

# Safety Data Sheet dated 23/9/2024, version 13

SECTION 1: Identification of the subs	stance/mixture and of the company/undertaking
1.1. Product identifier	
Mixture identification:	
Trade name:	LAVAVETRI DP1 -45°C
Trade code:	8401
	ubstance or mixture and uses advised against
Recommended use:	
Windscreen detergent	
Uses advised against:	
Strictly adhere to the recommended u	
1.3. Details of the supplier of the safe	ty data sheet
Supplier: Arexons S.p.A.	
via Antica di Cassano, 23, 200	82
Cernusco sul Naviglio (MI), Ital	
Arexons S.p.A.	y
Tel. +39 (0)2/924361 - Fax +39	) (0)2/92436306
Competent person responsible for the	
arexons@arexons.it	
1.4. Emergency telephone number	
Arexons S.p.A.	
Tel. +39 (0)2/924361 - Fax +39	) (0)2/92436306
In England and Wales: NHS 1	
In Scotland: NHS 24 - dial 111	
In Ireland: emergency number	112
In South Africa: Poison Informa	ation Helpline 0861 555 777
In Malta: emergency number 1	12

## **SECTION 2: Hazards identification**

2.1. Classification of the substance or mixture
EC regulation criteria 1272/2008 (CLP):
♦ Danger, Flam. Liq. 2, Highly flammable liquid and vapour.
♦ Warning, Eye Irrit. 2, Causes serious eye irritation.
Adverse physicochemical, human health and environmental effects: No other hazards
2.2. Label elements
Hazard pictograms:



Danger

Hazard statements:

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

Precautionary statements:

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

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

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P370+P378 In case of fire: Use foam for alcohols to extinguish. P403+P235 Store in a well-ventilated place. Keep cool. P501 Dispose of contents/container in accordance with applicable regulations. Special Provisions:

PACK2 The packing must have tactive indications of danger for blind people.

Special provisions according to Annex XVII of REACH and subsequent amendments: None

Regulation (EC) nr 648/2004 (detergents).

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration >= 0.1% Other Hazards:

No other hazards

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

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of the CLP regulation and related classification:

stta	Name	Ident. Numb	er	Classification
>= 50% - < 60%	ethanol	CAS: EC: REACH No.:	64-17-5 200-578-6 01- 2119457610 -43	<ul> <li> <sup> </sup></li></ul>
>= 5% - < 7%	ethanediol; ethylene glycol	Index number: CAS: EC: REACH No.:	107-21-1 203-473-3	<ul> <li></li></ul>
>= 1% - < 2%	propan-2-ol; isopropyl alcohol; isopropanol	Index number: CAS: EC: REACH No.:	67-63-0 200-661-7	<ul> <li>♦ 2.6/2 Flam. Liq. 2 H225</li> <li>♥ 3.3/2 Eye Irrit. 2 H319</li> <li>♥ 3.8/3 STOT SE 3 H336</li> </ul>
>= 0,5% - < 1%	butanone; ethyl methyl ketone	Index number: CAS: EC: REACH No.:	78-93-3 201-159-0	<ul> <li>♦ 2.6/2 Flam. Liq. 2 H225</li> <li>♦ 3.3/2 Eye Irrit. 2 H319</li> <li>♦ 3.8/3 STOT SE 3 H336</li> <li>EUH066</li> </ul>
>= 0,05% - < 0,1%	2-methylpropan-2-ol; tert-butyl alcohol	CAS: EC: REACH No.:	75-65-0 200-889-7 01-	<ul> <li>♦ 2.6/2 Flam. Liq. 2 H225</li> <li>♦ 3.1/4/Inhal Acute Tox. 4 H332</li> <li>♦ 3.3/2 Eye Irrit. 2 H319</li> </ul>



			2119444321 -51	
>= 0,001% - < 0, 005%	sodium hydroxide; caustic soda	Index number: CAS: EC: REACH No.:	1310-73-2 215-185-5	<ul> <li>♦ 2.16/1 Met. Corr. 1 H290</li> <li>♦ 3.2/1A Skin Corr. 1A H314</li> <li>♦ 3.3/1 Eye Dam. 1 H318</li> <li>Specific Concentration Limits:</li> <li>C &gt;= 5%: Skin Corr. 1A H314</li> <li>2% &lt;= C &lt; 5%: Skin Corr. 1B H314</li> <li>0,5% &lt;= C &lt; 2%: Skin Irrit. 2 H315</li> <li>0,5% &lt;= C &lt; 2%: Eye Irrit. 2 H319</li> </ul>

## **SECTION 4: First aid measures**

4.1. Description of first aid measures

- In case of skin contact:
  - Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap. Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

- 4.2. Most important symptoms and effects, both acute and delayed
- None
- 4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Treatment:

None

## **SECTION 5: Firefighting measures**

5.1. Extinguishing media

Appropriate Extinguishing Media: To carbon dioxide. To dust. Foam for alcohols Water spray. Not Recommended Extinguishing Media: Do not use direct water jets.

- 5.2. Special hazards arising from the substance or mixture Do not inhale explosion and combustion gases. Burning produces heavy smoke.
- 5.3. Advice for firefighters

Normal fire-fighting clothing, such as an open-circuit compressed air breathing apparatus (EN 137), flame-resistant suit (EN469), flame-resistant gloves (EN 659) and firefighter's boots (HO A29 or A30).

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## **SECTION 6: Accidental release measures**

- 6.1. Personal precautions, protective equipment and emergency procedures Wear personal protection equipment. Remove all sources of ignition. Remove persons to safety. See protective measures under point 7 and 8.
- 6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up For cleaning up:

Avoid flame and/or spark near leak and produced waste. Do not smoke. In case of large spills dike,

absorb and shovel up into suitable containers for disposal. Contain small spills with absorbent material.

Put dirty material in suitable container. Dispose of dirty material in accordance with local or national

regulations.

6.4. Reference to other sections See also section 8 and 13

# **SECTION 7: Handling and storage**

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

See also section 8 for recommended protective equipment.

Advice on general occupational hygiene:

Contamined clothing should be changed before entering eating areas.

- Do not eat or drink while working.
- 7.2. Conditions for safe storage, including any incompatibilities
  - LGK class = 3
    - Only store in the original container.
    - Always keep in a well ventilated place.

Store at below 50 °C. Keep away from unguarded flame and heat sources. Avoid direct exposure to sunlight.

Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight. Keep away from food, drink and feed.

None in particular.

Instructions as regards storage premises:

- Cool and adequately ventilated.
- 7.3. Specific end use(s) None in particular

## **SECTION 8: Exposure controls/personal protection**

8.1. Control parameters

ethanol - CAS: 64-17-5 ACGIH - STEL: 1000 ppm - Notes: A3 - URT irr ethanediol; ethylene glycol - CAS: 107-21-1 EU - TWA(8h): 52 mg/m3, 20 ppm - STEL: 104 mg/m3, 40 ppm - Notes: Skin

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ACGIH - STEL: 10 mg/m3 - Notes: (I, H), A4 - URT irr propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 ACGIH - TWA(8h): 200 ppm - STEL: 400 ppm - Notes: A4, BEI - Eye and URT irr, CNS impair butanone; ethyl methyl ketone - CAS: 78-93-3 20101.13 - TWA(8h): 590 mg/m3, 200 ppm - STEL(): 885 mg/m3, 300 ppm EU - TWA(8h): 600 mg/m3, 200 ppm - STEL: 900 mg/m3, 300 ppm 2-methylpropan-2-ol; tert-butyl alcohol - CAS: 75-65-0 ACGIH - TWA(8h): 100 ppm - Notes: A4 - CNS impair sodium hydroxide; caustic soda - CAS: 1310-73-2 20101.10 - TWA: 2 mg/m3 ACGIH - STEL: Ceiling 2 mg/m3 - Notes: URT, eye, and skin irr **DNEL Exposure Limit Values** ethanol - CAS: 64-17-5 Worker Professional: 1900 mg/m3 - Exposure: Human Inhalation - Frequency: Short Term (acute) Worker Professional: 950 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects Worker Professional: 343 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects ethanediol; ethylene glycol - CAS: 107-21-1 Worker Professional: 35 mg/m3 - Consumer: 7 mg/m3 - Exposure: Human Inhalation Worker Professional: 106 mg/kg - Consumer: 53 mg/kg - Exposure: Human Dermal propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 Consumer: 26 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects Worker Professional: 500 mg/m3 - Consumer: 89 mg/m3 - Exposure: Human Inhalation -Frequency: Long Term, systemic effects Worker Professional: 880 mg/kg - Consumer: 319 mg/kg - Exposure: Human Dermal -Frequency: Long Term, systemic effects butanone; ethyl methyl ketone - CAS: 78-93-3 Consumer: 31 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects Worker Professional: 600 mg/m3 - Consumer: 106 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects Worker Professional: 1161 mg/kg - Consumer: 412 mg/kg - Exposure: Human Dermal -Frequency: Long Term, systemic effects sodium hydroxide; caustic soda - CAS: 1310-73-2 Worker Professional: 1 mg/m3 - Consumer: 1 mg/l - Exposure: Human Inhalation -Frequency: Long Term, local effects PNEC Exposure Limit Values ethanol - CAS: 64-17-5 Target: Fresh Water - Value: 0.96 mg/l Target: Marine water - Value: 0.79 mg/l Target: Freshwater sediments - Value: 3.6 mg/kg Target: Marine water sediments - Value: 2.9 mg/kg Target: 09 - Value: 580 mg/l ethanediol; ethylene glycol - CAS: 107-21-1 Target: Fresh Water - Value: 10 mg/l Target: Marine water - Value: 1 mg/l Target: Freshwater sediments - Value: 37 mg/kg Target: Soil (agricultural) - Value: 1.53 mg/kg propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 Target: Fresh Water - Value: 140.9 mg/l Target: Marine water - Value: 140.9 mg/l Target: Freshwater sediments - Value: 552 mg/kg Target: Marine water sediments - Value: 552 mg/kg Target: Soil (agricultural) - Value: 28 mg/kg butanone; ethyl methyl ketone - CAS: 78-93-3 Target: Fresh Water - Value: 55.8 mg/l

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Target: Marine water - Value: 55.8 mg/l Target: Freshwater sediments - Value: 284.74 mg/l Target: Marine water sediments - Value: 287.7 mg/l Target: 09 - Value: 709 mg/l 8.2. Exposure controls Eye protection: Safety goggles. Compliant with EN 166 Protection for skin: protective clothing Protection for hands: Nitrile or Viton gloves. Compliant with EN 374. Thickness: Cuff 0.10 mm; Palm 0.12 mm; Fingers 0.145 mm Respiratory protection: Use a suitable respiratory protection device. Thermal Hazards: None Environmental exposure controls: None Appropriate engineering controls: None

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

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Physical state:	Liquid		
Colour:	Light blue		
Odour:	Characteristic		
Melting point/freezing point:	N.A.		
Boiling point or initial boiling point and boiling range:	82°C	ASTM D2887	
Flammability:	Flam. Liq. 2, H225		
Lower and upper explosion limit:	N.A.		
Flash point:	22,5 °C	IP 170	
Auto-ignition temperature:	N.A.		
Decomposition temperature:	N.A.		
pH:	10.5	ASTM D1287	
Kinematic viscosity:	N.A.		
Solubility in water:	N.A.		

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Solubility in oil:	N.A.		
Partition coefficient n- octanol/water (log value):	N.A.		
Vapour pressure:	N.A.		
Density and/or relative density:	0.904 g/cm3	ASTM D 4052-96	
Relative vapour density:	N.A.		
Particle characteristics:			
Particle size:	N.A.		

9.2. Other information No other relevant information

## **SECTION 10: Stability and reactivity**

- 10.1. Reactivity
  - Stable under normal conditions
- 10.2. Chemical stability
  - Stable at normal ambient temperatures and when used as recommended.
- 10.3. Possibility of hazardous reactions

It may generate flammable gases on contact with dithiocarbamates, mercaptans and other organic sulphides, elementary metals (alkalis, alkaline earth, powder alloys, vapours), and powerful reducing agents.

It may generate toxic gases on contact with inorganic fluorides, halogenated organic substances, sulphides, nitrides, nitriles, organophosphates, and powerful oxidising agents. It may catch fire on contact with dithiocarbamates, elementary metals (alkali, alkaline earth, powder alloys, vapours, sheets or bars), and nitrides.

- 10.4. Conditions to avoid Excessive heat.
- 10.5. Incompatible materials
- Avoid contact with combustible materials. The product could catch fire.
- 10.6. Hazardous decomposition products None.

## **SECTION 11: Toxicological information**

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 Toxicological information of the product:

LAVAVETRI INVERNO DP1 -45°C ML. 250

- a) acute toxicity
  - Not classified
  - Based on available data, the classification criteria are not met
- b) skin corrosion/irritation
  - Not classified

Based on available data, the classification criteria are not met

- c) serious eye damage/irritation
  - The product is classified: Eye Irrit. 2 H319
- d) respiratory or skin sensitisation
  - Not classified
  - Based on available data, the classification criteria are not met
- e) germ cell mutagenicity

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Not classified Based on available data, the classification criteria are not met f) carcinogenicity Not classified Based on available data, the classification criteria are not met g) reproductive toxicity Not classified Based on available data, the classification criteria are not met h) STOT-single exposure Not classified Based on available data, the classification criteria are not met i) STOT-repeated exposure Not classified Based on available data, the classification criteria are not met i) aspiration hazard Not classified Based on available data, the classification criteria are not met Toxicological information of the main substances found in the product: ethanol - CAS: 64-17-5 d) respiratory or skin sensitisation: Test: Skin Sensitization - Route: Skin Negative e) germ cell mutagenicity: Test: Genotoxicity - Species: vitro Negative f) carcinogenicity: Test: Carcinogeneticy - Species: mam Positive g) reproductive toxicity: Test: NOAEL - Route: Inhalation - Species: Rat = 1600 Ppm ethanediol; ethylene glycol - CAS: 107-21-1 a) acute toxicity: Test: LC50 - Route: Oral - Species: Rat 7712 mg/kg Test: LC50 - Route: Inhalation - Species: Rat 2.5 mg/l - Duration: 6h Test: LD50 - Route: Skin - Species: Mouse 3500 mg/kg propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 a) acute toxicity: Test: LD50 - Route: Oral - Species: Rat 4396-5500 mg/kg Test: LD50 - Route: Skin - Species: Rabbit 12870 mg/kg Test: LC50 - Route: Inhalation - Species: Rat 72.6 mg/l - Duration: 4h butanone; ethyl methyl ketone - CAS: 78-93-3 a) acute toxicity: Test: LD50 - Route: Oral - Species: Rat = 2737 mg/kg Test: LD50 - Route: Skin - Species: Rabbit = 6480 mg/kg Test: LD50 - Route: Inhalation - Species: Rat = 23.5 mg/m3 - Duration: 4h propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 **OBSERVATIONS ON HUMAN SUBJECTS:** propan-1-ol (propyl alcohol): oral, woman (LDLo): 5700 mg/kg propan-2-ol (isopropyl alcohol): oral, man (LDLo): 5272 mg/kg 11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 0.1%

## **SECTION 12: Ecological information**

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment. ethanol - CAS: 64-17-5 a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish 14.2 GL - Duration h: 96

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Endpoint: LC50 - Species: Daphnia 29.6 GL - Duration h: 24 Endpoint: EC50 - Species: Algae 19000 mg/l - Duration h: 96 Endpoint: EC50 - Species: batteri 39.5 GL - Duration h: 4 b) Aquatic chronic toxicity: Endpoint: EC50 - Species: Fish 14536 mg/l - Duration h: 200 Endpoint: LC50 - Species: Daphnia 9248 mg/l - Duration h: 48 ethanediol; ethylene glycol - CAS: 107-21-1 a) Aquatic acute toxicity: Endpoint: LC50 - Species: Fish 49-72.86 GL - Duration h: 96 Endpoint: EC50 - Species: Daphnia 100 mg/l - Duration h: 48 Endpoint: LC50 - Species: Daphnia 74.448 GL - Duration h: 242 Endpoint: EC0 - Species: Daphnia 100 mg/l - Duration h: 48 Endpoint: CE4 - Species: Algae 10.94 GL - Duration h: 96 b) Aquatic chronic toxicity: Endpoint: NOEC - Species: Fish 49 mg/l - Duration h: 504 Endpoint: LC50 - Species: Fish 1.5 GL - Duration h: 504 Endpoint: NOEC - Species: Daphnia 8.59-24 mg/l - Duration h: 168 Endpoint: NOEC - Species: Algae 1000 mg/l - Duration h: 72 butanone; ethyl methyl ketone - CAS: 78-93-3 a) Aquatic acute toxicity: Endpoint: LC50 - Species: Fish = 3220 mg/l - Duration h: 96 Endpoint: EC50 - Species: Daphnia = 5091 mg/l - Duration h: 96 sodium hydroxide; caustic soda - CAS: 1310-73-2 a) Aquatic acute toxicity: Endpoint: EC50 - Species: Daphnia 40.4 mg/l - Duration h: 48 12.2. Persistence and degradability None ethanediol; ethylene glycol - CAS: 107-21-1 Biodegradability: Readily biodegradable - Test: OECD TG 301 A - Duration: .10gg - %: 90-10 butanone: ethyl methyl ketone - CAS: 78-93-3 Biodegradability: Readily biodegradable 12.3. Bioaccumulative potential ethanediol; ethylene glycol - CAS: 107-21-1 Bioaccumulation: Not bioaccumulative propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0 Test: Kow - Partition coefficient 0.05 butanone; ethyl methyl ketone - CAS: 78-93-3 Test: Kow - Partition coefficient 0.3 sodium hydroxide; caustic soda - CAS: 1310-73-2 Bioaccumulation: Not bioaccumulative 12.4. Mobility in soil ethanediol; ethylene glycol - CAS: 107-21-1 Mobility in soil: Mobile sodium hydroxide; caustic soda - CAS: 1310-73-2 Mobility in soil: Not mobile 12.5. Results of PBT and vPvB assessment vPvB Substances: None - PBT Substances: None 12.6. Endocrine disrupting properties No endocrine disruptor substances present in concentration >= 0.1% 12.7. Other adverse effects None

#### **SECTION 13: Disposal considerations**

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

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Additional disposal information:

"Use in accordance with good working practices, avoiding dispersal in the environment. Do not discharge into drains, ground water or water courses. Comply with current legislation on the protection of water and soil from pollution (Legislative Decree No. 152 of 3/4/2006). Dispose of used product and containers by handing them over to authorised companies, in accordance with the provisions of

Legislative Decree No. 152/2006 (Consolidated Environmental Act, which replaced the Ronchi Decree) as amended.

