frequency	: < 60 minutes/day
Technical and organisational conditions and measures	
Ensure material transfers are under containment or extract ventilation.	
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	: Covers use at ambient temperatures.

7.3. Exposure estimation and reference to its source

7.3.1. Environmental release and exposure: Wide dispersive outdoor use resulting in inclusion into or onto a matrix (ERC8f)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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7.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
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Lead substance(s) : Propan-2-ol

inhalative	systemic	long-term	0,01 mg/m ³ (ECETOC TRA worker v3)	0,00
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,00

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	25 mg/m ³ (ECETOC TRA worker v3)	0,12
dermal	systemic	long-term	0,34 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,12

7.3.4. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,00
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,25

7.3.5. 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	100 mg/m ³ (ECETOC TRA worker v3)	0,49
dermal	systemic	long-term	13,71 mg/kg bw/day (ECETOC TRA worker v3)	0,02
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,51

Lead substance(s) : Propan-2-ol

7.3.6. 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	50 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	6,86 mg/kg bw/day (ECETOC TRA worker v3)	0,01
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,26

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	100 mg/m ³ (ECETOC TRA worker v3)	0,25
dermal	systemic	long-term	0,69 mg/kg bw/day (ECETOC TRA worker v3)	0,49
combined routes	systemic	long-term	(ECETOC TRA worker v3)	0,49

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

Not applicable

Lead substance(s) : Propan-2-ol

ES8: Consumer use

8.1. Title section

Structured Short Title	: Consumer useWashing and cleaning products (PC35)
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Environment		
CS1	Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems	ERC8a, ERC8d
Consumer		
CS2	Washing and cleaning products (including solvent based products); Application	PC35

8.2. Conditions of use affecting exposure

8.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: No hazards resulting from the material as supplied.
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8.2.2. Control of consumer exposure: Washing and cleaning products (including solvent based products) (PC35); Application

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Maximum in consumer products 50 %
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
Use frequency	: 128 days/year
Use frequency	: 1 uses per day
Other conditions affecting consumers exposure	
Body parts exposed	: Covers skin contact area up to 857,50cm ²
Indoor or outdoor use	: Indoor use
Room size	: Covers use in room size of 20. m3
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Covers use under typical household ventilation.

Lead substance(s) : Propan-2-ol

8.3. Exposure estimation and reference to its source

8.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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8.3.2. Consumer exposure: Washing and cleaning products (including solvent based products) (PC35)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
dermal	systemic	long-term	25,01 mg/kg bw/day (ECETOC TRA consumer v3)	0,22
oral	systemic	long-term	0,00 mg/kg bw/day (ECETOC TRA consumer v3)	0,00
inhalative	systemic	long-term	8,42 mg/m ³ (ECETOC TRA consumer v3)	0,09
combined routes	systemic	long-term		0,31

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

Not applicable

Lead substance(s) : Propan-2-ol

ES9: Consumer use

9.1. Title section

Structured Short Title : Consumer usePlant protection products (PC27)		
Environment		
CS1	Wide dispersive indoor use of processing aids in open systems, Wide dispersive outdoor use of processing aids in open systems	ERC8a, ERC8d
Consumer		
CS2	Plant protection products	PC27

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: No hazards resulting from the material as supplied.
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9.2.2. Control of consumer exposure: Plant protection products (PC27)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: Maximum in consumer products 50 %
Physical form of product	: Liquid
Vapour pressure	: 100 hPa
Amount used, frequency and duration of use (or from service life)	
For each use event, assumes swallowed amount of	: 0,3 g
Use frequency	: Covers use up to 365 days/year
Use frequency	: 1 uses per day
Other conditions affecting consumers exposure	
Body parts exposed	: Covers skin contact area up to 857,50cm ²
Indoor or outdoor use	: Indoor use
Room size	: Covers use in room size of 20. m3
Temperature	: Covers use at ambient temperatures.
Ventilation rate	: Covers use under typical household ventilation.