The used product is to be considered special waste to be classified in accordance with Directive No. 2008/98/EC on waste and related matters. Recover if possible. Send to authorised disposal plants or incineration under

controlled conditions (152/2006 art. 184).

Act in accordance with the local and national laws in force.

Contaminated packaging must be emptied as far as possible. After cleaning, send to an authorised centre for recycling or disposal."

## **SECTION 14: Transport information**



14.1. UN number or ID number ADR-UN Number: IATA-UN Number: IMDG-UN Number:	1987 1987 1987
14.2. UN proper shipping name	
ADR-Shipping Name:	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110
IATA-Shipping Name:	kPa)(ethanol, propan-2-ol; isopropyl alcohol; isopropanol) ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(ethanol, propan-2-ol; isopropyl alcohol; isopropanol)
IMDG-Shipping Name:	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(ethanol, propan-2-ol; isopropyl alcohol; isopropanol)
14.3. Transport hazard class(es)	
ADR-Class:	3
ADR - Hazard identification nun	
IATA-Class:	3
IATA-Label:	3
IMDG-Class:	3 3. PG II
Sea (IMO):	3. PG II
14.4. Packing group ADR-Packing Group:	П
IATA-Packing group:	н Н
IMDG-Packing group:	
14.5. Environmental hazards	11
ADR-Environmental Pollutant:	No
IMDG-Marine pollutant:	No
IMDG-EmS:	F-E,
	S-D
14.6. Special precautions for user	
ADR-Subsidiary hazards:	-
ADR-S.P.:	274 601 640D
ADR-Transport category (Tunne	
IATA-Passenger Aircraft: IATA-Subsidiary hazards:	353
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IATA-Cargo Aircraft:36IATA-S.P.:A3IATA-ERG:31IMDG-Subsidiary hazards:-IMDG-Stowage and handling:CaIMDG-Segregation:-

364 A3 A180 3L -Category A

14.7. Maritime transport in bulk according to IMO instruments N.A. Limited Quantity: 1 L Exempted Quantity: E2

### **SECTION 15: Regulatory information**

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture Dir. 98/24/EC (Risks related to chemical agents at work) Dir. 2000/39/EC (Occupational exposure limit values) Regulation (EC) n. 1907/2006 (REACH) Regulation (EC) n. 1272/2008 (CLP) Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013 Regulation (EU) n. 2020/878 Regulation (EU) n. 286/2011 (ATP 2 CLP) Regulation (EU) n. 618/2012 (ATP 3 CLP) Regulation (EU) n. 487/2013 (ATP 4 CLP) Regulation (EU) n. 944/2013 (ATP 5 CLP) Regulation (EU) n. 605/2014 (ATP 6 CLP) Regulation (EU) n. 2015/1221 (ATP 7 CLP) Regulation (EU) n. 2016/918 (ATP 8 CLP) Regulation (EU) n. 2016/1179 (ATP 9 CLP) Regulation (EU) n. 2017/776 (ATP 10 CLP) Regulation (EU) n. 2018/669 (ATP 11 CLP) Regulation (EU) n. 2018/1480 (ATP 13 CLP) Regulation (EU) n. 2019/521 (ATP 12 CLP) Regulation (EU) n. 2020/217 (ATP 14 CLP) Regulation (EU) n. 2020/1182 (ATP 15 CLP) Regulation (EU) n. 2021/643 (ATP 16 CLP) Regulation (EU) n. 2021/849 (ATP 17 CLP) Regulation (EU) n. 2022/692 (ATP 18 CLP) Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications: Restrictions related to the product: **Restriction 3 Restriction 40** Restrictions related to the substances contained: **Restriction 75** Volatile Organic compounds - VOCs = 63.06 % Volatile Organic compounds - VOCs = 630.58 g/Kg Volatile Organic compounds - VOCs = 570.04 g/l Where applicable, refer to the following regulatory provisions : Directive 2012/18/EU (Seveso III) Regulation (EC) nr 648/2004 (detergents). Dir. 2004/42/EC (VOC directive) Provisions related to directive EU 2012/18 (Seveso III): Seveso III category according to Annex 1, part 1 Product belongs to category: P5c 15.2. Chemical safety assessment

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No Chemical Safety Assessment has been carried out for the mixture. Substances for which a Chemical Safety Assessment has been carried out: ethanol ethanediol; ethylene glycol propan-2-ol; isopropyl alcohol; isopropanol

## **SECTION 16: Other information**

Text of phrases referred to under heading 3: H225 Highly flammable liquid and vapour. H319 Causes serious eye irritation. H302 Harmful if swallowed. H373 (kidneys) (Oral) May cause damage to organs (kidneys) through prolonged or repeated exposure if swallowed. H336 May cause drowsiness or dizziness. EUH066 Repeated exposure may cause skin dryness or cracking. H332 Harmful if inhaled. H335 May cause respiratory irritation. H290 May be corrosive to metals. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H315 Causes skin irritation.

Hazard class and hazard category	Code	Description
Met. Corr. 1	2.16/1	Substance or mixture corrosive to metals, Category 1
Flam. Liq. 2	2.6/2	Flammable liquid, Category 2
Acute Tox. 4	3.1/4/Inhal	Acute toxicity (inhalation), Category 4
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Skin Corr. 1A	3.2/1A	Skin corrosion, Category 1A
Skin Corr. 1B	3.2/1B	Skin corrosion, Category 1B
Skin Irrit. 2	3.2/2	Skin irritation, Category 2
Eye Dam. 1	3.3/1	Serious eye damage, Category 1
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
STOT SE 3	3.8/3	Specific target organ toxicity - single exposure, Category 3
STOT RE 2	3.9/2	Specific target organ toxicity - repeated exposure, Category 2

Paragraphs modified from the previous revision:

SECTION 1: Identification of the substance/mixture and of the company/undertaking SECTION 5: Firefighting measures SECTION 6: Accidental release measures SECTION 7: Handling and storage SECTION 8: Exposure controls/personal protection



SECTION 9: Physical and chemical properties SECTION 10: Stability and reactivity SECTION 11: Toxicological information SECTION 12: Ecological information SECTION 13: Disposal considerations SECTION 15: Regulatory information

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Flam. Liq. 2, H225	On basis of test data
Eye Irrit. 2, H319	Calculation method

This document was prepared by a competent person who has received appropriate training. Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality. It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE:	Acute Toxicity Estimate
ATEmix:	Acute toxicity Estimate (Mixtures)
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	
GHS:	Globally Harmonized System of Classification and Labeling of
	Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization"
	(ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
NA:	Not applicable
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.

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STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

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# Exposure Scenario, 23/07/2019

Substance identity	
Chemical name	Etanolo
CAS No.	64-17-5
EINECS No.	200-578-6

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- 1. **ES 1** Consumer use; Anti-freeze and de-icing products (PC4)
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- 6. **ES 6** Widespread use by professional workers
- 7. **ES 7** Consumer use; Fuels (PC13)
- 8. **ES 8** Consumer use; Various products (PC1, PC3, PC8, PC18, PC23)

# Consumer use; Anti-freeze and de-icing products (PC4) 1. ES 1 **1.1 TITLE SECTION Exposure Scenario name** Car care and maintenance products - De-icing and anti-icing applications 22/07/2019 - 1.0 **Date - Version** Life Cycle Stage Consumer use Main user group Consumer uses Sector(s) of use Consumer uses (SU21) **Product Categories** Anti-freeze and de-icing products (PC4) **Environment Contributing Scenario** CS1 Covered by ERC8d **Consumer Contributing Scenario** PC4 - PC4 1 CS2 Car Care - De-icing and anti-icing applications CS3 Car Care - De-icing and anti-icing applications PC4 - PC4 2 CS4 Car Care - De-icing and anti-icing applications PC4 - PC4\_3 1.2 Conditions of use affecting exposure 1.2. CS1: Environment Contributing Scenario: Covered by (ERC8d) Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) **Environmental release** categories (ERC8d) **Product (article) characteristics** Physical form of product: Liquid Vapour pressure: 5726 Pa Conditions and measures related to treatment of waste (including article waste) Waste treatment No specific measures identified. Other conditions affecting environmental exposure Local marine water dilution factor: 100 Local freshwater dilution factor: 10 1.2. CS2: Consumer Contributing Scenario: Car Care - De-icing and anti-icing applications (PC4) **Product Categories** Anti-freeze and de-icing products (PC4) **Product (Sub-)Categories** Washing car window (PC4\_1) **Product (article) characteristics Concentration of substance in product:** Covers percentage substance in the product up to 1 %. Amount used, frequency and duration of use/exposure Amounts used: Amount per use 0.5 g Duration: Covers use up to 0.017 h/event

Frequency:

Other conditions affecting c	onsumers exposure
Room size: Covers use in a one car g Temperature: Covers use at ambien	arage (>34 m³) under typical ventilation. t temperatures.
1.2. CS3: Consumer Contributi	ng Scenario: Car Care - De-icing and anti-icing applications (PC4)
Product Categories	Anti-freeze and de-icing products (PC4)
Product (Sub-)Categories	Pouring into radiator (PC4_2)
Product (article) characteri	stics
Concentration of substance in Covers concentrations up to 10 %	•
Amount used, frequency and	duration of use/exposure
Amounts used: Amount per use 2000 g	
Duration: Covers use up to 0.17 h/event Frequency: Covers use up to 1 uses per day	
Other conditions affecting c	onsumers exposure
Room size: Covers use in a one car g Temperature: Covers use at ambien	arage (>34 m³) under typical ventilation. t temperatures.
Additional conditions human Covers skin contact area up to 482	
1.2. CS4: Consumer Contributi	ng Scenario: Car Care - De-icing and anti-icing applications (PC4)
Product Categories	Anti-freeze and de-icing products (PC4)
Product (Sub-)Categories	Lock de-icer (PC4_3)
Product (article) characteri	stics
<b>Concentration of substance in</b> Covers concentrations up to 50 %	•
Amount used, frequency and	duration of use/exposure
Amounts used: Amount per use 4 g	
Duration: Covers use up to 0.25 h/event Frequency: Covers use up to 1 uses per day	
Covers use up to 0.25 h/event Frequency:	onsumers exposure
Covers use up to 0.25 h/event Frequency: Covers use up to 1 uses per day Other conditions affecting c	arage (>34 m <sup>3</sup> ) under typical ventilation.
Covers use up to 0.25 h/event Frequency: Covers use up to 1 uses per day Other conditions affecting c Room size: Covers use in a one car g	arage (>34 m <sup>3</sup> ) under typical ventilation. t temperatures. nealth
Covers use up to 0.25 h/event Frequency: Covers use up to 1 uses per day Other conditions affecting conditions affecting conditions affecting conditions are a set of the set	arage (>34 m <sup>3</sup> ) under typical ventilation. t temperatures. nealth
Covers use up to 0.25 h/event Frequency: Covers use up to 1 uses per day Other conditions affecting conditions affecting conditions affecting conditions affecting conditions human for the second	arage (>34 m <sup>3</sup> ) under typical ventilation. t temperatures. <b>nealth</b> cm <sup>2</sup>

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.00443 mg/L	N/A	0.00461
freshwater sediment	0.0172 mg/kg bw/day	N/A	0.00467
marine water	0.000508 mg/L	N/A	0.000643
marine sediment	0.00194 mg/kg bw/day	N/A	0.00064
soil	0.00123 mg/kg bw/day	N/A	0.00724

## 1.2. CS2: Consumer Contributing Scenario: Car Care - De-icing and anti-icing applications (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.000102 mg/m <sup>3</sup>	N/A	8.94E-07
inhalative, local, short-term	0.000102 mg/m <sup>3</sup>	N/A	8.94E-07
dermal, systemic, long-term	0 mg/kg bw/day	N/A	N/A
combined routes, systemic, long-term	N/A	N/A	8.94E-07

# 1.2. CS3: Consumer Contributing Scenario: Car Care - De-icing and anti-icing applications (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	1.84 mg/m³	N/A	0.0161
inhalative, local, short-term	1.84 mg/m³	N/A	0.0161
dermal, systemic, long-term	5.62 mg/kg bw/day	N/A	0.0272
combined routes, systemic, long-term	N/A	N/A	0.0434

# **1.2.** CS4: Consumer Contributing Scenario: Car Care - De-icing and anti-icing applications (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.51 mg/m³	N/A	0.00447
inhalative, local, short-term	0.51 mg/m³	N/A	0.0447
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.0679
combined routes, systemic, long-term	N/A	N/A	0.0724

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

Guidance to check compliance with the exposure scenario:

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

# Consumer use; Various products (PC39, PC28) 2. ES 2 **2.1 TITLE SECTION Exposure Scenario name** Cosumer other uses 22/07/2019 - 1.0 **Date - Version** Life Cycle Stage Consumer use Main user group Consumer uses Sector(s) of use Consumer uses (SU21) **Product Categories** Cosmetics, personal care products (PC39) - Perfumes, fragrances (PC28) **Environment Contributing Scenario** CS1 Covered by ERC8a **Consumer Contributing Scenario** CS2 Consumer PC39 - PC28 2.2 Conditions of use affecting exposure 2.2. CS1: Environment Contributing Scenario: Covered by (ERC8a) **Environmental release** Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) categories (ERC8a) **Product (article) characteristics Physical form of product:** Liquid Vapour pressure: 5726 Pa Conditions and measures related to treatment of waste (including article waste) Waste treatment No specific measures identified. 2.2. CS2: Consumer Contributing Scenario: Consumer (PC39, PC28) **Product Categories** Cosmetics, personal care products - Perfumes, fragrances (PC39, PC28) 2.3 Exposure estimation and reference to its source 2.3. CS1: Environment Contributing Scenario: Covered by (ERC8a)

Exposure level	Calculation method	Risk Characterization Ratio (RCR)
0.00236 mg/L	N/A	0.00246
0.00904 mg/kg bw/day	N/A	0.00246
0.000301 mg/L	N/A	0.000381
0.00115 mg/kg bw/day	N/A	0.00038
0.00115 mg/kg bw/day	N/A	0.00676
	0.00236 mg/L 0.00904 mg/kg bw/day 0.000301 mg/L 0.00115 mg/kg bw/day	Description         Description           0.00236 mg/L         N/A           0.00904 mg/kg bw/day         N/A           0.000301 mg/L         N/A           0.00115 mg/kg bw/day         N/A

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

## Guidance to check compliance with the exposure scenario:

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

3. ES 3 Use a	t industrial site			
3.1 TITLE SECTION				
Exposure Scenario name				
Date - Version	22/07/2019 - 1.0			
Life Cycle Stage	Use at industrial site			
Main user group	Industrial uses			
Sector(s) of use	Industrial uses (SU3)			
Environment Contributing Sce				
CS1 Covered by		ERC4		
Worker Contributing Scenario				
CS2 Industrial		PROC1		
CS3 Industrial		PROC2		
CS4 Industrial		PROC2 PROC3		
CS5 Industrial		PROC4		
CS6 Industrial		PROC5		
CS7 Industrial		PROC7		
CS8 Industrial		PROC8a		
CS9 Industrial		PROC8b		
CS10 Industrial		PROC10		
CS11 Industrial		PROC13		
CS12 Industrial		PROC15		
3.2 Conditions of use	affecting exposure			
	uting Scenario: Covered by (ERC4)			
Environmental release categories	Use of non-reactive processing aid at industrial site (n	o inclusion into or onto article) (ERC4)		
Product (article) characteristics				
Vapour pressure: < 10 kPa				
Amount used, frequency and	l duration of use (or from service life)			
Amounts used: Annual site tonnage 3000 t(onner	s)/year			
Maximum allowable site tonn	age (MSafe): 124000 kg/day			
Release type: Continuous release				
Emission days: 300 days per year				
Technical and organisation	al conditions and measures			
Control measures to prevent	releases			

freat all emission to provide th	e required removal efficiency of (%):		Air - minimum efficiency of: 90 %
Prevent discharge of undissolved substance to or recover from onsite wastewater.			Water - minimum efficiency of: 87 %
Conditions and measure	s related to sewage treatment pla	int	
<b>GTP type:</b> Municipal Sewage Treatmen <b>GTP effluent (m<sup>3</sup>/day):</b> 2000			
Conditions and measure	s related to treatment of waste (in	ncluding article	waste)
Waste treatment			
Incineration, disposal or recycli Contain and dispose of waste a		Waste - min	imum efficiency of: 99.98 %
Other conditions affectin	ng environmental exposure		
Local marine water dilutio Local freshwater dilution f Receiving surface water flo	<b>actor:</b> 10		
Additional good practice	e advice. Obligations according to	Article 37(4) of	REACH do not apply.
Additional Good Practice A Contain leaks or spills within	Advice: cabinets with removable trays.		
3.2. CS2: Worker Contribu	ting Scenario: Industrial (PROC1)		
Process Categories	cess Categories Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Product (article) charac			
Physical form of product: Liquid Vapour pressure:			
< 10 kPa Concentration of substanc Covers percentage substance	-		
Amount used, frequency	and duration of use/exposure		
Duration: Covers daily exposures up to	8 hours		
Technical and organisat	ional conditions and measures		
Technical and organisation Use in contained systems Store substance within a close			
Conditions and measure	s related to personal protection, h	hygiene and heal	th evaluation
Personal protection Use suitable eye protection.			
	ng worker exposure		
Other conditions affectin			
	nbient temperatures.		
Other conditions affectin Temperature: Covers use at am 3.2. CS3: Worker Contribut	nbient temperatures. ting Scenario: Industrial (PROC2)		

## **Product (article) characteristics**

#### Physical form of product:

Liquid

#### Vapour pressure:

< 10 kPa

#### **Concentration of substance in product:**

Covers percentage substance in the product up to 100 %.

#### Amount used, frequency and duration of use/exposure

#### **Duration:**

Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

#### **Technical and organisational measures**

Use in contained systems

Store substance within a closed system.

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

#### **Personal protection**

Use suitable eye protection.

#### Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

### 3.2. CS4: Worker Contributing Scenario: Industrial (PROC3)

Process CategoriesManufacture or formulation in the chemical industry in closed batch processes with<br/>occasional controlled exposure or processes with equivalent containment condition (PROC3)

### Product (article) characteristics

#### Physical form of product:

Liquid

#### Vapour pressure:

< 10 kPa

#### **Concentration of substance in product:**

Covers percentage substance in the product up to 100 %.

#### Amount used, frequency and duration of use/exposure

#### **Duration:**

Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

#### Technical and organisational measures

Use in contained systems Store substance within a closed system.

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

#### **Personal protection**

Use suitable eye protection.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

#### **3.2. CS5: Worker Contributing Scenario: Industrial (PROC4)**

**Process Categories** 

Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Physical form of product: Liquid	
Vapour pressure: < 10 kPa	
Concentration of substance in Covers percentage substance in t	•
Amount used, frequency and	l duration of use/exposure
Duration: Covers daily exposures up to 8 ho	purs
Technical and organisation	al conditions and measures
<b>Technical and organisational r</b> Use in contained systems Store substance within a closed sy	
Conditions and measures re	lated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
Other conditions affecting w	vorker exposure
Temperature: Covers use at ambier	it temperatures.
3.2. CS6: Worker Contributing	Scenario: Industrial (PROC5)
Process Categories	Mixing or blending in batch processes (PROC5)
Product (article) characteri	stics
Physical form of product: Liquid	
Vapour pressure: < 10 kPa	
Concentration of substance in Covers percentage substance in t	•
Amount used, frequency and	d duration of use/exposure
Duration: Covers daily exposures up to 8 ho	burs
Technical and organisation	al conditions and measures
Technical and organisational r Use in contained systems Store substance within a closed sy	
Conditions and measures re	lated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
Other conditions affecting w	vorker exposure
Temperature: Covers use at ambier	it temperatures.
3.2. CS7: Worker Contributing	Scenario: Industrial (PROC7)
Process Categories	Industrial spraying (PROC7)
Product (article) characteri	stics
Physical form of product: Liquid	

#### Vapour pressure:

< 10 kPa

#### **Concentration of substance in product:**

Covers percentage substance in the product up to 100 %.

## Amount used, frequency and duration of use/exposure

## **Duration:**

Covers daily exposures up to 8 hours

#### Technical and organisational conditions and measures

#### **Technical and organisational measures**

Use in contained systems

Store substance within a closed system.

Provide a good standard of controlled ventilation (10 to 15 air changes per hour).

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

#### Personal protection

Use suitable eye protection.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

3.2. CS8: Worker Contributing	Scenario: Industrial (PROC8a)
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) character	istics
Physical form of product: Liquid	
Vapour pressure: < 10 kPa	
Concentration of substance in Covers percentage substance in	•
Amount used, frequency and	d duration of use/exposure
Duration: Covers daily exposures up to 8 ho	ours
Technical and organisation	al conditions and measures
<b>Technical and organisational i</b> Use in contained systems Store substance within a closed sy	
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
Other conditions affecting v	vorker exposure
Temperature: Covers use at ambien	nt temperatures.
3.2. CS9: Worker Contributing	Scenario: Industrial (PROC8b)
Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) character	istics

# **Product (article) characteristics**

Physical form of product:

Liquid

# Vapour pressure: < 10 kPa **Concentration of substance in product:** Covers percentage substance in the product up to 100 %. Amount used, frequency and duration of use/exposure **Duration:** Covers daily exposures up to 8 hours Technical and organisational conditions and measures Technical and organisational measures Use in contained systems Store substance within a closed system. Conditions and measures related to personal protection, hygiene and health evaluation **Personal protection** Use suitable eye protection. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures. 3.2. CS10: Worker Contributing Scenario: Industrial (PROC10) **Process Categories** Roller application or brushing (PROC10) **Product (article) characteristics Physical form of product:** Liquid Vapour pressure: < 10 kPa **Concentration of substance in product:** Covers percentage substance in the product up to 100 %. Amount used, frequency and duration of use/exposure **Duration:** Covers daily exposures up to 8 hours Technical and organisational conditions and measures **Technical and organisational measures** Use in contained systems Store substance within a closed system. Conditions and measures related to personal protection, hygiene and health evaluation **Personal protection** Use suitable eye protection. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures. 3.2. CS11: Worker Contributing Scenario: Industrial (PROC13) **Process Categories** Treatment of articles by dipping and pouring (PROC13) **Product (article) characteristics Physical form of product:** Liquid Vapour pressure:

< 10 kPa

<b>Concentration of substance</b> Covers percentage substance in	-	
Amount used, frequency an	nd duration of use/exposu	e
Duration: Covers daily exposures up to 8	hours	
Technical and organisatio	nal conditions and measur	es
Technical and organisational Use in contained systems Store substance within a closed		
Conditions and measures	related to personal protect	ion, hygiene and health evaluation
Personal protection Use suitable eye protection.		
Other conditions affecting	worker exposure	
Temperature: Covers use at ambi	ent temperatures.	
3.2. CS12: Worker Contribut	ing Scenario: Industrial (PRO	C15)
Process Categories	Use as laboratory reagent (PI	
Product (article) characte	, , ,	
0	n the product up to 100 %. <b>nd duration of use/exposur</b> hours <b>nal conditions and measur</b>	
Technical and organisational Use in contained systems Store substance within a closed		
Conditions and measures	related to personal protect	ion, hygiene and health evaluation
Personal protection Use suitable eye protection.		
Other conditions affecting	worker exposure	
Temperature: Covers use at ambi	-	
	ent temperatures.	o its source
Temperature: Covers use at ambi 3.3 Exposure estima	ent temperatures.	
Temperature: Covers use at ambi 3.3 Exposure estima	ent temperatures. tion and reference t	
Temperature: Covers use at ambi 3.3 Exposure estima 3.3. CS1: Environment Contr	ent temperatures. tion and reference t ibuting Scenario: Covered by	(ERC4)

N/A

0 %

soil

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
wastewater treatment plant microbes	6.32 mg/L	N/A	0.0109
freshwater	0.577 mg/L	N/A	0.601
freshwater sediment	2.21 mg/kg bw/day	N/A	0.601
marine water	0.0635 mg/L	N/A	0.0804
marine sediment	0.0635 mg/kg bw/day	N/A	0.0805
soil	0.0525 mg/kg bw/day	N/A	0.309

# 3.3. CS2: Worker Contributing Scenario: Industrial (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.6 mg/m <sup>3</sup>	N/A	< 0.01
dermal, systemic, long-term	0.03 mg/kg bw/day	N/A	< 0.01
combined routes, systemic, long-term	N/A	N/A	< 0.01

# 3.3. CS3: Worker Contributing Scenario: Industrial (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.6 mg/m³	N/A	0.01
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.004
combined routes, systemic, long-term	N/A	N/A	0.0141

# 3.3. CS4: Worker Contributing Scenario: Industrial (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	19 mg/m³	N/A	0.02
dermal, systemic, long-term	0.69 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.0222

3.3. CS5: Worker Contributing Scenario: Industrial (PROC4)			
level Calculation method R	Risk Characterization Ratio (RCR)		

inhalative, systemic, long-term	38 mg/m³	N/A	0.04
dermal, systemic, long-term	6.9 mg/kg bw/day	N/A	0.02
combined routes, systemic, long-term	N/A	N/A	0.0603

## 3.3. CS6: Worker Contributing Scenario: Industrial (PROC5)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.141

# 3.3. CS7: Worker Contributing Scenario: Industrial (PROC7)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	140 mg/m³	N/A	0.151
dermal, systemic, long-term	43 mg/kg bw/day	N/A	0.125
combined routes, systemic, long-term	N/A	N/A	0.276

# 3.3. CS8: Worker Contributing Scenario: Industrial (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	96 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.141

# 3.3. CS9: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	48 mg/m³	N/A	0.05
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.0904

# 3.3. CS10: Worker Contributing Scenario: Industrial (PROC10)

Exposure route, Health effect, Exposure indicator         Exposure level         Calculation method         Risk Characterization Ratio (
---

inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	27 mg/kg bw/day	N/A	0.08
combined routes, systemic, long-term	N/A	N/A	0.181

## 3.3. CS11: Worker Contributing Scenario: Industrial (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.141

# 3.3. CS12: Worker Contributing Scenario: Industrial (PROC15)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	19 mg/m³	N/A	0.02
dermal, systemic, long-term	0.34 mg/kg bw/day	N/A	< 0.01
combined routes, systemic, long-term	N/A	N/A	0.0212

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

# Guidance to check compliance with the exposure scenario:

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

4. ES 4 Use at	t industrial site			
4.1 TITLE SECTION				
Exposure Scenario name				
Date - Version	22/07/2019 - 1.0			
Life Cycle Stage	Use at industrial site			
Main user group	Industrial uses			
Sector(s) of use	Industrial uses (SU3)			
Environment Contributing Sce	nario			
CS1 Covered by				
Worker Contributing Scenario				
CS2 Industrial		PROC1		
CS3 Industrial		PROC2		
CS4 Industrial		PROC3		
CS5 Industrial		PROC8a		
CS6 Industrial		PROC8b		
CS7 Industrial		PROC15		
CS8 Industrial		PROC16		
4.2 Conditions of use	affecting exposure			
	uting Scenario: Covered by (ERC7)			
Environmental release categories	Use of functional fluid at industrial site (E	RC7)		
Product (article) characteri	stics			
Physical form of product: Liquid				
Vapour pressure: < 10 kPa				
Amount used, frequency and	l duration of use (or from service lij	fe)		
Amounts used: Annual site tonnage 20000 t(onnes)/year				
Maximum allowable site tonnage (MSafe): 14500000 kg/day				
Release type: Continuous release				
Emission days: 300 days per year				
Technical and organisational conditions and measures				
Control measures to prevent releases				
Provide onsite wastewater removal efficiency of <sup>3</sup> (%): Water - minimum efficiency of: 87 %				

	es related to sewage treatment plant
STP type: Municipal Sewage Treatmer Water - minimum efficiency STP effluent (m <sup>3</sup> /day): 200	y of: = 87 %
Conditions and measure	es related to treatment of waste (including article waste)
Waste treatment Product residual disposal cor	mplies with applicable regulations.
Other conditions affecti	ng environmental exposure
Local marine water dilution Local freshwater dilution Receiving surface water f	factor: 10
Additional good practic	e advice. Obligations according to Article 37(4) of REACH do not apply.
Additional Good Practice Adequate closed storage fac	Advice: cilities (e.g., bulk storage tanks, intermediate bulk containers, drums) are required.
4.2. CS2: Worker Contribu	uting Scenario: Industrial (PROC1)
Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
Product (article) charae	cteristics
Vapour pressure: < 10 kPa	
	<b>ce in product:</b> ce in the product up to 100 %.
Covers percentage substance	•
Covers percentage substance Amount used, frequency	ce in the product up to 100 %. A and duration of use/exposure
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to	ce in the product up to 100 %. A and duration of use/exposure
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisa	ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures onal measures osed system.
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisatio Handle substance within a close	ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures onal measures osed system.
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Store substance within a close Conditions and measure	ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures osed system. sed system.
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Conditions and measured Personal protection Use suitable eye protection.	ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures osed system. sed system.
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Conditions and measure Personal protection Use suitable eye protection. 4.2. CS3: Worker Contribute	ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures oral measures losed system. sed system. sed system. es related to personal protection, hygiene and health evaluation
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Conditions and measure Personal protection Use suitable eye protection. 4.2. CS3: Worker Contribut Process Categories	<pre>ce in the product up to 100 %. y and duration of use/exposure o 8 hours tional conditions and measures mal measures osed system. sed system. sed system. es related to personal protection, hygiene and health evaluation uting Scenario: Industrial (PROC2) Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)</pre>
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Conditions and measured Personal protection Use suitable eye protection. 4.2. CS3: Worker Contribut Process Categories Product (article) charace	te in the product up to 100 %. y and duration of use/exposure to 8 hours tional conditions and measures osed system. sed system. set related to personal protection, hygiene and health evaluation uting Scenario: Industrial (PROC2) Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) cteristics
Covers percentage substance Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Conditions and measured Personal protection Use suitable eye protection. 4.2. CS3: Worker Contribut Process Categories Product (article) characted Physical form of product: Liquid	te in the product up to 100 %. y and duration of use/exposure to 8 hours tional conditions and measures osed system. sed system. set related to personal protection, hygiene and health evaluation uting Scenario: Industrial (PROC2) Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2) cteristics
Amount used, frequency Duration: Covers daily exposures up to Technical and organisation Handle substance within a close Store substance within a close Conditions and measured Personal protection Use suitable eye protection. 4.2. CS3: Worker Contribut Process Categories Product (article) charact Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substan	ce in the product up to 100 %.  y and duration of use/exposure  o 8 hours  tional conditions and measures osed system. sed system. es related to personal protection, hygiene and health evaluation  uting Scenario: Industrial (PROC2)  Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)  cteristics

Amount used, frequency and duration of use/exposure

Duration:		
Covers daily exposures u	p to 8 hours	
Technical and organis	sational conditions and measures	
Technical and organisat Handle substance within a Store substance within a	a closed system.	
Conditions and measu	ures related to personal protection, hygiene and health evaluation	
Personal protection Use suitable eye protectio	on.	
4.2. CS4: Worker Contri	ibuting Scenario: Industrial (PROC3)	
Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)	
Product (article) char	<i>acteristics</i>	
Physical form of produc Liquid	;t:	
Vapour pressure: < 10 kPa		
Concentration of substa Covers percentage substa	ance in product: ance in the product up to 100 %.	
Amount used, frequen	ncy and duration of use/exposure	
Duration: Covers daily exposures u	p to 8 hours	
Technical and organis	sational conditions and measures	
Technical and organisat Handle substance within a Store substance within a c	a closed system.	
Conditions and measu	ures related to personal protection, hygiene and health evaluation	
Personal protection Use suitable eye protection	on.	
4.2. CS5: Worker Contri	ibuting Scenario: Industrial (PROC8a)	
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)	
Product (article) char	<i>acteristics</i>	
Physical form of produc Liquid	:t:	
Vapour pressure: < 10 kPa		
Concentration of substa Covers percentage substa	ance in product: ance in the product up to 100 %.	
Amount used, frequen	ncy and duration of use/exposure	
Duration: Covers daily exposures u	p to 8 hours	
Technical and organis	sational conditions and measures	
Technical and organisat Handle substance within a		
Store substance within a c		

Personal protection Use suitable eye protection.	
4.2. CS6: Worker Contributing	Scenario: Industrial (PROC8b)
Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) character	istics
Physical form of product: Liquid	
Vapour pressure: < 10 kPa	
Concentration of substance in Covers percentage substance in t	•
Amount used, frequency and	d duration of use/exposure
Duration: Covers daily exposures up to 8 ho	ours
	al conditions and measures
Technical and organisational I Handle substance within a closed Store substance within a closed sy	measures system.
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
4.2. CS7: Worker Contributing	Scenario: Industrial (PROC15)
Drococc Categories	
Process Categories	Use as laboratory reagent (PROC15)
Product (article) character	
Product (article) character Physical form of product: Liquid	
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa	istics
Product (article) character Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in	istics a product: the product up to 100 %.
Product (article) character Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in Covers percentage substance in t Amount used, frequency and Duration:	istics  a product: the product up to 100 %. d duration of use/exposure
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in Covers percentage substance in t Amount used, frequency and Duration: Covers daily exposures up to 8 ho	istics  a product: the product up to 100 %. d duration of use/exposure
Product (article) character Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in Covers percentage substance in the Amount used, frequency and Duration: Covers daily exposures up to 8 ho Technical and organisation	istics istics iproduct: the product up to 100 %. d duration of use/exposure ours cal conditions and measures measures system.
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in Covers percentage substance in the Amount used, frequency and Duration: Covers daily exposures up to 8 he Technical and organisational in Handle substance within a closed Store substance within a closed system	istics istics iproduct: the product up to 100 %. d duration of use/exposure ours cal conditions and measures measures system.
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in Covers percentage substance in the Amount used, frequency and Duration: Covers daily exposures up to 8 he Technical and organisational in Handle substance within a closed sy Conditions and measures results	istics istics iproduct: the product up to 100 %. d duration of use/exposure ours cours cours conditions and measures measures system. ystem.
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in the covers percentage substance in the covers percentage substance in the covers daily exposures up to 8 here. Duration: Covers daily exposures up to 8 here. Technical and organisational in the Handle substance within a closed system of substance within a closed system of the substance within a c	istics istics iproduct: the product up to 100 %. d duration of use/exposure ours cours cours conditions and measures measures system. ystem.
Product (article) characteries Physical form of product: Liquid Vapour pressure: <ul> <li>&lt; 10 kPa</li> </ul> Concentration of substance in the covers percentage substance in the covers percentage substance in the covers daily exposures up to 8 here. Duration: <ul> <li>Covers daily exposures up to 8 here.</li> </ul> Technical and organisational in the Handle substance within a closed system of substance within a closed system of the substance of the substance within a closed system of the substance	istics istics iproduct: the product up to 100 %. d duration of use/exposure ours tal conditions and measures measures system. ystem. elated to personal protection, hygiene and health evaluation
Product (article) characteri Physical form of product: Liquid Vapour pressure: < 10 kPa Concentration of substance in the covers percentage substance in the covers percentage substance in the covers daily exposures up to 8 here. Duration: Covers daily exposures up to 8 here. Technical and organisational in the Handle substance within a closed system of substance within a closed system of the substance within a c	istics is

#### Vapour pressure:

< 10 kPa

#### **Concentration of substance in product:**

Covers percentage substance in the product up to 100 %.