Lead substance(s) : Propan-2-ol

9.3. Exposure estimation and reference to its source

9.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a) / Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Remarks	: As no environmental hazard was identified no environmental-related exposure assessment and risk characterization was performed.
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9.3.2. Consumer exposure: Plant protection products (PC27)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
dermal	systemic	long-term	71,46 mg/kg bw/day (ECETOC TRA consumer v3)	0,22
oral	systemic	long-term	15 mg/kg bw/day (ECETOC TRA consumer v3)	0,58
inhalative	systemic	long-term	0,00 mg/m ³ (ECETOC TRA consumer v3)	0,00
combined routes	systemic	long-term		0,80

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

Lead substance(s) : Didecyldimethylammonium chloride

Exposure Scenario

Number	Title
ES1	Formulation or re-packing, Industrial
ES2	Formulation or re-packing, Cleaning and Disinfection Products, Medical devices
ES3	Formulation or re-packing, Other
ES4	Industrial use of medical devices, Rolling, Brushing
ES5	Industrial use of medical devices, Soaking
ES6	Industrial use of medical devices
ES7	Industrial use of medical devices, Plant protection products
ES8	Water treatment chemicals
ES9	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.
ES10	Professional use of medical devices, Soaking
ES11	Professional use of medical devices, Spraying
ES12	Professional use of medical devices, Roller, spreader, flow application
ES13	Professional use of medical devices, Machine
ES14	Professional use, Plant protection products
ES15	Professional use, Water treatment chemicals
ES16	Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.
ES17	Professional use, Cleaning and Disinfection Products

Lead substance(s) : Didecyldimethylammonium chloride

ES18	Consumer use, Plant protection products
ES19	Consumer use, Cleaning agent

Lead substance(s) : Didecyldimethylammonium chloride

ES1: Formulation or re-packing, Industrial

1.1. Title section

Environment		
CS1	Formulation into mixture	ERC2
Worker		
CS2	Use in closed batch process (synthesis or formulation)	PROC3
CS3	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS4	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS6	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 into mixture (ERC2)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,12 tonnes/day
Annual amount per site	: <= 30 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Other conditions affecting environmental exposure	
Indoor or outdoor use	: Indoor use
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness

Lead substance(s) : Didecyldimethylammonium chloride

Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

1.2.4. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	

Lead substance(s) : Didecyldimethylammonium chloride

Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 4 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

1.3. Exposure estimation and reference to its source

1.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Release route	Release rate	Release estimation method
Water	0,012 kg/day	AISE SPERC 2.1.g.v2
Air	0 kg/day	AISE SPERC 2.1.g.v2

Lead substance(s) : Didecyldimethylammonium chloride

Compartment	Exposure level	RCR
Freshwater	0,000163 mg/L (EUSES v2.1)	0,082
Marine water	0,0000169 mg/L (EUSES v2.1)	0,085
Sewage treatment plant	0,000465 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,138 mg/kg bw/day (ECETOC TRA worker v3)	0,016
combined routes	systemic	long-term		0,022

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
Inhalation	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,027
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,16
combined routes	systemic	long-term		0,187

1.3.4. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,027
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,346

1.3.5. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC	< 0,01

Lead substance(s) : Didecyldimethylammonium chloride

			TRA worker v3)	
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,346

1.3.6. 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
Inhalation	systemic	long-term	0,06 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,823 mg/kg bw/day (ECETOC TRA worker v3)	0,096
combined routes	systemic	long-term		0,099

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES2: Formulation or re-packing, Cleaning and Disinfection Products, Medical devices

2.1. Title section

Environment		
CS1	Formulation into mixture	ERC2
Worker		
CS2	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS4	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,2 tonnes/day
Annual amount per site	: <= 50 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure	
Indoor or outdoor use	: Indoor use
Value	: >= 18000 m3/day

2.2.2. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %

Lead substance(s) : Didecyldimethylammonium chloride

Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per

Lead substance(s) : Didecyldimethylammonium chloride

hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

2.3. Exposure estimation and reference to its source

2.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Release route	Release rate	Release estimation method
Water	0,02 kg/day	AISE SPERC 2.1.g.v2
Air	0 kg/day	AISE SPERC 2.1.g.v2