## Amount used, frequency and duration of use/exposure

#### **Duration:**

Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

#### **Technical and organisational measures**

Handle substance within a closed system.

Store substance within a closed system.

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

#### **Personal protection**

Use suitable eye protection.

# 4.3 Exposure estimation and reference to its source

# 4.3. CS1: Environment Contributing Scenario: Covered by (ERC7)

Release route	Release rate	Release estimation method	
Air	0.0025 %	N/A	
Water	1E-05 %	N/A	
soil	0 %	N/A	

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
wastewater treatment plant microbes	0.0421 mg/L	N/A	7.26E-05
freshwater	0.00657 mg/L	N/A	0.00684
freshwater sediment	0.00685 mg/kg bw/day	N/A	0.00685
marine water	0.00363 mg/L	N/A	0.00459
marine sediment	0.0139 mg/kg bw/day	N/A	0.00459
soil	0.00694 mg/kg bw/day	N/A	0.0408

# 4.3. CS2: Worker Contributing Scenario: Industrial (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.019 mg/m³	N/A	< 0.001
dermal, systemic, long-term	0.03 mg/kg bw/day	N/A	< 0.001
combined routes, systemic, long-term	N/A	N/A	< 0.001

#### 4.3. CS3: Worker Contributing Scenario: Industrial (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.6 mg/m <sup>3</sup>	N/A	0.01
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.004
combined routes, systemic, long-term	N/A	N/A	0.0222

#### 4.3. CS4: Worker Contributing Scenario: Industrial (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	19 mg/m³	N/A	0.02
dermal, systemic, long-term	0.69 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.222

#### 4.3. CS5: Worker Contributing Scenario: Industrial (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	14 mg/m³	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.141

#### 4.3. CS6: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	48 mg/m³	N/A	0.05
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.0904

#### 4.3. CS7: Worker Contributing Scenario: Industrial (PROC15)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	19 mg/m³	N/A	0.02
dermal, systemic, long-term	0.34 mg/kg bw/day	N/A	< 0.001

combined routes, systemic, long-term	N/A	N/A	0.0112

#### 4.3. CS8: Worker Contributing Scenario: Industrial (PROC16)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.6 mg/m³	N/A	0.01
dermal, systemic, long-term	0.34 mg/kg bw/day	N/A	< 0.001
combined routes, systemic, long-term	N/A	N/A	0.0111

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

#### Guidance to check compliance with the exposure scenario:

## 5. ES 5

# Widespread use by professional workers

#### **5.1 TITLE SECTION**

5.1 IIILE SECTION				
Exposure Scenario name	Solvent	Solvent		
Date - Version	23/07/2019 - 1.0			
Life Cycle Stage	Widespread use by professional workers			
Main user group	Professional uses			
Sector(s) of use	Professional uses (SU22)			
Environment Contributing Sce	nario			
CS1 Covered by		ERC8a - ERC8d		
Worker Contributing Scenario	Worker Contributing Scenario			
CS2 General use from professional operators PROC1				
CS3 General use from professional operators		PROC2		
CS4 General use from professional operators		PROC3		
CS5 General use from professional operators		PROC4		
CS6 General use from professional operators		PROC5 - PROC8a		
CS7 General use from professiona	al operators	PROC8b		
CS8 General use from professional operators		PROC10		
CS9 General use from professional operators		PROC11		
CS10 General use from professional operators		PROC11		
CS11 General use from professional operators PROC13				
CS12 General use from profession	nal operators	PROC19		

## 5.2 Conditions of use affecting exposure

#### 5.2. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8d)

Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
	(ERC8a, ERC8d)

#### **Product (article) characteristics**

#### Physical form of product:

Liquid, vapour pressure 0,5 - 10 kPa at STP

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

#### Amounts used:

Annual site tonnage 0.1 t(onnes)/year

#### Maximum allowable site tonnage (MSafe): 715 kg/day

Release type: Continuous release

#### Emission days: 365 days per year

Technical and organisational conditions and measures

		6 (24)	
Treat air emission to provide the required removal efficiency of (%): Air - minimum efficiency of: 90 %			
Prevent discharge of undissolv	ed substance to or recover from	onsite wastewater.	'
Conditions and measure	es related to treatment o	of waste (includin	na article waste)
Waste treatment	S related to treatment o	j waste (includin	
Hazardous waste incineration	V	Waste - minimum effici	ency of: 99.98 %
5.2. CS2: Worker Contribu	ting Scenario: General use	e from professiona	al operators (PROC1)
Process Categories	Chemical production o processes with equival		process without likelihood of exposure or nditions (PROC1)
Product (article) charad	cteristics		
Physical form of product: Liquid, vapour pressure 0,5	- 10 kPa at STP		
Concentration of substand Covers percentage substand	<b>ce in product:</b> e in the product up to 100 %.		
Amount used, frequency	and duration of use/ex	posure	
Duration: Covers daily exposures up to	o 8 hours		
Conditions and measure	es related to personal pr	otection, hygiene	e and health evaluation
Personal protection Use suitable eye protection.			
5.2. CS3: Worker Contribu	ting Scenario: General use	e from professiona	al operators (PROC2)
Process Categories			continuous process with occasional controlled tainment conditions (PROC2)
Product (article) charad	cteristics		
Physical form of product: Liquid, vapour pressure 0,5	- 10 kPa at STP		
Concentration of substand	c <b>e in product:</b> The in the product up to 100 %.		
Amount used, frequency	and duration of use/ex	posure	
Duration: Covers daily exposures up to	o 8 hours		
Conditions and measure	es related to personal pr	otection, hygiene	e and health evaluation
Personal protection Use suitable eye protection.			
5.2. CS4: Worker Contribu	ting Scenario: General use	e from professiona	al operators (PROC3)
Process Categories			al industry in closed batch processes with es with equivalent containment condition (PROC3)
Product (article) charad	cteristics		
Physical form of product:			

**Concentration of substance in product:** 

Covers percentage substance ir	n the product up to 100 %.
Amount used, frequency a	nd duration of use/exposure
Duration: Covers daily exposures up to 8	hours
Conditions and measures	related to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
5.2. CS5: Worker Contributin	g Scenario: General use from professional operators (PROC4)
Process Categories	Chemical production where opportunity for exposure arises (PROC4)
Product (article) characte	ristics
Physical form of product: Liquid, vapour pressure 0,5 - 10 Concentration of substance in Covers percentage substance in	in product:
	nd duration of use/exposure
Duration: Covers daily exposures up to 8	
Conditions and measures	related to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
5.2. CS6: Worker Contributin	g Scenario: General use from professional operators (PROC5, PROC8a)
Process Categories	Mixing or blending in batch processes - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC5, PROC8a)
Product (article) characte	ristics
Physical form of product: Liquid, vapour pressure 0,5 - 10	) kPa at STP
Concentration of substance in Covers percentage substance in	•
Amount used, frequency a	nd duration of use/exposure
Duration: Covers daily exposures up to 8	hours
Conditions and measures	related to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
5.2. CS7: Worker Contributin	g Scenario: General use from professional operators (PROC8b)
Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) characte	ristics
Physical form of product: Liquid, vapour pressure 0,5 - 10	) kPa at STP
Concentration of substance	•
	nd duration of use/exposure
Duration: Covers daily exposures up to 8	
Conditions and measures	related to personal protection, hygiene and health evaluation

Personal protection Use suitable eye protection.			
5.2. CS8: Worker Contributi	ng Scenario: General use from professional operators (PROC10)		
Process Categories	Roller application or brushing (PROC10)		
Product (article) characte	eristics		
Physical form of product: Liquid, vapour pressure 0,5 - 1	0 kPa at STP		
<b>Concentration of substance</b> Covers percentage substance is	•		
Amount used, frequency a	and duration of use/exposure		
Duration: Covers daily exposures up to 8	hours		
Conditions and measures	related to personal protection, hygiene and health evaluation		
Personal protection			
Use suitable eye protection.	ng Scenario: General use from professional operators (PROC11)		
Process Categories	Non industrial spraying (PROC11)		
<b>Product (article) characte</b> Physical form of product:	eristics		
Liquid, vapour pressure 0,5 - 1	in product:		
Covers percentage substance			
Amount used, frequency a Duration:	and duration of use/exposure		
Covers daily exposures up to 8	hours		
Technical and organisation	onal conditions and measures		
Technical and organisationa Provide a good standard of con	<b>il measures</b> trolled ventilation (10 to 15 air changes per hour).		
Conditions and measures	related to personal protection, hygiene and health evaluation		
Personal protection Use suitable eye protection. Wear suitable gloves tested to	EN374.		
Other conditions affecting	y worker exposure		
Indoor use			
5.2. CS10: Worker Contribut	ting Scenario: General use from professional operators (PROC11)		
Process Categories	Process Categories Non industrial spraying (PROC11)		
Product (article) characte	eristics		
Physical form of product: Liquid, vapour pressure 0,5 - 1	0 kPa at STP		
<b>Concentration of substance</b> Covers percentage substance i	•		
· · · ·	and duration of use/exposure		
Duration: Covers daily exposures up to 8			

Technical and organisatio Provide a good standard of c	nal measures ontrolled ventilation (10 to 15	5 air changes per hour).			
		protection, hygiene and health evaluation			
Personal protection Use suitable eye protection. Wear suitable gloves tested Wear a respirator conformin					
Other conditions affecti	ng worker exposure				
Outdoor use					
5.2. CS11: Worker Contrib	outing Scenario: General	l use from professional operators (PROC13)			
Process Categories	Treatment of articles	es by dipping and pouring (PROC13)			
Product (article) chara	cteristics				
Physical form of product: Liquid, vapour pressure 0,5	- 10 kPa at STP				
Concentration of substan Covers percentage substan	<b>ce in product:</b> ce in the product up to 100 %.				
Amount used, frequency	vand duration of use/e	exposure			
Duration: Covers daily exposures up t	o 8 hours				
Conditions and measure	es related to personal <sub>l</sub>	protection, hygiene and health evaluation			
Personal protection Use suitable eye protection. Wear suitable gloves tested	to EN374.				
5.2. CS12: Worker Contrib	outing Scenario: General	l use from professional operators (PROC19)			
Process Categories Manual activities involving hand contact (PROC19)					
Product (article) chara	cteristics				
Physical form of product: Liquid, vapour pressure 0,5					
Concentration of substan Covers percentage substan	ce in the product: up to 100 %.				
Amount used, frequency	and duration of use/e	exposure			
Duration: Covers daily exposures up t	o 8 hours				
Conditions and measure	es related to personal j	protection, hygiene and health evaluation			
Personal protection Use suitable eye protection. Wear suitable gloves tested	to EN374.				
5.3 Exposure estir	nation and refere	ence to its source			
5.3. CS1: Environment Co	ntributing Scenario: Cov	/ered by (ERC8a, ERC8d)			
Release route	Release rate	Release estimation method			

Air	0.98 %	N/A
		,
Water	0.01 %	N/A

soil	0.01 %	N/A

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
wastewater treatment plant microbes	0.000173 mg/L	N/A	2.98E-07
freshwater	0.00238 mg/L	N/A	0.00248
freshwater sediment	0.00912 mg/kg bw/day	N/A	0.00248
marine sediment	0.000303 mg/L	N/A	0.000384
marine sediment	0.00116 mg/kg bw/day	N/A	0.000383
soil	0.00116 mg/kg bw/day	N/A	0.00682

#### **5.3. CS2:** Worker Contributing Scenario: General use from professional operators (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.019 mg/m³	N/A	< 0.001
dermal, systemic, long-term	0.03 mg/kg bw/day	N/A	< 0.001
combined routes, systemic, long-term	N/A	N/A	< 0.001

#### 5.3. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	38 mg/m³	N/A	0.04
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.004
combined routes, systemic, long-term	N/A	N/A	0.0443

#### 5.3. CS4: Worker Contributing Scenario: General use from professional operators (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	48 mg/m³	N/A	0.05
dermal, systemic, long-term	0.69 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.0524

#### 5.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	6.9 mg/kg bw/day	N/A	0.02
combined routes, systemic, long-term	N/A	N/A	0.121

#### 5.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC5, PROC8a)

sure route, Health effect, Exposure indicator Exposure level Calcula	tion method Risk Characterization Ratio (RCR)
tive, systemic, long-term 190 mg/m <sup>3</sup> N/A	0.202
al, systemic, long-term 14 mg/kg bw/day N/A	0.04
ined routes, systemic, long-term N/A N/A	0.242
ned routes, systemic, long-term N/A N/A	0.242

#### 5.3. CS7: Worker Contributing Scenario: General use from professional operators (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.202
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.141

#### 5.3. CS8: Worker Contributing Scenario: General use from professional operators (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	190 mg/m³	N/A	0.202
dermal, systemic, long-term	27 mg/kg bw/day	N/A	0.08
combined routes, systemic, long-term	N/A	N/A	0.282

#### 5.3. CS9: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	290 mg/m <sup>3</sup>	N/A	0.303
dermal, systemic, long-term	21 mg/kg bw/day	N/A	0.062
combined routes, systemic, long-term	N/A	N/A	0.365

5.3. CS10: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	67 mg/m³	N/A	0.071
dermal, systemic, long-term	21 mg/kg bw/day	N/A	0.062
combined routes, systemic, long-term	N/A	N/A	0.133

#### 5.3. CS11: Worker Contributing Scenario: General use from professional operators (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	190 mg/m <sup>3</sup>	N/A	0.202
dermal, systemic, long-term	2.7 mg/kg bw/day	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.21

#### 5.3. CS12: Worker Contributing Scenario: General use from professional operators (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	190 mg/m³	N/A	0.202
dermal, systemic, long-term	28 mg/kg bw/day	N/A	0.082
combined routes, systemic, long-term	N/A	N/A	0.284

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

#### Guidance to check compliance with the exposure scenario:

# 6. ES 6Widespread use by professional workers6.1 TITLE SECTIONExposure Scenario nameFuelDate - Version23/07/2019 - 1.0Life Cycle StageWidespread use by professional workers

Professional uses (SU22)

Main user group Professional uses

#### **Environment Contributing Scenario**

Sector(s) of use

CS1 Covered by	ERC9a - ERC9b
Worker Contributing Scenario	
CS2 General use from professional operators	PROC1
CS3 General use from professional operators	PROC2
CS4 General use from professional operators	PROC3
CS5 General use from professional operators	PROC8a
CS6 General use from professional operators	PROC8b
CS7 General use from professional operators	PROC16

## 6.2 Conditions of use affecting exposure

#### 6.2. CS1: Environment Contributing Scenario: Covered by (ERC9a, ERC9b)

Environmental release	Widespread use of functional fluid (indoor) - Widespread use of functional fluid (outdoor)
categories	(ERC9a, ERC9b)

#### Product (article) characteristics

#### Physical form of product:

Liquid, vapour pressure 0,5 - 10 kPa at STP

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

#### Amounts used:

Annual site tonnage 1 t(onnes)/year

#### Maximum allowable site tonnage (MSafe): 7190 kg/day

Release type: Continuous release

#### Emission days: 365 days per year

Technical and organisational conditions and measures

#### **Control measures to prevent releases**

Prevent discharge of undissolved substance to or recover from onsite wastewater.

#### *Conditions and measures related to treatment of waste (including article waste)*

#### Waste treatment

Product residual disposal complies with applicable regulations.

6.2. CS2: Worker Contributing Scenario: General use from professional operators (PROC1)

Dracass Catagorias	Chemical production or refinery in closed process without likelihood of exposure or		
Process Categories	processes with equivalent containment conditions (PROC1)		

Product (article) character	istics
Physical form of product: Liquid, vapour pressure 0,5 - 10 k	kPa at STP
Concentration of substance in Covers percentage substance in t	•
Technical and organisation	al conditions and measures
Technical and organisational in Handle substance within a closed Store substance within a closed sy	system.
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
6.2. CS3: Worker Contributing	Scenario: General use from professional operators (PROC2)
Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)
Product (article) character	istics
Physical form of product: Liquid, vapour pressure 0,5 - 10	<pa at="" stp<="" td=""></pa>
Concentration of substance in Covers percentage substance in t	•
Technical and organisation	al conditions and measures
Technical and organisational in Handle substance within a closed Store substance within a closed sy	system.
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
6.2. CS4: Worker Contributing	Scenario: General use from professional operators (PROC3)
Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
Product (article) character	istics
Physical form of product: Liquid, vapour pressure 0,5 - 10 k	kPa at STP
Concentration of substance in Covers percentage substance in t	•
Technical and organisation	al conditions and measures
Technical and organisational in Handle substance within a closed Store substance within a closed sy	system.
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Use suitable eye protection.	
6.2. CS5: Worker Contributing	Scenario: General use from professional operators (PROC8a)
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) character	istics
Physical form of product:	vDa at CTD

Liquid, vapour pressure 0,5 - 10 kPa at STP

Concentration of substance in Covers percentage substance in t	-		
Technical and organisation	al conditions and measur	es	
Technical and organisational in Handle substance within a closed Store substance within a closed sy	system.		
Conditions and measures re	elated to personal protecti	on, hygiene and health evaluation	
Personal protection Use suitable eye protection.			
6.2. CS6: Worker Contributing	Scenario: General use from	professional operators (PROC8b)	
Process Categories	Transfer of substance or mixt	ure (charging and discharging) at dedicated facilities (PROC8b)	
Product (article) character	istics		
Physical form of product: Liquid, vapour pressure 0,5 - 10 k	Pa at STP		
<b>Concentration of substance in</b> Covers percentage substance in t	•		
Technical and organisation		es	
Technical and organisational u Handle substance within a closed Store substance within a closed sy	system.		
Conditions and measures re	elated to personal protecti	on, hygiene and health evaluation	
Personal protection Use suitable eye protection.			
6.2. CS7: Worker Contributing	Scenario: General use from	professional operators (PROC16)	
Process Categories	Use of fuels (PROC16)		
Product (article) characteristics			
Physical form of product: Liquid, vapour pressure 0,5 - 10 k	Pa at STP		
Concentration of substance in Covers percentage substance in t	-		
Technical and organisation	al conditions and measur	es	
Technical and organisational u Handle substance within a closed Store substance within a closed sy	system.		
Conditions and measures re	elated to personal protecti	on, hygiene and health evaluation	
Personal protection Use suitable eye protection.			
6.3 Exposure estimat	ion and reference t	o its source	
6.3. CS1: Environment Contrib	outing Scenario: Covered by	(ERC9a, ERC9b)	
Deleges verits	Delegge sets	Deleges estimation method	
Release route	Release rate	Release estimation method	
Air	0.01 %	N/A	
Water	1E-05 % N/A		

soil	0 %	N/A	

#### 6.3. CS2: Worker Contributing Scenario: General use from professional operators (PROC1)

Exposure level	Calculation method	Risk Characterization Ratio (RCR)
0.019 mg/m³	N/A	< 0.001
0.03 mg/kg bw/day	N/A	< 0.001
N/A	N/A	< 0.001
	0.019 mg/m <sup>3</sup>	0.019 mg/m³     N/A       0.03 mg/kg bw/day     N/A

#### 6.3. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	38 mg/m³	N/A	0.04
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.004
combined routes, systemic, long-term	N/A	N/A	0.0443

#### 6.3. CS4: Worker Contributing Scenario: General use from professional operators (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	48 mg/m³	N/A	0.05
dermal, systemic, long-term	0.69 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.0524

#### 6.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	190 mg/m³	N/A	0.202
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.242

#### 6.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	96 mg/m³	N/A	0.101
dermal, systemic, long-term	14 mg/kg bw/day	N/A	0.04

combined routes, systemic, long-term	N/A	N/A	0.141

#### 6.3. CS7: Worker Contributing Scenario: General use from professional operators (PROC16)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	19 mg/m³	N/A	0.02
dermal, systemic, long-term	0.34 mg/kg bw/day	N/A	< 0.001
combined routes, systemic, long-term	N/A	N/A	0.0212

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

#### Guidance to check compliance with the exposure scenario:

7. ES 7 Consu	ımer use; Fuels (PC13)			
7.1 TITLE SECTION				
Exposure Scenario name	Fuel			
Date - Version	23/07/2019 - 1.0			
Life Cycle Stage	Consumer use			
Main user group	Consumer uses			
Sector(s) of use	Consumer uses (SU21)			
Product Categories	Fuels (PC13)			
Environment Contributing Sce	nario			
CS1 Covered by		ERC9b		
Consumer Contributing Scenar	rio			
CS2 Consumer		PC13 - PC13_1		
CS3 Consumer		PC13 - PC13_2		
CS4 Consumer		PC13 - PC13_3		
CS5 Consumer		PC13 - PC13_4		
7.2 Conditions of use	affecting exposure			
7.2. CS1: Environment Contrib	uting Scenario: Covered by (ERC9b)			
Environmental release categories	Widespread use of functional fluid (outdoor) (ERC9b)			
Product (article) characteri	stics			
Physical form of product: Liquid Vapour pressure:				
5726 Pa				
	lated to treatment of waste (including article	waste)		
Waste treatment Product residual disposal complies	s with applicable regulations.			
Other conditions affecting environmental exposure				
Local marine water dilution factor: 100				
Local freshwater dilution factor: 10 7.2. CS2: Consumer Contributing Scenario: Consumer (PC13)				
Product Categories	Fuels (PC13)			
Product (Sub-)Categories	Liquid: Automotive Refuelling (PC13_1)			
Product (article) characteri				
Concentration of substance in Covers concentrations up to 85 %	product:			
Amount used, frequency and				
Amounts used: Amount per use 37500 g				

Duration:	
Exposure duration 0.05 h/event <b>Frequency:</b>	
Covers use up to 51 times per ye	ar
Other conditions affecting of	consumers exposure
Outdoor use	
Additional conditions human Covers skin contact area up to 210	
7.2. CS3: Consumer Contribut	ing Scenario: Consumer (PC13)
Product Categories	Fuels (PC13)
Product (Sub-)Categories	Liquid Scooter Refuelling (PC13_2)
Product (article) character	istics
<b>Concentration of substance in</b> Covers concentrations up to 85 9	•
Amount used, frequency an	d duration of use/exposure
Amounts used: Amount per use 37500 g	
Duration: Exposure duration 0.033 h/event Frequency: Covers use up to 51 times per ye	
Other conditions affecting of	consumers exposure
Outdoor use	
Additional conditions human Covers skin contact area up to 210	
7.2. CS4: Consumer Contribut	ing Scenario: Consumer (PC13)
Product Categories	Fuels (PC13)
Product (Sub-)Categories	Liquid, Garden equipment - Use (PC13_3)
Product (article) character	istics
<b>Concentration of substance in</b> Covers concentrations up to 15 9	•
Amount used, frequency an	d duration of use/exposure
Amounts used: Amount per use 750 g	
Duration: Exposure duration 2 h/event Frequency: Covers use up to 25 times per ye	ar
Other conditions affecting of	consumers exposure
Outdoor use	
Outdoor use Additional conditions human Covers skin contact area up to 210	
Additional conditions human Covers skin contact area up to 210	

#### Liquid: Garden equipment - Refuelling (PC13\_4)

#### Product (article) characteristics

#### **Concentration of substance in product:**

Covers concentrations up to 85 %

#### Amount used, frequency and duration of use/exposure

#### Amounts used:

Amount per use 750 g

#### **Duration:**

Exposure duration 0.05 h/event

#### **Frequency:**

Covers use up to 25 times per year

Other conditions affecting consumers exposure

**Room size:** Covers use in a one car garage (>34 m<sup>3</sup>) under typical ventilation. **Temperature:** Covers use at ambient temperatures.

#### Additional conditions human health

Covers skin contact area up to 210 cm<sup>2</sup>

## 7.3 Exposure estimation and reference to its source

#### 7.3. CS1: Environment Contributing Scenario: Covered by (ERC9b)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.0236 mg/L	N/A	0.00246
freshwater sediment	0.00905 mg/kg bw/day	N/A	0.00246
marine water	0.0003 mg/L	N/A	0.00038
marine sediment	0.0015 mg/kg bw/day	N/A	0.00038
marine sediment	0.0015 mg/kg bw/day	N/A	0.00676

#### 7.2. CS2: Consumer Contributing Scenario: Consumer (PC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.187 mg/m³	N/A	0.00164
inhalative, local, short-term	1.3 mg/m³	N/A	0.0114
dermal, systemic, long-term	0.117 mg/kg bw/day	N/A	8.1E-05
combined routes, systemic, long-term	N/A	N/A	0.0114

#### 7.2. CS3: Consumer Contributing Scenario: Consumer (PC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.0612 mg/m <sup>3</sup>	N/A	0.000544

inhalative, local, short-term	0.434 mg/m³	N/A	0.0038
dermal, systemic, long-term	0.117 mg/kg bw/day	N/A	8.1E-05
combined routes, systemic, long-term	N/A	N/A	0.00388

#### 7.2. CS4: Consumer Contributing Scenario: Consumer (PC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.0764 mg/m <sup>3</sup>	N/A	0.00067
inhalative, local, short-term	1.09 mg/m³	N/A	0.00956
dermal, systemic, long-term	4.13 mg/kg bw/day	N/A	0.0014
combined routes, systemic, long-term	N/A	N/A	0.0109

#### 7.2. CS5: Consumer Contributing Scenario: Consumer (PC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.079 mg/m <sup>3</sup>	N/A	0.000692
inhalative, local, short-term	1.12 mg/m³	N/A	0.00982
dermal, systemic, long-term	0.117 mg/kg bw/day	N/A	3.98E-05
combined routes, systemic, long-term	N/A	N/A	0.00986

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

#### Guidance to check compliance with the exposure scenario:

# 8. ES 8 Consumer use; Various products (PC1, PC3, PC8, PC18, PC23)

#### **8.1 TITLE SECTION**

8.1 IIILE SECTION			
Exposure Scenario name	Cosumer other uses		
Date - Version	23/07/2019 - 1.0		
Life Cycle Stage	Consumer use		
Main user group	Consumer uses	Consumer uses	
Sector(s) of use	Consumer uses (SU21)		
Product Categories	Adhesives, sealants (PC1) - Air care products (PC3) - Biocidal products (PC8) - Ink and toners (PC18) - Leather treatment products (PC23) - Lubricants, greases, release products (PC24) - Plant protection products (PC27) - Polishes and wax blends (PC31) - Textile dyes and impregnating products (PC34)		
Environment Contributing So	cenario		
CS1 Covered by		ERC8a - ERC8d	
Consumer Contributing Scen	ario		
CS2 Consumer		PC1 - PC1_1	
CS3 Consumer		PC1 - PC1_3	
CS4 Consumer		PC1 - PC1_4	
CS5 Consumer		PC3 - PC3_1	
CS6 Consumer		PC3 - PC3_2	
CS7 Consumer		PC8 - PC35_1, PC8_1	
CS8 Consumer		PC8 - PC8_2, PC35_2	
CS9 Consumer		PC8 - PC8_3, PC35_3	
CS10 Consumer		PC18	
CS11 Consumer		PC23 - PC23_1, PC31_1	
CS12 Consumer		PC23 - PC23_2, PC31_2	
CS13 Consumer		PC24 - PC16_1, PC17_1, PC24_1, 36	
CS14 Consumer		PC27	
CS15 Consumer PC31 - PC23_1		PC31 - PC23_1, PC31_1	
<b>CS16 Consumer</b> PC31 - PC23_2, PC31_2			

## 8.2 Conditions of use affecting exposure

#### 8.2. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8d)

Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) - Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8a, ERC8d)

#### **Product (article) characteristics**

#### Physical form of product:

Liquid, vapour pressure > 10 kPa at STP

Conditions and measures related to treatment of waste (including article waste)

Hazardous waste incineration		Waste - minimum efficiency of: 99.8 %		
Other conditions affecting	g environmental expo	osure		
Local marine water dilution				
Local freshwater dilution fa Receiving surface water flo				
8.2. CS2: Consumer Contrib	· •	mer (PC1)		
	_			
Product Categories Product (Sub-)Categories	Adhesives, sealants ( Glues, hobby use (PC			
		1_1)		
Product (article) character Concentration of substance				
Covers concentrations up to 7	-			
Amount used, frequency o	and duration of use/e	exposure		
Amounts used: Amount per use 50 g				
Duration: Exposure duration 4 h/event Frequency: Covers exposure up to 1 even	ts per day			
Other conditions affecting	g consumers exposur	e		
Room size: Covers use in room si	ize of 20 m³			
Additional conditions huma Covers skin contact area up to				
8.2. CS3: Consumer Contrib	uting Scenario: Consur	ner (PC1)		
Product Categories	Adhesives sealants (	Adhesives, sealants (PC1)		
i i ouuci calegones	/ tarresives) seatarres (	PCI)		
Product (Sub-)Categories	Glue from spray (PC1			
	Glue from spray (PC1			
Product (Sub-)Categories Product (article) charact	Glue from spray (PC1 eristics e in product:			
Product (Sub-)Categories Product (article) character Concentration of substance Covers concentrations up to 3	Glue from spray (PC1 eristics in product:	L_3)		
Product (Sub-)Categories Product (article) character Concentration of substancer Covers concentrations up to 3 Amount used, frequency of	Glue from spray (PC1 eristics in product:	L_3)		
Product (Sub-)Categories Product (article) character Concentration of substancer Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration:	Glue from spray (PC1 eristics in product:	L_3)		
Product (Sub-)Categories Product (article) character Concentration of substancer Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration: Exposure duration 4 h/event	Glue from spray (PC1 eristics in product: 00 % and duration of use/e	L_3)		
Product (Sub-)Categories Product (article) character Concentration of substancer Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration: Exposure duration 4 h/event Frequency: Covers exposure up to 6 times	Glue from spray (PC1 eristics in product: 50 % and duration of use/e	1_3) exposure		
Product (Sub-)Categories Product (article) character Concentration of substance Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration: Exposure duration 4 h/event Frequency: Covers exposure up to 6 times Other conditions affecting	Glue from spray (PC1 eristics in product: 00 % and duration of use/e	1_3) exposure		
Product (Sub-)Categories Product (article) character Concentration of substance Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration: Exposure duration 4 h/event Frequency:	Glue from spray (PC1 eristics e in product: 50 % and duration of use/e s per year g consumers exposur ize of 20 m <sup>3</sup> an health	1_3) exposure		
Product (Sub-)Categories Product (article) character Concentration of substancer Covers concentrations up to 3 Amount used, frequency of Amounts used: Amount per use 50 g Duration: Exposure duration 4 h/event Frequency: Covers exposure up to 6 times Other conditions affecting Room size: Covers use in room size	Glue from spray (PC1 eristics in product: 50 % and duration of use/e s per year g consumers exposur ize of 20 m <sup>3</sup> an health 35 cm <sup>2</sup>	e e		

Product (Sub-)Categories	Sealants (PC1_4)
Product (article) characteri	
Concentration of substance in Covers concentrations up to 30 %	
Amount used, frequency and	l duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 1 h/event Frequency: Covers exposure up to 1 events p	er day
Other conditions affecting c	onsumers exposure
Room size: Covers use in room size of	of 20 m³
Additional conditions human I Covers skin contact area up to 35 of	
8.2. CS5: Consumer Contributi	ng Scenario: Consumer (PC3)
Product Categories	Air care products (PC3)
Product (Sub-)Categories	Air care, instant action (aerosol sprays) (PC3_1)
Product (article) characteri	stics
Concentration of substance in Covers concentrations up to 40 %	•
Amount used, frequency and	l duration of use/exposure
Amounts used: Amount per use 50 g	
Duration:	
Exposure duration 0.3 h/event Frequency: Covers exposure up to 4 events p	er dav
Other conditions affecting c	
Room size: Covers use in room size of	•
Additional conditions human I Covers skin contact area up to 35 of	
8.2. CS6: Consumer Contributi	ng Scenario: Consumer (PC3)
Product Categories Air care products (PC3)	
Product (Sub-)Categories	Air care, continuous action (solid and liquid) (PC3_2)
Product (article) characteri	stics
Concentration of substance in Covers concentrations up to 10 %	
Amount used, frequency and	l duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 8 h/event Frequency:	

Covers exposure up to 1 events p	er day	
Other conditions affecting c	onsumers exposure	
Room size: Covers use in room size	-	
Additional conditions human	health	
Covers skin contact area up to 35		
8.2. CS7: Consumer Contributi	ng Scenario: Consumer (PC8)	
Product Categories	Biocidal products (PC8)	
Product (Sub-)Categories	Laundry and dish washing products (PC35_1, PC8_1)	
Product (article) characteri	istics	
Concentration of substance in Covers percentage substance in t		
Amount used, frequency and	d duration of use/exposure	
Amounts used: Amount per use 15 g		
Duration: Exposure duration 0.5 h/event Frequency: Covers exposure up to 1 events p	er day	
Other conditions affecting c	onsumers exposure	
Room size: Covers use in room size	of 20 m³	
Additional conditions human Covers skin contact area up to 857		
8.2. CS8: Consumer Contributi	ng Scenario: Consumer (PC8)	
Product Categories	Biocidal products (PC8)	
Product (Sub-)Categories	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (PC8_2, PC35_2)	
Product (article) characteri	stics	
Concentration of substance in Covers percentage substance in t		
Amount used, frequency and	d duration of use/exposure	
Amounts used: Amount per use 50 g		
Duration: Exposure duration 0.3 h/event Frequency: Covers exposure up to 125 times	per year	
Other conditions affecting consumers exposure		
Room size: Covers use in room size of	of 20 m³	
Additional conditions human l Covers skin contact area up to 857		
8.2. CS9: Consumer Contributi	ng Scenario: Consumer (PC8)	
Product Categories	Biocidal products (PC8)	
Product (Sub-)Categories	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC8_3, PC35_3)	

Product (article) charact	eristics
Concentration of substance Covers concentrations up to 2	•
Amount used, frequency	and duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 0.2 h/even Frequency: Covers exposure up to 125 tir	
Other conditions affecting	g consumers exposure
Room size: Covers use in room s Ventilation rate: Covers use une	
Additional conditions huma Covers skin contact area up to	
8.2. CS10: Consumer Contri	ibuting Scenario: Consumer (PC18)
Product Categories	Ink and toners (PC18)
Product (article) charact	eristics
<b>Concentration of substance</b> Covers concentrations up to 5	•
Amount used, frequency	and duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 8 h/event Frequency:	
Covers exposure up to 1 uses Other conditions affecting	
Room size: Covers use in room s Ventilation rate: Covers use une	ize of 20 m <sup>3</sup>
Additional conditions huma Covers skin contact area up to	
8.2. CS11: Consumer Contri	ibuting Scenario: Consumer (PC23)
Product Categories	Leather treatment products (PC23)
Product (Sub-)Categories	Polishes, wax/cream (floor, furniture, shoes) (PC23_1, PC31_1)
Product (article) charact	eristics
<b>Concentration of substance</b> Covers concentrations up to 5	•
Amount used, frequency	and duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 1.2 h/even Frequency:	

Covers exposure up to 29 times per year

Other conditions affecting c	consumers exposure
Room size: Covers use in room size Ventilation rate: Covers use under	of 20 m <sup>3</sup>
Additional conditions human Covers skin contact area up to 430	health
· · ·	ting Scenario: Consumer (PC23)
Product Categories	Leather treatment products (PC23)
Product (Sub-)Categories	Polishes, spray (furniture, shoes) (PC23_2, PC31_2)
Product (article) character	istics
Concentration of substance in Covers concentrations up to 20 %	
Amount used, frequency and	d duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 0.3 h/event Frequency: Covers exposure up to 8 times pe	er year
Other conditions affecting c	onsumers exposure
Room size: Covers use in room size Ventilation rate: Covers use under	
Additional conditions human Covers skin contact area up to 430	
8.2. CS13: Consumer Contribu	ting Scenario: Consumer (PC24)
Product Categories	Lubricants, greases, release products (PC24)
Product (Sub-)Categories	Liquids (PC16_1, PC17_1, PC24_1, 36)
Product (article) character	istics
Concentration of substance in Covers concentrations up to 20 9	
Amount used, frequency and	d duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 0.2 h/event Frequency: Covers exposure up to 4 times pe	er year
Other conditions affecting c	consumers exposure
Room size: Covers use in room size Ventilation rate: Covers use under	
Additional conditions human Covers skin contact area up to 468	
· · ·	ting Scenario: Consumer (PC27)
Product Categories	Plant protection products (PC27)
Product (article) character	istics

Concentration of substance in	n product:
Covers concentrations up to 50	•
Amount used, frequency an	nd duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 0.3 h/event Frequency: Covers exposure up to 29 times	per year
Other conditions affecting	consumers exposure
Room size: Covers use in room size Ventilation rate: Covers use under	
Additional conditions human Covers skin contact area up to 85	
8.2. CS15: Consumer Contribu	uting Scenario: Consumer (PC31)
Product Categories	Polishes and wax blends (PC31)
Product (Sub-)Categories	Polishes, wax/cream (floor, furniture, shoes) (PC23_1, PC31_1)
Product (article) character	ristics
<b>Concentration of substance i</b> Covers concentrations up to 50	•
Amount used, frequency an	nd duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 1.2 h/event Frequency: Covers exposure up to 29 times	per year
Other conditions affecting	consumers exposure
Room size: Covers use in room size Ventilation rate: Covers use under	
Additional conditions human Covers skin contact area up to 43	
8.2. CS16: Consumer Contribu	uting Scenario: Consumer (PC31)
Product Categories	Polishes and wax blends (PC31)
Product (Sub-)Categories	Polishes, spray (furniture, shoes) (PC23_2, PC31_2)
Product (article) character	ristics
<b>Concentration of substance i</b> Covers concentrations up to 10	•
Amount used, frequency an	nd duration of use/exposure
Amounts used: Amount per use 50 g	
Duration: Exposure duration 0.3 h/event Frequency: Covers exposure up to 8 times p	ber year

#### Other conditions affecting consumers exposure

**Room size:** Covers use in room size of 20 m<sup>3</sup> **Ventilation rate:** Covers use under typical household ventilation.