Compartment	Exposure level	RCR
Freshwater	0,000194 mg/L (EUSES v2.1)	0,097
Marine water	0,00002 mg/L (EUSES v2.1)	0,1
Sewage treatment plant	0,000776 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

Lead substance(s) : Didecyldimethylammonium chloride

2.3.2. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,027
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,346

2.3.3. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,324

2.3.4. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,16
combined routes	systemic	long-term		0,165

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES3: Formulation or re-packing, Other

3.1. Title section

Structured Short Title	: Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents (PC20) Water treatment chemicals (PC37) Other (PC0)
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Environment		
CS1	Formulation into mixture	ERC2
Worker		
CS2	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS3	Use in closed batch process (synthesis or formulation)	PROC3
CS4	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS6	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS7	Use as laboratory reagent	PROC15

3.2. Conditions of use affecting exposure

3.2.1. Control of environmental exposure: Formulation into mixture (ERC2)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,2 tonnes/day
Annual amount per site	: <= 50 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Other conditions affecting environmental exposure	
Indoor or outdoor use	: Indoor use
Value	: >= 18000 m3/day

Lead substance(s) : Didecyldimethylammonium chloride

3.2.2. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palm of one hand
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	

Lead substance(s) : Didecyldimethylammonium chloride

Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

3.2.4. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness

Lead substance(s) : Didecyldimethylammonium chloride

Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 80 %
Physical form of product	: Solid, low dustiness
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

3.3. Exposure estimation and reference to its source

3.3.1. Environmental release and exposure: Formulation into mixture (ERC2)

Release route	Release rate	Release estimation method
Water	0,02 kg/day	AISE SPERC 2.1.g.v2
Air	0 kg/day	AISE SPERC 2.1.g.v2

Compartment	Exposure level	RCR
Freshwater	0,000194 mg/L (EUSES v2.1)	0,097
Marine water	0,00002 mg/L (EUSES v2.1)	0,1
Sewage treatment plant	0,000776 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

Lead substance(s) : Didecyldimethylammonium chloride

3.3.2. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,01 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	6,8 µg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,138 mg/kg bw/day (ECETOC TRA worker v3)	0,016
combined routes	systemic	long-term		0,022

3.3.4. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,5 mg/m ³ (ECETOC TRA worker v3)	0,027
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,346

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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	2,742 mg/kg bw/day (ECETOC TRA worker v3)	0,319
combined routes	systemic	long-term		0,324

Lead substance(s) : Didecyldimethylammonium chloride

3.3.6. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,372 mg/kg bw/day (ECETOC TRA worker v3)	0,16
combined routes	systemic	long-term		0,165

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,068 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		0,013

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES4: Industrial use of medical devices, Rolling, Brushing

4.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS4	Roller application or brushing	PROC10

4.2. Conditions of use affecting exposure

4.2.1. 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)	
Daily amount per site	: <= 0,04 tonnes/day
Annual amount per site	: <= 10 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	

Lead substance(s) : Didecyldimethylammonium chloride

Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

4.3. Exposure estimation and reference to its source

4.3.1. 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	0,04 kg/day	Estimated release factor
Air	40 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000269 mg/L (EUSES v2.1)	0,135
Marine water	0,0000276 mg/L (EUSES v2.1)	0,138
Sewage treatment plant	0,00155 mg/L (EUSES v2.1)	< 0,01
combined routes		0,256

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

Lead substance(s) : Didecyldimethylammonium chloride

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES5: Industrial use of medical devices, Soaking

5.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b

5.2. Conditions of use affecting exposure

5.2.1. 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)	
Daily amount per site	: <= 0,04 tonnes/day
Annual amount per site	: <= 10 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

5.3. Exposure estimation and reference to its source

5.3.1. 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	0,04 kg/day	Estimated release factor
Air	40 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000269 mg/L (EUSES v2.1)	0,135
Marine water	0,0000276 mg/L (EUSES v2.1)	0,138
Sewage treatment plant	0,00155 mg/L (EUSES v2.1)	< 0,01
combined routes		0,256

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES6: Industrial use of medical devices