#### Additional conditions human health

Covers skin contact area up to 430 cm<sup>2</sup>

### 8.3 Exposure estimation and reference to its source

#### 8.3. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8d)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
wastewater treatment plant microbes	0.273 mg/L	N/A	0.000471
freshwater	0.0297 mg/L	N/A	0.0309
freshwater sediment	0.114 mg/kg bw/day	N/A	0.031
marine water	0.00304 mg/L	N/A	0.00385
marine sediment	0.0116 mg/kg bw/day	N/A	0.00383
soil	0.116 mg/kg bw/day	N/A	0.00676

#### 8.2. CS2: Consumer Contributing Scenario: Consumer (PC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	111 mg/m³	N/A	0.973
inhalative, local, short-term	111 mg/m³	N/A	0.973
dermal, systemic, long-term	3.28 mg/kg bw/day	N/A	0.0159
combined routes, systemic, long-term	N/A	N/A	0.989

#### 8.2. CS3: Consumer Contributing Scenario: Consumer (PC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.788 mg/m <sup>3</sup>	N/A	0.00682
inhalative, local, short-term	47.3 mg/m <sup>3</sup>	N/A	0.414
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.000112
combined routes, systemic, long-term	N/A	N/A	0.212

1	8.2. CS4: Consumer Contributing Scenario: Consumer (PC1)						
		1	1				
	Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)			

i	nhalative, systemic, long-term	23.5 mg/m³	N/A	0.206
i	nhalative, local, short-term	23.5 mg/m³	N/A	0.206
c	dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.00679
C	combined routes, systemic, long-term	N/A	N/A	0.212

#### 8.2. CS5: Consumer Contributing Scenario: Consumer (PC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	38.7 mg/m³	N/A	0.339
inhalative, local, short-term	38.7 mg/m³	N/A	0.339
dermal, systemic, long-term	7.51 mg/kg bw/day	N/A	0.0364
combined routes, systemic, long-term	N/A	N/A	0.375

#### 8.2. CS6: Consumer Contributing Scenario: Consumer (PC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	17.1 mg/m³	N/A	0.15
inhalative, local, short-term	17.1 mg/m³	N/A	0.15
dermal, systemic, long-term	0.469 mg/kg bw/day	N/A	0.00227
combined routes, systemic, long-term	N/A	N/A	0.152

#### 8.2. CS7: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR
inhalative, systemic, long-term	0.672 mg/m <sup>3</sup>	N/A	0.00589
inhalative, local, short-term	0.672 mg/m <sup>3</sup>	N/A	0.00589
dermal, systemic, long-term	5.63 mg/kg bw/day	N/A	0.000273
combined routes, systemic, long-term	N/A	N/A	0.00616

#### 8.2. CS8: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.543 mg/m <sup>3</sup>	N/A	0.00476
inhalative, local, short-term	1.55 mg/m³	N/A	0.0135

dermal, systemic, long-term	5.63 mg/kg bw/day	N/A	0.00956	
combined routes, systemic, long-term	N/A	N/A	0.0231	

#### 8.2. CS9: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.885 mg/m³	N/A	0.00776
inhalative, local, short-term	2.52 mg/m³	N/A	0.0221
dermal, systemic, long-term	8.43 mg/kg bw/day	N/A	0.0143
combined routes, systemic, long-term	N/A	N/A	0.0364

#### 8.2. CS10: Consumer Contributing Scenario: Consumer (PC18)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	86 mg/m³	N/A	0.754
inhalative, local, short-term	86 mg/m³	N/A	0.754
dermal, systemic, long-term	4.69 mg/kg bw/day	N/A	0.0227
combined routes, systemic, long-term	N/A	N/A	0.777

#### 8.2. CS11: Consumer Contributing Scenario: Consumer (PC23)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	3.62 mg/m³	N/A	0.0317
inhalative, local, short-term	45.3 mg/m³	N/A	0.397
dermal, systemic, long-term	28.2 mg/kg bw/day	N/A	0.0109
combined routes, systemic, long-term	N/A	N/A	0.408

#### 8.2. CS12: Consumer Contributing Scenario: Consumer (PC23)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.136 mg/m <sup>3</sup>	N/A	0.00119
inhalative, local, short-term	6.24 mg/m <sup>3</sup>	N/A	0.0547
dermal, systemic, long-term	1.23 mg/kg bw/day	N/A	6.5E-05
combined routes, systemic, long-term	N/A	N/A	0.0295

#### 8.2. CS13: Consumer Contributing Scenario: Consumer (PC24)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.0368 mg/m <sup>3</sup>	N/A	0.000322
inhalative, local, short-term	3.36 mg/m³	N/A	0.0294
dermal, systemic, long-term	1.23 mg/kg bw/day	N/A	6.5E-05
combined routes, systemic, long-term	N/A	N/A	0.0295

#### 8.2. CS14: Consumer Contributing Scenario: Consumer (PC27)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	15.7 mg/m <sup>3</sup>	N/A	0.137
inhalative, local, short-term	15.7 mg/m <sup>3</sup>	N/A	0.137
dermal, systemic, long-term	11.2 mg/kg bw/day	N/A	0.0543
combined routes, systemic, long-term	N/A	N/A	0.226
oral, systemic, long-term	131.2 mg/kg bw/day	N/A	0.0344

#### 8.2. CS15: Consumer Contributing Scenario: Consumer (PC31)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	3.62 mg/m <sup>3</sup>	N/A	0.0317
inhalative, local, short-term	45.3 mg/m³	N/A	0.397
dermal, systemic, long-term	28.2 mg/kg bw/day	N/A	0.0109
combined routes, systemic, long-term	N/A	N/A	0.408

#### 8.2. CS16: Consumer Contributing Scenario: Consumer (PC31)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.0684 mg/m <sup>3</sup>	N/A	0.0006
inhalative, local, short-term	3.12 mg/m³	N/A	0.0273
dermal, systemic, long-term	5.65 mg/kg bw/day	N/A	0.000597
combined routes, systemic, long-term	N/A	N/A	0.0279

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

#### Guidance to check compliance with the exposure scenario:

# Exposure Scenario, 19/07/2019

Substance identity	
Chemical name	ETHYLENE GLYCOL
CAS No.	107-21-1
EINECS No.	203-473-3

# Table of contents

- 1. ES 1 Use at industrial site
- 2. **ES 2** Widespread use by professional workers
- 3. **ES 3** Widespread use by professional workers
- 4. **ES 4** Consumer use; Various products (PC9a, PC1, PC4, PC8, PC15)

1. ES 1 Use a	t industrial site		
<b>1.1 TITLE SECTION</b>			
Exposure Scenario name	Use in cleaning agents		
Date - Version	18/07/2019 - 1.0		
Life Cycle Stage	Use at industrial site		
Main user group	Industrial uses		
Sector(s) of use	Industrial uses (SU3)		
Environment Contributing Sce	nario		
CS1 Covered by		ERC4	
Worker Contributing Scenario			
CS2 Industrial		PROC1	
CS3 Industrial		PROC2	
CS4 Industrial		PROC3	
CS5 Industrial		PROC4	
CS6 Industrial		PROC8b	
CS7 Industrial		PROC7	
CS8 Industrial		PROC8a	
CS9 Industrial	PROC10		
CS10 Industrial	PROC13		
1.2 Conditions of use	affecting exposure		
1.2. CS1: Environment Contrib	outing Scenario: Covered by (ERC4)		
Environmental release categories	Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)		
Product (article) characteristics			
Physical form of product: Liquid			
Vapour pressure: 0.123 hPa			
1.2. CS2: Worker Contributing			
Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)		
Product (article) characteristics			
Concentration of substance in Covers percentage substance in t	•		
Amount used, frequency and	d duration of use/exposure		
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year			
	elated to personal protection, hygiene and hea	lth evaluation	
Personal protection			

Wear suitable gloves tested to EN	374.	
Other conditions affecting v	vorker exposure	
Indoor use		
1.2. CS3: Worker Contributing	Scenario: Industrial (PROC2)	
Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)	
Product (article) character	istics	
<b>Concentration of substance in</b> Covers percentage substance in t		
Amount used, frequency and	d duration of use/exposure	
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year		
Conditions and measures re	elated to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN	374.	
Other conditions affecting v	vorker exposure	
Indoor use		
1.2. CS4: Worker Contributing	Scenario: Industrial (PROC3)	
Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)	
Product (article) character	istics	
<b>Concentration of substance in</b> Covers percentage substance in t	•	
Amount used, frequency and	d duration of use/exposure	
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year	burs	
Conditions and measures re	elated to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN	374.	
Other conditions affecting v	vorker exposure	
Indoor use		
1.2. CS5: Worker Contributing	Scenario: Industrial (PROC4)	
Process Categories	Chemical production where opportunity for exposure arises (PROC4)	
Product (article) character	istics	
Concentration of substance in Covers percentage substance in t	•	
Amount used, frequency and	d duration of use/exposure	
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year	burs	
	lated to personal protection, hygiene and health evaluation	

Personal protection Wear suitable gloves tested	to EN374.	
Other conditions affect		
ndoor use		
1.2. CS6: Worker Contrib	uting Scenario: Industrial (PROC	8b)
Process Categories	Transfer of substance or mix	ture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) chara	icteristics	
Concentration of substar Covers percentage substar	nce in product: nce in the product up to 100 %.	
Amount used, frequenc	y and duration of use/exposu	re
Duration: Covers daily exposures up Frequency: Use frequency 240 days pe		
Conditions and measur	res related to personal protect	ion, hygiene and health evaluation
Personal protection Wear suitable gloves tested	l to EN374.	
Other conditions affect	ing worker exposure	
Indoor use		
1.2. CS7: Worker Contrib	outing Scenario: Industrial (PROC	7)
Process Categories	Industrial spraying (PROC7)	
Product (article) chara	icteristics	
Concentration of substar Covers percentage substar	nce in product: nce in the product up to 100 %.	
Amount used, frequenc	y and duration of use/exposu	<i>"e</i>
Amounts used: Amount per use 1 L/min		
Duration: Covers daily exposures up Frequency:	to 8 hours	
Use frequency 5 days per v	week	
Conditions and measur	res related to personal protect	ion, hygiene and health evaluation
Personal protection		
Wear suitable gloves tested t	o EN374.	Dermal - minimum efficiency of: 90 %
Other conditions affect	ing worker exposure	
Indoor use	<u> </u>	
Room size: Covers use in roor		
1.2. CS8: Worker Contrib	outing Scenario: Industrial (PROC	
Process Categories	(PROC8a)	ture (charging and discharging) at non-dedicated facilities
Product (article) chara	icteristics	
Concentration of substar		

Duration: Covers daily exposures up to Frequency: Use frequency 240 days per y	
	s related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to	) EN374.
Other conditions affectin	g worker exposure
Indoor use Ventilation rate: > 90 %	
1.2. CS9: Worker Contribut	ting Scenario: Industrial (PROC10)
Process Categories	Roller application or brushing (PROC10)
Product (article) charac	teristics
Concentration of substance Covers percentage substance	•
Amount used, frequency	and duration of use/exposure
Duration: Covers daily exposures up to Frequency: Use frequency 240 days per y	
Conditions and measures	s related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to Use suitable eye protection.	) EN374.
Other conditions affectin	g worker exposure
Indoor use	
1.2. CS10: Worker Contribu	uting Scenario: Industrial (PROC13)
Process Categories	Treatment of articles by dipping and pouring (PROC13)
Product (article) charac	teristics
<b>Concentration of substance</b> Covers percentage substance	•
Amount used, frequency	and duration of use/exposure
Duration: Covers daily exposures up to Frequency: Use frequency 240 days per y	
Conditions and measures	s related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to Use suitable eye protection.	) EN374.
Other conditions affectin	g worker exposure
Indoor use	
1.3 Exposure estim	nation and reference to its source

Exposure level	Calculation method	Risk Characterization Ratio (RCR)
N/A	EASY TRA v2.0	0.001
N/A	EASY TRA v2.0	0.001
N/A	EASY TRA v2.0	0.003
N/A	EASY TRA v2.0	0.004
	N/A N/A N/A	N/AEASY TRA v2.0N/AEASY TRA v2.0N/AEASY TRA v2.0

# 1.3. CS3: Worker Contributing Scenario: Industrial (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.07
inhalative, local, long-term	N/A	EASY TRA v2.0	0.07
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.01
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.08

# 1.3. CS4: Worker Contributing Scenario: Industrial (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.22
inhalative, local, long-term	N/A	EASY TRA v2.0	0.22
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.003
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.223

# 1.3. CS5: Worker Contributing Scenario: Industrial (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.37
inhalative, local, long-term	N/A	EASY TRA v2.0	0.37
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.06
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.43

# 1.3. CS6: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.37

inhalative, local, long-term	N/A	EASY TRA v2.0	0.37
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.06
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.43

# 1.3. CS7: Worker Contributing Scenario: Industrial (PROC7)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.28
inhalative, local, long-term	N/A	EASY TRA v2.0	0.28
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.52
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.8

# 1.3. CS8: Worker Contributing Scenario: Industrial (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.37
inhalative, local, long-term	N/A	EASY TRA v2.0	0.37
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.06
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.43

# 1.3. CS9: Worker Contributing Scenario: Industrial (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.74
inhalative, local, long-term	N/A	EASY TRA v2.0	0.74
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.03
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.77

# 1.3. CS10: Worker Contributing Scenario: Industrial (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.74
inhalative, local, long-term	N/A	EASY TRA v2.0	0.74
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.01

combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.75	
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# 1.4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

#### Guidance to check compliance with the exposure scenario:

# 2. ES 2 Widespread use by professional workers

# **2.1 TITLE SECTION**

2.1 IIILE SECTION					
Exposure Scenario name	Use in cleaning agents				
Date - Version	19/07/2019 - 1.0				
Life Cycle Stage	Widespread use by professional workers				
Main user group	Professional uses				
Sector(s) of use	Professional uses (SU22)				
Environment Contributing Sce	nario				
CS1 Covered by	CS1 Covered by				
Worker Contributing Scenario					
CS2 General use from professional operators PROC1					
CS3 General use from profession	PROC2				
CS4 General use from professional operators		PROC3			
CS5 General use from professiona	PROC4				
CS6 General use from profession	al operators	PROC8b			
CS7 General use from profession	CS7 General use from professional operators				
CS8 General use from profession	PROC10				
CS9 General use from profession	al operators	PROC11			
CS10 General use from profession	nal operators	PROC13			

# 2.2 Conditions of use affecting exposure

## 2.2. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8d)

Environmental release categories Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) -Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8a, ERC8d)

#### **Product (article) characteristics**

Physical form of product: Liquid	
Vapour pressure: 0.123 hPa	
2.2. CS2: Worker Contributing	Scenario: General use from professional operators (PROC1)
Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions (PROC1)
Product (article) characteri	stics
Physical form of product: Liquid	
<b>Concentration of substance in</b> Covers percentage substance in t	•
Amount used, frequency and	d duration of use/exposure

Duration:	
Covers daily exposures up to	o 8 hours
Frequency:	
Use frequency 240 days per	
	es related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested t Use suitable eye protection.	o EN374.
Other conditions affection	ng worker exposure
Indoor use	
2.2. CS3: Worker Contribu	ting Scenario: General use from professional operators (PROC2)
Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)
Product (article) charac	teristics
Physical form of product: Liquid	
<b>Concentration of substanc</b> Covers percentage substanc	c <b>e in product:</b> re in the product up to 100 %.
	and duration of use/exposure
Duration:	
Covers daily exposures up to	o 8 hours
Frequency: Use frequency 240 days per	year
	es related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested t	o FN374
Use suitable eye protection.	
Other conditions offer the	na warker evnasure
Other conditions affection	ig worker exposure
Indoor use	
Indoor use	ting Scenario: General use from professional operators (PROC3)
Indoor use	
Indoor use 2.2. CS4: Worker Contribu	ting Scenario: General use from professional operators (PROC3) Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
Indoor use 2.2. CS4: Worker Contribu Process Categories	ting Scenario: General use from professional operators (PROC3) Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substance	ting Scenario: General use from professional operators (PROC3)         Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)         cteristics         ce in product:
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substance Covers percentage substance	Iting Scenario: General use from professional operators (PROC3)         Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)         cteristics         ce in product:         ie in the product up to 100 %.
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substance Covers percentage substance	ting Scenario: General use from professional operators (PROC3)         Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)         cteristics         ce in product:
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substanc Covers percentage substanc Amount used, frequency Duration: Covers daily exposures up to Frequency:	ting Scenario: General use from professional operators (PROC3)     Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)   teristics teristics tere in product: te in the product up to 100 %. ter and duration of use/exposure tere is hours
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substanc Covers percentage substanc Amount used, frequency Duration: Covers daily exposures up to Frequency: Use frequency 240 days per	Atting Scenario: General use from professional operators (PROC3)     Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)   Ceteristics   Ceteristics Ceteristics   Ceteristics   Ceteristics   Ceteristics   Ceteristics
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substanc Covers percentage substanc Amount used, frequency Duration: Covers daily exposures up to Frequency: Use frequency 240 days per Conditions and measure	ting Scenario: General use from professional operators (PROC3)     Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)   teristics teristics terin product: te in product: te in the product up to 100 %. terint of use/exposure teristics teristics
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substanc Covers percentage substanc Amount used, frequency Duration: Covers daily exposures up to Frequency: Use frequency 240 days per	Iting Scenario: General use from professional operators (PROC3)         Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)         Interistics         The product:         is in the product up to 100 %.         of and duration of use/exposure         of 8 hours         year         cs related to personal protection, hygiene and health evaluation
Indoor use 2.2. CS4: Worker Contribu Process Categories Product (article) charac Physical form of product: Liquid Concentration of substanc Covers percentage substanc Amount used, frequency Duration: Covers daily exposures up to Frequency: Use frequency 240 days per Conditions and measure Personal protection Wear suitable gloves tested t	Atting Scenario: General use from professional operators (PROC3)         Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)         Steristics         See in product:         e in the product up to 100 %.         and duration of use/exposure         b 8 hours         year         cs related to personal protection, hygiene and health evaluation         o EN374.

2.2. CS5: Worker Contributing	Scenario: General use from professional operators (PROC4)
Process Categories	Chemical production where opportunity for exposure arises (PROC4)
Product (article) character	istics
Physical form of product: Liquid	
Concentration of substance in Covers percentage substance in t	•
Amount used, frequency and	d duration of use/exposure
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year	
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to EN Use suitable eye protection.	374.
Other conditions affecting v	vorker exposure
Indoor use	
2.2. CS6: Worker Contributing	Scenario: General use from professional operators (PROC8b)
Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)
Product (article) character	istics
Physical form of product: Liquid Concentration of substance in Covers percentage substance in t	•
Amount used, frequency and	
Duration: Covers daily exposures up to 8 ho Frequency: Use frequency 240 days per year	
Conditions and measures re	elated to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to EN Use suitable eye protection.	374.
Other conditions affecting v	vorker exposure
Indoor use	
	Scenario: General use from professional operators (PROC8a)
	Scenario: General use from professional operators (PROC8a) Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
2.2. CS7: Worker Contributing	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
2.2. CS7: Worker Contributing Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
2.2. CS7: Worker Contributing Process Categories <i>Product (article) characteri</i> Physical form of product:	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a) istics

Duration: Covers daily exposures up	o to 8 hours	
Frequency:		
Use frequency 240 days p	· ·	
	res related to personal prote	ection, hygiene and health evaluation
Personal protection Wear suitable gloves teste Use suitable eye protection		
Other conditions affec	ting worker exposure	
Indoor use Ventilation rate: 80 %		
	outing Scenario: General use fr	om professional operators (PROC10)
Process Categories	Roller application or brush	ning (PROC10)
Product (article) char	acteristics	
Physical form of produc	t:	
Liquid		
Concentration of substa	•	
	nce in the product up to 100 %.	
	cy and duration of use/expos	sure
Duration: Covers daily exposures up	o to 8 hours	
Frequency:		
Use frequency 240 days p	er year	
Conditions and measu	res related to personal prote	ection, hygiene and health evaluation
Personal protection		
Wear suitable gloves tested		
Use suitable eye protection.		
Wear suitable respiratory pr	otection.	Inhalation - minimum efficiency of: 80 %
Other conditions affec	ting worker exposure	
Indoor use Ventilation rate: 80 %		
2.2. CS9: Worker Contril	outing Scenario: General use fr	om professional operators (PROC11)
Process Categories	Non industrial spraying (Pl	ROC11)
Product (article) char	acteristics	
Physical form of produc		
<b>Concentration of substa</b> Covers percentage substa	nce in product: Ince in the product up to 100 %.	
Amount used, frequen	cy and duration of use/expos	sure
Amounts used: Amount per use 0.05 L/m	in	
Duration:		
Exposure duration 180 mi	n	
Frequency:		

Frequency:

	eek	
Technical and organisati	onal conditions and measu	ures
Technical and organisationa Provide a good standard of cor	al measures htrolled ventilation (10 to 15 air cha	inges per hour).
<b>Conditions and measures</b>	related to personal prote	ction, hygiene and health evaluation
Personal protection		
Wear suitable gloves tested to E Use suitable eye protection.	N374.	Inhalation - minimum efficiency of: 90 %
Wear suitable respiratory protect	tion.	Inhalation - minimum efficiency of: 80 %
Other conditions affecting	g worker exposure	
Indoor use <b>Room size:</b> Covers use in room si	ze of > 100 m³	
Ventilation rate: 80 %		
	ting Scenario: General use fi	rom professional operators (PROC13)
2.2. CS10: Worker Contribu	-	rom professional operators (PROC13) oping and pouring (PROC13)
2.2. CS10: Worker Contribu Process Categories	Treatment of articles by di	
2.2. CS10: Worker Contribu Process Categories Product (article) charact	Treatment of articles by di	
2.2. CS10: Worker Contribu Process Categories Product (article) characte Physical form of product: Liquid	Treatment of articles by dip eristics	
2.2. CS10: Worker Contribu Process Categories Product (article) characte Physical form of product: Liquid Concentration of substance Covers percentage substance	Treatment of articles by dip eristics	oping and pouring (PROC13)
2.2. CS10: Worker Contribu Process Categories Product (article) character Physical form of product: Liquid Concentration of substance Covers percentage substance Amount used, frequency of Duration: Covers daily exposures up to 8 Frequency:	Treatment of articles by dip eristics in product: in the product up to 100 %. and duration of use/expose 3 hours	oping and pouring (PROC13)
2.2. CS10: Worker Contribu Process Categories Product (article) characte Physical form of product: Liquid Concentration of substance Covers percentage substance Amount used, frequency of Duration: Covers daily exposures up to 8 Frequency: Use frequency < 240 days per	Treatment of articles by dip eristics in product: in the product up to 100 %. and duration of use/expose bours year	oping and pouring (PROC13)
2.2. CS10: Worker Contribu Process Categories Product (article) character Physical form of product: Liquid Concentration of substance Covers percentage substance Amount used, frequency of Duration: Covers daily exposures up to 8 Frequency: Use frequency < 240 days per Conditions and measures	Treatment of articles by dip eristics in product: in the product up to 100 %. and duration of use/expose bours year	oping and pouring (PROC13)
2.2. CS10: Worker Contribu Process Categories Product (article) characte Physical form of product: Liquid Concentration of substance Covers percentage substance Amount used, frequency of Duration: Covers daily exposures up to 8 Frequency: Use frequency < 240 days per	Treatment of articles by dip eristics in product: in the product up to 100 %. and duration of use/expose bours year	oping and pouring (PROC13)

# Other conditions affecting worker exposure

Indoor use

# 2.3 Exposure estimation and reference to its source

# **2.3. CS2:** Worker Contributing Scenario: General use from professional operators (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.001
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.001
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.003

dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.004

# 2.3. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.37
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.37
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.01
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.38

#### 2.3. CS4: Worker Contributing Scenario: General use from professional operators (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.22
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.22
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.003
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.223

#### 2.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.74
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.74
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.006
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.8

#### 2.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.74
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.74
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.06
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.8

#### 2.3. CS7: Worker Contributing Scenario: General use from professional operators (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.37
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.37
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.13
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.5

#### 2.3. CS8: Worker Contributing Scenario: General use from professional operators (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.37
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.37
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.3
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.4

#### 2.3. CS9: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.4
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.4
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.51
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.91

### 2.3. CS10: Worker Contributing Scenario: General use from professional operators (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.74
dermal, local, long-term	N/A	ECETOC TRA worker v2.0	0.74
inhalative, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.01
dermal, systemic, long-term	N/A	ECETOC TRA worker v2.0	0.75

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

### Guidance to check compliance with the exposure scenario:

# 3. ES 3 Widespread use by professional workers

# **3.1 TITLE SECTION**

<b>3.1 TITLE SECTION</b>					
Exposure Scenario name	ame         Use in antifreeze products				
Date - Version	19/07/2019 - 1.0				
Life Cycle Stage	Widespread use by professional workers				
Main user group	Professional uses				
Sector(s) of use	Professional uses (SU22)				
Environment Contributing Sce	nario				
CS1 Covered by		ERC8d			
Worker Contributing Scenario					
CS2 General use from professiona	al operators	PROC1			
CS3 General use from professiona	al operators	PROC2			
CS4 General use from professiona	al operators	PROC8a			
CS5 General use from professiona	al operators	PROC8b			
CS6 General use from professiona	al operators	PROC11			
3.2 Conditions of use	affecting exposure				
3.2. CS1: Environment Contrib	uting Scenario: Covered by (ERC8d)				
Environmental release categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor) (ERC8d)				
Product (article) characteri	Product (article) characteristics				
Physical form of product: Liquid					
Vapour pressure: 0.123 hPa					
3.2. CS2: Worker Contributing	Scenario: General use from professional operato	rs (PROC1)			
Process Categories	Chemical production or refinery in closed process with processes with equivalent containment conditions (PF	-			
Product (article) characteri	stics				
Concentration of substance in Covers percentage substance in t	•				
Amount used, frequency and duration of use/exposure					
Duration:					
Covers daily exposures up to 8 hours  Frequency: Covers exposure up to 240 days per year					
Technical and organisation	al conditions and measures				
Technical and organisational n Use in contained systems	neasures				
Conditions and measures re	lated to personal protection, hygiene and hea	lth evaluation			
Personal protection					

Wear suitable gloves tested to EN374.

Other conditions affecting w	orker exposure				
Indoor use					
3.2. CS3: Worker Contributing	Scenario: General use fro	om professional operators (PROC2)			
Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)				
Product (article) characteri	stics				
Concentration of substance in Covers percentage substance in t	-				
Amount used, frequency and	l duration of use/expos	ure			
Duration: Covers daily exposures up to 8 ho Frequency: Covers exposure up to 240 days p					
Technical and organisation	al conditions and measu	ures			
Technical and organisational n Use in contained systems	neasures				
Conditions and measures re	lated to personal prote	ction, hygiene and health evaluation			
Personal protection Wear suitable gloves tested to EN3	374.				
Other conditions affecting w	orker exposure				
Indoor use					
3.2. CS4: Worker Contributing	Scenario: General use fro	om professional operators (PROC8a)			
Process Categories	Transfer of substance or m (PROC8a)	ixture (charging and discharging) at non-dedicated facilities			
Product (article) characteri	stics				
<b>Concentration of substance in</b> Covers percentage substance in t					
Amount used, frequency and		ווייס			
Duration:					
Covers daily exposures up to 8 ho Frequency: Covers exposure up to 240 days p					
Technical and organisation	al conditions and measu	ures			
Technical and organisational n Use in contained systems	neasures				
Conditions and measures re	lated to personal prote	ction, hygiene and health evaluation			
Personal protection					
Wear suitable gloves tested to EN37	4.				
Wear suitable respiratory protection	۱.	Inhalation - minimum efficiency of: 80 %			
Other conditions affecting w	orker exposure				
Indoor use Ventilation rate: 80 %					
3.2. CS5: Worker Contributing	Scenario: General use fro	om professional operators (PROC8b)			
rocess Categories Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)					

Product (article) characteristics							
Concentration of substance in product: Covers percentage substance in the product up to 100 %.							
Amount used, frequency and	duration of use	e/exposur	е				
Duration: Covers daily exposures up to 8 ho Frequency: Covers exposure up to 240 days p							
Technical and organisation	al conditions an	d measure	es				
Technical and organisational n Use in contained systems	neasures						
Conditions and measures re	lated to person	al protecti	on, h	ygiene and health	evaluation		
Personal protection Wear suitable gloves tested to EN3	74.						
Other conditions affecting w	orker exposure						
Indoor use							
3.2. CS6: Worker Contributing	Scenario: Genera	al use from	prof	essional operators (I	PROC11)		
Process Categories	Non industrial spr	aying (PROC	211)				
Product (article) characteri	stics						
<b>Concentration of substance in</b> Covers percentage substance in the	•	%.					
Amount used, frequency and	duration of use	e/exposur	е				
Duration: Exposure duration 180 min Frequency: Covers exposure up to 5 days per	week						
Technical and organisational conditions and measures							
Technical and organisational measures Use in contained systems							
Conditions and measures re	lated to persond	al protecti	on, h	ygiene and health	evaluation		
Personal protection							
Wear suitable gloves tested to EN374.   Dermal - minimum efficiency of: 90 %							
Other conditions affecting w	Other conditions affecting worker exposure						
Indoor use <b>Room size:</b> Covers use in room size o	of > 100 m³						
3.3 Exposure estimati		rence to	o its	source			
3.3. CS2: Worker Contributing					PROC1)		
Exposure route, Health effect, Exp	oosure indicator	Exposure l	evel	Calculation method	Risk Characterization Ratio (RCR)		

Exposure route, nearth energy, Exposure multator	Exposure level	calculation method	
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.001
inhalative, local, long-term	N/A	EASY TRA v2.0	0.001
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.003

combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.004

# 3.3. CS3: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.37
inhalative, local, long-term	N/A	EASY TRA v2.0	0.37
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.01
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.38

#### 3.3. CS4: Worker Contributing Scenario: General use from professional operators (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.37
inhalative, local, long-term	N/A	EASY TRA v2.0	0.37
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.13
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.5

#### **3.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC8b)**

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.74
inhalative, local, long-term	N/A	EASY TRA v2.0	0.74
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.06
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.8

#### 3.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.4
inhalative, local, long-term	N/A	EASY TRA v2.0	0.4
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.51
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.91

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

#### Guidance to check compliance with the exposure scenario:

#### Consumer use; Various products (PC9a, PC1, PC4, PC8, PC15) 4. ES 4

# **4.1 TITLE SECTION**

4.1 IIILE SECTION			
Exposure Scenario name	Consumer goods		
Date - Version	19/07/2019 - 1.0		
Life Cycle Stage	Consumer use		
Main user group	Consumer uses		
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Adhesives, sealants (PC1) - Anti-freeze and de-icing products (PC4) - Biocidal products (PC8) - Non-metal surface treatment products (PC15) - Heat transfer fluids (PC16) - Hydraulic fluids (PC17) - Ink and toners (PC18) - Leather treatment products (PC23) - Polishes and wax blends (PC31) - Polymer preparations and compounds (PC32) - Textile dyes and impregnating products (PC34) - Washing and cleaning products (PC35)		
Environment Contributing Sce	enario		
CS1 Covered by		ERC8a - ERC8c - ERC8d - ERC8f - ERC9a - ERC9b	
Consumer Contributing Scena	rio		
CS2 Consumer		PC1	
CS3 Consumer		PC4 - PC16 - PC17 - PC4_1	
CS4 Consumer		PC4 - PC4_2	
CS5 Consumer		PC9a - PC15 - PC9a_2, PC15_2	
CS6 Consumer		PC8	
CS7 Consumer		PC18	
CS8 Consumer		PC31	
CS9 Consumer		PC32	
CS10 Consumer		PC35 - PC8_2, PC35_2	
CS11 Consumer		PC35 - PC8_3, PC35_3	
CS12 Consumer		PC15 - PC23 - PC34 - PC9a_1, PC15_1	
4.2 Conditions of use	affecting exposure		

## 4.2. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b)

**Environmental release** categories

Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) -Widespread use leading to inclusion into/onto article (indoor) - Widespread use of nonreactive processing aid (no inclusion into or onto article, outdoor) - Widespread use leading to inclusion into/onto article (outdoor) - Widespread use of functional fluid (indoor) -Widespread use of functional fluid (outdoor) (ERC8a, ERC8c, ERC8d, ERC8f, ERC9a, ERC9b)

#### **Product (article) characteristics**

#### **Physical form of product:**

Liquid

#### **Concentration of substance in product:**

Covers percentage substance in the product up to 100 %.