6.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b

6.2. Conditions of use affecting exposure

6.2.1. 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)	
Daily amount per site	: <= 0,04 tonnes/day
Annual amount per site	: <= 10 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

6.3. Exposure estimation and reference to its source

6.3.1. 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	4 kg/day	Estimated release factor
Air	40 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00192 mg/L (EUSES v2.1)	0,959
Marine water	0,000192 mg/L (EUSES v2.1)	0,962
Sewage treatment plant	0,155 mg/L (EUSES v2.1)	0,261
combined routes		0,259

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

6.3.3. 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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES7: Industrial use of medical devices, Plant protection products

7.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS4	Treatment of articles by dipping and pouring	PROC13

7.2. Conditions of use affecting exposure

7.2.1. 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)	
Daily amount per site	: <= 0,16 tonnes/day
Annual amount per site	: <= 40 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	

Lead substance(s) : Didecyldimethylammonium chloride

Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

7.3. Exposure estimation and reference to its source

7.3.1. 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	0,16 kg/day	Estimated release factor
Air	0,16 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000725 mg/L	0,363
Marine water	0,0000732 mg/L	0,366
Sewage treatment plant	0,00621 mg/L	0,01
combined routes		< 0,01

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

Lead substance(s) : Didecyldimethylammonium chloride

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

7.3.3. 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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES8: Water treatment chemicals

8.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
Worker		
CS2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b

8.2. Conditions of use affecting exposure

8.2.1. 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)	
Daily amount per site	: <= 0,04 tonnes/day
Annual amount per site	: <= 10 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

8.3. Exposure estimation and reference to its source

8.3.1. 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	0,4 kg/day	Estimated release factor
Air	40 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00164 mg/L (EUSES v2.1)	0,818
Marine water	0,000164 mg/L (EUSES v2.1)	0,822
Sewage treatment plant	0,016 mg/L (EUSES v2.1)	0,026
combined routes		0,257

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

8.3.3. 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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES9: Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

9.1. Title section

Environment		
CS1	Industrial use of processing aids in processes and products, not becoming part of articles	ERC4
CS2	Industrial use of reactive processing aids	ERC6b
CS3	Industrial use of substances in closed systems	ERC7
Worker		
CS4	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions	PROC1
CS5	Use in closed, continuous process with occasional controlled exposure	PROC2
CS6	Use in closed batch process (synthesis or formulation)	PROC3
CS7	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS8	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)	PROC5
CS9	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS10	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS11	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS12	Roller application or brushing	PROC10

9.2. Conditions of use affecting exposure

9.2.1. 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)	
Daily amount per site	: <= 0,08 tonnes/day
Annual amount per site	: <= 20 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %

Lead substance(s) : Didecyldimethylammonium chloride

Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: ≥ 18000 m3/day

9.2.2. Control of environmental exposure: Industrial use of reactive processing aids (ERC6b)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: $\leq 0,08$ tonnes/day
Annual amount per site	: ≤ 20 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: ≥ 18000 m3/day

9.2.3. Control of environmental exposure: Industrial use of substances in closed systems (ERC7)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: $\leq 0,08$ tonnes/day
Annual amount per site	: ≤ 20 tonnes/year
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: ≥ 18000 m3/day

9.2.4. Control of worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %

Lead substance(s) : Didecyldimethylammonium chloride

Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palm of one hand
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C

Lead substance(s) : Didecyldimethylammonium chloride

Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).
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9.2.6. Control of worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	

Lead substance(s) : Didecyldimethylammonium chloride

Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

9.2.8. Control of worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %

Lead substance(s) : Didecyldimethylammonium chloride

Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per

Lead substance(s) : Didecyldimethylammonium chloride

hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	

Lead substance(s) : Didecyldimethylammonium chloride

Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

9.3. Exposure estimation and reference to its source

9.3.1. 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	80 kg/day	Estimated release factor
Air	80 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Marine water	0,000185 mg/L (EUSES v2.1)	0,927
combined routes		0,562

9.3.2. Environmental release and exposure: Industrial use of reactive processing aids (ERC6b)

Release route	Release rate	Release estimation method
Water	4 kg/day	Estimated release factor
Air	0,08 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Marine water	0,000185 mg/L (EUSES v2.1)	0,927
combined routes		< 0,01

9.3.3. Environmental release and exposure: Industrial use of substances in closed systems (ERC7)

Release route	Release rate	Release estimation method
Water	4 kg/day	Estimated release factor
Air	4 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Marine water	0,000182 mg/L (EUSES v2.1)	0,912

Lead substance(s) : Didecyldimethylammonium chloride

combined routes		0,028
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9.3.4. Worker exposure: Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	2 µg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,36 µg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,028 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,274 mg/kg bw/day (ECETOC TRA worker v3)	0,032

Lead substance(s) : Didecyldimethylammonium chloride

combined routes	systemic	long-term		0,037
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9.3.8. Worker exposure: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact) (PROC5)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,06 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,329 mg/kg bw/day (ECETOC TRA worker v3)	0,038
combined routes	systemic	long-term		0,042

9.3.9. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

9.3.10. 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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,065

9.3.11. 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
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,274 mg/kg bw/day	0,032

Lead substance(s) : Didecyldimethylammonium chloride

			(ECETOC TRA worker v3)	
combined routes	systemic	long-term		0,033

9.3.12. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES10: Professional use of medical devices, Soaking

10.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
Worker		
CS2	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS4	Treatment of articles by dipping and pouring	PROC13

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,02 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

10.3. Exposure estimation and reference to its source

10.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	22 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,0002 mg/L (EUSES v2.1)	0,101
Marine water	0,000021 mg/L (EUSES v2.1)	0,104
Sewage treatment plant	0,000853 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Lead substance(s) : Didecyldimethylammonium chloride

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

10.3.3. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES11: Professional use of medical devices, Spraying

11.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
Worker		
CS2	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS3	Non industrial spraying	PROC11

11.2. Conditions of use affecting exposure

11.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,011 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	

Lead substance(s) : Didecyldimethylammonium chloride

Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

11.3. Exposure estimation and reference to its source

11.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	11 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000159 mg/L (EUSES v2.1)	0,08
Marine water	0,0000166 mg/L (EUSES v2.1)	0,083
Sewage treatment plant	0,000427 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

11.3.2. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

11.3.3. Worker exposure: Non industrial spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,2 mg/m ³ (ECETOC TRA worker v3)	0,011
dermal	systemic	long-term	4,286 mg/kg bw/day (ECETOC TRA worker v3)	0,498
combined routes	systemic	long-term		0,509

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES12: Professional use of medical devices, Roller, spreader, flow application

12.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
Worker		
CS2	Transfer of substance or preparation (charging/ discharging) from/ to PROC8a vessels/ large containers at non-dedicated facilities	
CS3	Transfer of substance or preparation (charging/ discharging) from/ to PROC8b vessels/ large containers at dedicated facilities	
CS4	Roller application or brushing	PROC10

12.2. Conditions of use affecting exposure

12.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

12.3. Exposure estimation and reference to its source

12.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000138 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 µg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

12.3.2. 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
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Lead substance(s) : Didecyldimethylammonium chloride

Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

12.3.3. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

12.3.4. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES13: Professional use of medical devices, Machine

13.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
Worker		
CS2	Use in closed, continuous process with occasional controlled exposure	PROC2
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS4	Roller application or brushing	PROC10

13.2. Conditions of use affecting exposure

13.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

13.3. Exposure estimation and reference to its source

13.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000138 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 µg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Lead substance(s) : Didecyldimethylammonium chloride

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

13.3.3. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

13.3.4. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES14: Professional use, Plant protection products

14.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
CS2	Wide dispersive outdoor use of processing aids in open systems	ERC8d
Worker		
CS3	Use in closed batch process (synthesis or formulation)	PROC3
CS4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS6	Roller application or brushing	PROC10
CS7	Non industrial spraying	PROC11
CS8	Treatment of articles by dipping and pouring	PROC13

14.2. Conditions of use affecting exposure

14.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

14.2.2. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	

Lead substance(s) : Didecyldimethylammonium chloride

STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics

Lead substance(s) : Didecyldimethylammonium chloride

Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per

Lead substance(s) : Didecyldimethylammonium chloride

hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

14.3. Exposure estimation and reference to its source

14.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000138 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

Lead substance(s) : Didecyldimethylammonium chloride

14.3.2. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,0001384 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,02 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,028 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

14.3.4. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

14.3.5. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day	0,064

Lead substance(s) : Didecyldimethylammonium chloride

			(ECETOC TRA worker v3)	
combined routes	systemic	long-term		0,069

14.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

14.3.7. Worker exposure: Non industrial spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,2 mg/m ³ (ECETOC TRA worker v3)	0,011
dermal	systemic	long-term	4,286 mg/kg bw/day (ECETOC TRA worker v3)	0,498
combined routes	systemic	long-term		0,509

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES15: Professional use, Water treatment chemicals

15.1. Title section

Environment		
CS1	Wide dispersive indoor use of reactive substances in open systems	ERC8b
CS2	Wide dispersive outdoor use of reactive substances in open systems	ERC8e
Worker		
CS3	Use in closed, continuous process with occasional controlled exposure	PROC2
CS4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b

15.2. Conditions of use affecting exposure

15.2.1. Control of environmental exposure: Wide dispersive indoor use of reactive substances in open systems (ERC8b)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0027 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Value	: >= 18000 m3/day

15.2.2. Control of environmental exposure: Wide dispersive outdoor use of reactive substances in open systems (ERC8e)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0027 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

Lead substance(s) : Didecyldimethylammonium chloride

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to inside hands / one hand / palm of hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	

Lead substance(s) : Didecyldimethylammonium chloride

Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

15.3. Exposure estimation and reference to its source

15.3.1. Environmental release and exposure: Wide dispersive indoor use of reactive substances in open systems (ERC8b)

Release route	Release rate	Release estimation method
Water	0,055 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000118 mg/L (EUSES v2.1)	0,059
Marine water	0,0000124 mg/L (EUSES v2.1)	0,062
Sewage treatment plant	0,0000021 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

15.3.2. Environmental release and exposure: Wide dispersive outdoor use of reactive substances in open systems (ERC8e)

Release route	Release rate	Release estimation method
Water	0,055 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000118 mg/L (EUSES v2.1)	0,059
Marine water	0,0000124 mg/L (EUSES v2.1)	0,062
Sewage treatment plant	0,00213 µg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
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Lead substance(s) : Didecyldimethylammonium chloride

Inhalation	systemic	long-term	0,002 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,055 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		< 0,01

15.3.4. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES16: Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.

16.1. Title section

Structured Short Title	: ; Offshore industries (SU2b); Manufacture of bulk, large scale chemicals (including petroleum products) (SU8)
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Environment		
CS1	Wide dispersive outdoor use of processing aids in open systems	ERC8d
Worker		
CS2	Use in batch and other process (synthesis) where opportunity for exposure arises	PROC4
CS3	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS5	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)	PROC9
CS6	Roller application or brushing	PROC10

16.2. Conditions of use affecting exposure

16.2.1. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0027 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Lead substance(s) : Didecyldimethylammonium chloride

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm ²)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.

Lead substance(s) : Didecyldimethylammonium chloride

Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	

Lead substance(s) : Didecyldimethylammonium chloride

Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

16.3. Exposure estimation and reference to its source

16.3.1. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Lead substance(s) : Didecyldimethylammonium chloride

Release route	Release rate	Release estimation method
Water	2,75 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000128 mg/L (EUSES v2.1)	0,064
Marine water	0,0000134 mg/L (EUSES v2.1)	0,067
Sewage treatment plant	0,000107 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,2 mg/m ³ (ECETOC TRA worker v3)	0,011
dermal	systemic	long-term	0,274 mg/kg bw/day (ECETOC TRA worker v3)	0,032
combined routes	systemic	long-term		0,043

16.3.3. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

16.3.4. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,069

Lead substance(s) : Didecyldimethylammonium chloride

16.3.5. 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
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	0,274 mg/kg bw/day (ECETOC TRA worker v3)	0,032
combined routes	systemic	long-term		0,037

16.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	0,1 mg/m ³ (ECETOC TRA worker v3)	< 0,01
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,133

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES17: Professional use, Cleaning and Disinfection Products

17.1. Title section

Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
CS2	Wide dispersive outdoor use of processing aids in open systems	ERC8d
Worker		
CS3	Use in closed batch process (synthesis or formulation)	PROC3
CS4	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities	PROC8a
CS5	Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities	PROC8b
CS6	Roller application or brushing	PROC10
CS7	Non industrial spraying	PROC11
CS8	Treatment of articles by dipping and pouring	PROC13
CS9	Hand-mixing with intimate contact and only PPE available	PROC19

17.2. Conditions of use affecting exposure

17.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

17.2.2. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day

Lead substance(s) : Didecyldimethylammonium chloride

Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Palms of both hands (480 cm2)
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid

Lead substance(s) : Didecyldimethylammonium chloride

Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Advanced	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands and forearms.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

Lead substance(s) : Didecyldimethylammonium chloride

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	

Lead substance(s) : Didecyldimethylammonium chloride

Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 8 hours/day
Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

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

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Use frequency	: Covers frequency up to: 4 hours/day

Lead substance(s) : Didecyldimethylammonium chloride

Technical and organisational conditions and measures	
Occupational Health and Safety Management System: Basic	
Conditions and measures related to personal protection, hygiene and health evaluation	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Dermal - minimum efficiency of 80 %	
Other conditions affecting workers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to hands.
Indoor or outdoor use	: Indoor activities
Temperature	: Assumes process temperature up to 40 °C
Ventilation rate per hour	: Provide a basic standard of general ventilation (1 to 3 air changes per hour).

17.3. Exposure estimation and reference to its source

17.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000148 mg/L (EUSES v2.1)	0,074
Marine water	0,0000154 mg/L (EUSES v2.1)	0,077
Sewage treatment plant	0,000213 µg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

17.3.2. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000148 mg/L (EUSES v2.1)	0,074
Marine water	0,0000154 mg/L (EUSES v2.1)	0,077
Sewage treatment plant	0,213 µg/L (EUSES v2.1)	< 0,01

Lead substance(s) : Didecyldimethylammonium chloride

combined routes		< 0,01
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17.3.3. Worker exposure: Use in closed batch process (synthesis or formulation) (PROC3)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,055
dermal	systemic	long-term	0,028 mg/kg bw/day (ECETOC TRA worker v3)	< 0,01
combined routes	systemic	long-term		0,058

17.3.4. 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
Inhalation	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,549
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,613

17.3.5. 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
Inhalation	systemic	long-term	10 mg/m ³ (ECETOC TRA worker v3)	0,549
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,613

17.3.6. Worker exposure: Roller application or brushing (PROC10)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	2 mg/m ³ (ECETOC TRA worker v3)	0,11
dermal	systemic	long-term	1,097 mg/kg bw/day (ECETOC TRA worker v3)	0,128
combined routes	systemic	long-term		0,237

Lead substance(s) : Didecyldimethylammonium chloride

17.3.7. Worker exposure: Non industrial spraying (PROC11)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	8 mg/m ³ (ECETOC TRA worker v3)	0,44
dermal	systemic	long-term	4,286 mg/kg bw/day (ECETOC TRA worker v3)	0,498
combined routes	systemic	long-term		0,938

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	1 mg/m ³ (ECETOC TRA worker v3)	0,055
dermal	systemic	long-term	0,548 mg/kg bw/day (ECETOC TRA worker v3)	0,064
combined routes	systemic	long-term		0,119

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

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
Inhalation	systemic	long-term	6 mg/m ³ (ECETOC TRA worker v3)	0,33
dermal	systemic	long-term	5,66 mg/kg bw/day (ECETOC TRA worker v3)	0,658
combined routes	systemic	long-term		0,987

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES18: Consumer use, Plant protection products

18.1. Title section

Structured Short Title	: Plant protection products (PC27)
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Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
CS2	Wide dispersive outdoor use of processing aids in open systems	ERC8d
Consumer		
CS3	Plant protection products	PC27

18.2. Conditions of use affecting exposure

18.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,017 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.

18.2.2. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,017 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.

Lead substance(s) : Didecyldimethylammonium chloride

Value	: >= 18000 m3/day
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18.2.3. Control of consumer exposure: Plant protection products (PC27)

Amount used, frequency and duration of use (or from service life)
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Daily amount per site	: 0,017 kg
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18.3. Exposure estimation and reference to its source

18.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	0,017 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00018 mg/L (EUSES v2.1)	0,09
Marine water	0,0000187 mg/L (EUSES v2.1)	0,093
Sewage treatment plant	0,00064 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

18.3.2. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Release route	Release rate	Release estimation method
Water	0,017 kg/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,00018 mg/L (EUSES v2.1)	0,09
Marine water	0,0000187 mg/L (EUSES v2.1)	0,093
Sewage treatment plant	0,00064 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

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

Not applicable

Lead substance(s) : Didecyldimethylammonium chloride

ES19: Consumer use, Cleaning agent

19.1. Title section

Structured Short Title : Washing and cleaning products (PC35)		
Environment		
CS1	Wide dispersive indoor use of processing aids in open systems	ERC8a
CS2	Wide dispersive outdoor use of processing aids in open systems	ERC8d
Consumer		
CS3	Washing and cleaning products (including solvent based products)	PC35

19.2. Conditions of use affecting exposure

19.2.1. Control of environmental exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local regulations.
Value	: >= 18000 m3/day

19.2.2. Control of environmental exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Amount used, frequency and duration of use (or from service life)	
Daily amount per site	: <= 0,0055 kg/day
Conditions and measures related to sewage treatment plant	
STP type	: Municipal Sewage Treatment Plant
STP effluent	: 2 000 m3/d
STP Effectiveness	: 92,24 %
Conditions and measures related to treatment of waste (including article waste)	
Waste treatment	: Dispose of waste product or used containers according to local

Lead substance(s) : Didecyldimethylammonium chloride

regulations.	
Value	: >= 18000 m3/day

19.2.3. Control of consumer exposure: Washing and cleaning products (including solvent based products) (PC35)

Product (article) characteristics	
Maximum concentration in ready for use preparation:	: 5 %
Physical form of product	: Liquid
Amount used, frequency and duration of use (or from service life)	
Amounts used	: <= 100 g/event
Duration	: Exposure duration 1 h
Use frequency	: 1 events per day
Conditions and measures related to personal protection, hygiene and health evaluation	
It is recommended to wear household gloves when handling undiluted product.	
Other conditions affecting consumers exposure	
Body parts exposed	: Assumes that potential dermal contact is limited to fingertips.
Indoor or outdoor use	: Indoor use

19.3. Exposure estimation and reference to its source

19.3.1. Environmental release and exposure: Wide dispersive indoor use of processing aids in open systems (ERC8a)

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000138 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

19.3.2. Environmental release and exposure: Wide dispersive outdoor use of processing aids in open systems (ERC8d)

Lead substance(s) : Didecyldimethylammonium chloride

Release route	Release rate	Release estimation method
Water	5,5 g/day	Estimated release factor
Air	0 kg/day	Estimated release factor

Compartment	Exposure level	RCR
Freshwater	0,000138 mg/L (EUSES v2.1)	0,069
Marine water	0,0000145 mg/L (EUSES v2.1)	0,072
Sewage treatment plant	0,000213 mg/L (EUSES v2.1)	< 0,01
combined routes		< 0,01

19.3.3. Consumer exposure: Washing and cleaning products (including solvent based products) (PC35)

Exposure route	Health effect	Exposure indicator	Exposure level	RCR
inhalative	systemic	long-term	0,156 mg/m ³ (ECETOC TRA consumer v3)	0,029
dermal	systemic	long-term	0,125 mg/kg bw/day (ECETOC TRA consumer v3)	0,081
oral	systemic	long-term	0 mg/kg bw/day (ECETOC TRA consumer v3)	< 0,01
combined routes	systemic	long-term		0,11

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

Not applicable