4.2. CS2: Consumer Contributi	ng Scenario: Consumer (PC1)
Product Categories	Adhesives, sealants (PC1)

roduct Ca	ategories
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Product (article) characte	pristics		
<b>Concentration of substance</b> Covers concentrations up to 0.	•		
4.2. CS3: Consumer Contribu	uting Scenario: Consumer (PC4, PC16, PC17)		
Product Categories	Anti-freeze and de-icing products - Heat transfer fluids - Hydraulic fluids (PC4, PC16, PC17)		
Product (Sub-)Categories	Washing car window (PC4_1)		
Product (article) characte	pristics		
<b>Concentration of substance</b> Covers concentrations up to 45	•		
Amount used, frequency a	nd duration of use/exposure		
<b>Duration:</b> Exposure duration < 15 min			
4.2. CS4: Consumer Contribu	uting Scenario: Consumer (PC4)		
Product Categories	Anti-freeze and de-icing products (PC4)		
Product (Sub-)Categories	Pouring into radiator (PC4_2)		
Product (article) characte	pristics		
<b>Concentration of substance</b> Covers percentage substance i	•		
4.2. CS5: Consumer Contribu	uting Scenario: Consumer (PC9a, PC15)		
Product Categories	Coatings and paints, thinners, paint removers - Non-metal surface treatment products (PC9a, PC15)		
Product (Sub-)Categories	Solvent rich, high solid, water borne paint (PC9a_2, PC15_2)		
Product (article) characte	ristics		
Concentration of substance Covers concentrations up to 10	•		
4.2. CS6: Consumer Contribu	uting Scenario: Consumer (PC8)		
Product Categories	Biocidal products (PC8)		
4.2. CS7: Consumer Contribu	uting Scenario: Consumer (PC18)		
Product Categories	Ink and toners (PC18)		
Product (article) characte	pristics		
<b>Concentration of substance</b> Covers percentage substance i	•		
4.2. CS8: Consumer Contribu	uting Scenario: Consumer (PC31)		
Product Categories	Polishes and wax blends (PC31)		
Product (article) characte	ristics		
<b>Concentration of substance</b> Covers concentrations up to 10	•		
4.2. CS9: Consumer Contribu	uting Scenario: Consumer (PC32)		
Product Categories	Polymer preparations and compounds (PC32)		
Product (article) characte	pristics		
<b>Concentration of substance</b> Covers percentage substance i			
4.2. CS10: Consumer Contril	outing Scenario: Consumer (PC35)		

Product Categories	Washing and cleaning products (PC35)
Product (Sub-)Categories	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (PC8_2, PC35_2)
Product (article) charact	teristics
Concentration of substance Covers concentrations up to	•
4.2. CS11: Consumer Contr	ibuting Scenario: Consumer (PC35)
Product Categories	Washing and cleaning products (PC35)
Product (Sub-)Categories	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC8_3, PC35_3)
Product (article) charact	teristics
Concentration of substance Covers percentage substance	•
4.2. CS12: Consumer Contr	ibuting Scenario: Consumer (PC15, PC23, PC34)
Product Categories	Non-metal surface treatment products - Leather treatment products - Textile dyes and impregnating products (PC15, PC23, PC34)
Product (Sub-)Categories	Waterborne latex wall paint (PC9a_1, PC15_1)
4 3 Exposure estim	nation and reference to its source
Ino Exposure count	

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.59
dermal, systemic, long-term	N/A	N/A	0.005
combined routes, systemic, long-term	N/A	N/A	0.505

# 4.2. CS3: Consumer Contributing Scenario: Consumer (PC4, PC16, PC17)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.28
dermal, systemic, long-term	N/A	N/A	0.08
combined routes, systemic, long-term	N/A	N/A	0.36

# 4.2. CS4: Consumer Contributing Scenario: Consumer (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0
dermal, systemic, long-term	N/A	N/A	0.09
combined routes, systemic, long-term	N/A	N/A	0.09

# 4.2. CS5: Consumer Contributing Scenario: Consumer (PC9a, PC15)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.04
dermal, systemic, long-term	N/A	N/A	0.02
combined routes, systemic, long-term	N/A	N/A	0.06

# 4.2. CS6: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0
dermal, systemic, long-term	N/A	N/A	0.006
combined routes, systemic, long-term	N/A	N/A	0.006

#### 4.2. CS7: Consumer Contributing Scenario: Consumer (PC18)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.18
dermal, systemic, long-term	N/A	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.18

# 4.2. CS8: Consumer Contributing Scenario: Consumer (PC31)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.56
dermal, systemic, long-term	N/A	N/A	0.04
combined routes, systemic, long-term	N/A	N/A	0.6

## 4.2. CS9: Consumer Contributing Scenario: Consumer (PC32)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.009
dermal, systemic, long-term	N/A	N/A	0.001
combined routes, systemic, long-term	N/A	N/A	0.01

# 4.2. CS10: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.09
dermal, systemic, long-term	N/A	N/A	0.22
combined routes, systemic, long-term	N/A	N/A	0.31

#### 4.2. CS11: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	N/A	0.02
dermal, systemic, long-term	N/A	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.022

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

#### Guidance to check compliance with the exposure scenario:

# Exposure Scenario, 24/07/2019

Substance identity	
Chemical name	propan-2-olo; alcool isopropilico
CAS No.	67-63-0
EINECS No.	200-661-7

# Table of contents

- 1. **ES 1** Widespread use by professional workers
- 2. **ES 2** Widespread use by professional workers
- 3. ES 3 Consumer use; Various products (PC9b, PC9a, PC3, PC4, PC8)

1. ES 1 Wides	spread use by professional workers	5		
<b>1.1 TITLE SECTION</b>				
Exposure Scenario name	Use in cleaning agents			
Date - Version	24/07/2019 - 1.0			
Life Cycle Stage	Widespread use by professional workers			
Main user group	Industrial uses			
Sector(s) of use	Industrial uses (SU3)			
Worker Contributing Scenario				
CS1 Industrial		PROC8a		
CS2 Industrial		PROC2		
CS3 Industrial		PROC3		
CS4 Industrial		PROC8b		
CS5 Industrial		PROC4		
CS6 Industrial		PROC13		
CS7 Industrial		PROC10		
CS8 Industrial		PROC7		
1.2 Conditions of use	affecting exposure			
1.2. CS1: Worker Contributing	Scenario: Industrial (PROC8a)			
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)			
Product (article) characteristics				
Physical form of product: Liquid				
Amount used, frequency and	l duration of use/exposure			
Duration: Covers daily exposures up to 8 ho	urs			
Technical and organisation	al conditions and measures			
Technical and organisational n Clear transfer lines prior to de-cou Provide extract ventilation to poin	pling.			
Conditions and measures related to personal protection, hygiene and health evaluation				
Personal protection Wear suitable gloves tested to ENS	374.			
Other conditions affecting w				
Temperature: Covers use at ambien	t temperatures.			
1.2. CS2: Worker Contributing	Scenario: Industrial (PROC2)			
Process Categories	Chemical production or refinery in closed continuous exposure or processes with equivalent containment c	-		
Product (article) characteri	stics			
Product (article) characteri Physical form of product: Liquid	stics			

Duration: Covers daily exposures up to 8 ho	burs		
Technical and organisation	al conditions and measures		
Technical and organisational n Clear transfer lines prior to de-cou			
Conditions and measures re	lated to personal protection, hygiene and health evaluation		
Personal protection Wear suitable gloves tested to ENS	374.		
Other conditions affecting w	vorker exposure		
Temperature: Covers use at ambien	it temperatures.		
1.2. CS3: Worker Contributing	Scenario: Industrial (PROC3)		
Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)		
Product (article) characteri	stics		
Physical form of product: Liquid			
Amount used, frequency and	l duration of use/exposure		
Duration: Covers daily exposures up to 8 hc	burs		
Technical and organisation	al conditions and measures		
Technical and organisational n Clear transfer lines prior to de-cou			
Conditions and measures re	lated to personal protection, hygiene and health evaluation		
Personal protection Wear suitable gloves tested to ENS	374.		
Other conditions affecting w	vorker exposure		
Temperature: Covers use at ambien	it temperatures.		
1.2. CS4: Worker Contributing	Scenario: Industrial (PROC8b)		
Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)		
Product (article) characteri	stics		
Physical form of product: Liquid			
Amount used, frequency and	l duration of use/exposure		
Duration: Covers daily exposures up to 8 ho	burs		
Technical and organisation	al conditions and measures		
Technical and organisational n Clear transfer lines prior to de-cou			
Conditions and measures re	lated to personal protection, hygiene and health evaluation		
Personal protection Wear suitable gloves tested to ENS	374.		
Other conditions affecting worker exposure			
Temperature: Covers use at ambien	it temperatures.		
1.2. CS5: Worker Contributing	Scenario: Industrial (PROC4)		
Process Categories	Chemical production where opportunity for exposure arises (PROC4)		

Liquid           Amount used, frequency and duration of use/exposure           Diversion:           Covers daily exposures up to 8 hours           Technical and organisational measures           Cover stally exposures up to 8 hours           Cover stally exposures up to 8 hours           Cover stally exposure ventilation to points where emission occur.           Conditions and measures related to personal protection, hygiene and health evaluation           Personal protection           Wear subable glowes tested to EN374.           Other conditions affecting worker exposure           Termperature: Covers use at ambient temperatures.           L12. CSS: Worker Contributing Scenario: Industrial (PROC13)           Product (article) characteristics           Physical form of product:           Usid           Amount used, frequency and duration of use/exposure           Conditions and measures           Technical and organisational conditions and measures           Technical and organisational measures           Technical and organisational measures           Provide extract ventilation to points where emission occur.           Conditions affecting worker exposure           Technical and organisational measures           Provide extract ventilation to points where emission occur.           Conditions affecting worker exposure	Product (article) character	istics		
Duration:       Cover solyt exposures up to 8 hours         Technical and organisational conditions and measures         Clear transfer lines prior to de-coupling.         Provide extrat. entraints where emissions occur.         Conditions and measures related to personal protection, hygiene and health evaluation         Personal protection         Wars vulnable glows tested to DN374.         Other conditions affecting worker exposure         Femperature: Covers us at ambient temperatures.         1.1. 2.56: Worker Contributing Scenario: Industrial (PROC13)         Produce extrat.         Product (article) characteristics         Physical form of product:         Liquid         Annount used, frequency and duration of use/exposure         Duration:         Cover soly exposures up to 8 hours         Terodie extrat.         Terodie extrat.         Cover soly exposures up to 8 hours         Terodie extrat.         Cover soly exposures up to 8 hours         Terodie extrat.         Cover soly exposures up to 8 hours         Terodie extrat.         Cover soly exposures up to 8 hours         Terodie extrat.         Cover soly exposures up to 8 hours         Terodie extrat.         Cover soly exposures up to 8 hours	Physical form of product: Liquid			
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Technical and organisational measures   Clear transfer lines prior to de-coupling.   Provide extract ventilation to points where emisions occur.   Conditions and measures related to personal protection, hygiene and health evaluation   Personal protection   War suitable gloves tested to EN374.   Other conditions affecting worker exposure   Remperature: Covers use at ambient temperatures.   L2. CS6: Worker Contributing Scenario: Industrial (PROC13)   Process Categories   Treatment of articles by dipping and pouring (PROC13)   Product (article) characteristics   Physical form of product:   Liquid   Amount used, frequency and duration of use/exposure   Covers daily exposures up to 8 hours   Prochical and organisational conditions and measures   Prochical and organisational measures   Prochical and organisational measures   Provide extract ventilation to points where emisions occur.   Conditions and measures related to personal protection, hygiene and health evaluation   Personal protection   War suitable gloves tested to EN374.   Dther conditions affecting worker exposure   Remperature: Covers use at ambient temperatures.   L2. CS7: Worker Contributing Scenario: Industrial (PROC10)   Product (article) characteristics   Probuct (article) characteristics   Probleck (article) characteristics	Duration: Covers daily exposures up to 8 h	ours		
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Wear suitable gloves tested to EN374.         Other conditions affecting worker exposure         Femperature: Covers use at ambient temperatures.         L.2. CS5: Worker Contributing Scenario: Industrial (PROC13)         Process Categories       Treatment of articles by dipping and pouring (PROC13)         Product (article) characteristics       Physical form of product:         Liquid       Internation of use/exposure         Duration:       Covers daily exposures up to 8 hours         Convers daily exposures up to 8 hours       Fechnical and organisational conditions and measures         Personal protection       Wear suitable gloves tested to EN374.         Other conditions affecting worker exposure       Roller application or brushing (PROC10)         Product (article) characteristics       Roller application or brushing (PROC10)         Provide categories       Roller application or brushing (PROC10)         Product (article) characteristics       Physical form of product:         Liquid       Liquid       Covers daily exposures up to 8 hours         Conditions and measures related to personal protection, hygiene and health evaluation       Process Categories         Roller application or brushing (PROC10)       Product (article) characteristics         Physical form of product:       Liquid       Covers daily exposures up to 8 hours         Conditions and measures related t	Conditions and measures r	elated to personal protection, hygiene and health evaluation		
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Femperature: Covers use at ambient temperatures.         1.2. CS7: Worker Contributing Scenario: Industrial (PROC10)         Process Categories       Roller application or brushing (PROC10)         Product (article) characteristics         Physical form of product: Liquid         Amount used, frequency and duration of use/exposure         Duration: Covers daily exposures up to 8 hours         Conditions and measures related to personal protection, hygiene and health evaluation         Personal protection Wear suitable gloves tested to EN374.         Other conditions affecting worker exposure         Femperature: Covers use at ambient temperatures.	Personal protection Wear suitable gloves tested to EN	I374.		
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Physical form of product: Liquid Amount used, frequency and duration of use/exposure Duration: Covers daily exposures up to 8 hours Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Process Categories	Roller application or brushing (PROC10)		
Liquid Amount used, frequency and duration of use/exposure Duration: Covers daily exposures up to 8 hours Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gloves tested to EN374. Dther conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Product (article) characteristics			
Duration: Covers daily exposures up to 8 hours Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Physical form of product: Liquid			
Covers daily exposures up to 8 hours Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Amount used, frequency an	d duration of use/exposure		
Personal protection Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Duration: Covers daily exposures up to 8 h	ours		
Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: Covers use at ambient temperatures.	Conditions and measures r	elated to personal protection, hygiene and health evaluation		
Femperature: Covers use at ambient temperatures.	Personal protection Wear suitable gloves tested to EN	1374.		
	Other conditions affecting	worker exposure		
	Temperature: Covers use at ambie	nt temperatures.		
1.2. CS8: Worker Contributing Scenario: Industrial (PROC7)	1.2. CS8: Worker Contributing	g Scenario: Industrial (PROC7)		

Process Categories	Industrial spraying (PROC7)			
Product (article) char	acteristics			
Physical form of produc	t:			
Amount used, frequen	cy and duration of use/exposure			
Duration: Covers daily exposures up Frequency: Covers exposure up to 4 h				
Technical and organis	ational conditions and measures			
Technical and organisat Provide a good standard o	ional measures f controlled ventilation (5 to 10 air changes per hour).			
Conditions and measu	res related to personal protection, hygiene and health evaluation			
Personal protection Wear suitable gloves teste				

# Wear a respirator conforming to EN140.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

Ventilation rate: 70 %

# 1.3 Exposure estimation and reference to its source

### 1.3. CS1: Worker Contributing Scenario: Industrial (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m <sup>3</sup>	N/A	0.246
dermal, systemic, long-term	13.71 mg/m³	N/A	0.015
combined routes, systemic, long-term	N/A	N/A	0.261

### 1.3. CS2: Worker Contributing Scenario: Industrial (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	10 mg/m³	N/A	0.049
dermal, systemic, long-term	1.37 mg/m <sup>3</sup>	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.051

# 1.3. CS3: Worker Contributing Scenario: Industrial (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	25 mg/m <sup>3</sup>	N/A	0.123
dermal, systemic, long-term	0.34 mg/m <sup>3</sup>	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.123

# 1.3. CS4: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m <sup>3</sup>	N/A	0.246
dermal, systemic, long-term	6.86 mg/m <sup>3</sup>	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.254

# 1.3. CS5: Worker Contributing Scenario: Industrial (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	100 mg/m³	N/A	0.492
dermal, systemic, long-term	6.86 mg/m <sup>3</sup>	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.5

#### 1.3. CS6: Worker Contributing Scenario: Industrial (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m <sup>3</sup>	N/A	0.246
dermal, systemic, long-term	13.71 mg/m³	N/A	0.015
combined routes, systemic, long-term	N/A	N/A	0.261

#### 1.3. CS7: Worker Contributing Scenario: Industrial (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m <sup>3</sup>	N/A	0.246
dermal, systemic, long-term	27.43 mg/m <sup>3</sup>	N/A	0.031
combined routes, systemic, long-term	N/A	N/A	0.277

# 1.3. CS8: Worker Contributing Scenario: Industrial (PROC7)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m³	N/A	0.246
dermal, systemic, long-term	27.43 mg/m³	N/A	0.031

combined routes, systemic, long-term	N/A	N/A	0.277	

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

#### Guidance to check compliance with the exposure scenario:

# 2. ES 2 Widespread use by professional workers

# **2.1 TITLE SECTION**

<b>2.1 TITLE SECTION</b>				
Exposure Scenario name	Use in cleaning agents	Use in cleaning agents		
Date - Version	24/07/2019 - 1.0	24/07/2019 - 1.0		
Life Cycle Stage	Widespread use by professional workers			
Main user group	Professional uses			
Sector(s) of use	Professional uses (SU22)			
Worker Contributing Scena	io			
CS1 General use from professional operators PROC8b				
CS2 General use from professi	onal operators	PROC2		
CS3 General use from professi	onal operators	PROC3		
CS4 General use from professi	onal operators	PROC4		
CS5 General use from professi	onal operators	PROC8a		
CS6 General use from professi	PROC13			
CS7 General use from professi	PROC10			
CS8 General use from professional operators PROC11				
CS9 General use from professi	onal operators	PROC11		
CS10 General use from professional operators PROC10				
CS11 General use from profess	ional operators	PROC10		
CS12 General use from professional operators PROC4				
2.2 Conditions of us	se affecting exposure			
2.2. CS1: Worker Contributi	ng Scenario: General use from professional	operators (PROC8b)		
Process Categories	Transfer of substance or mixture (charging a	nd discharging) at dedicated facilities (PROC8b)		
Product (article) charact	eristics			
Physical form of product: Liquid				
Amount used, frequency of	nd duration of use/exposure			
Duration: Covers daily exposures up to 8	hours			
Conditions and measures	related to personal protection, hygiene o	and health evaluation		
Personal protection Wear suitable gloves tested to	EN374.			
Other conditions affecting	worker exposure			
Temperature: Covers use at amb	ient temperatures.			
2.2. CS2: Worker Contributi	ng Scenario: General use from professional	operators (PROC2)		
Process Categories	Chemical production or refinery in closed co	-		

exposure or processes with equivalent containment conditions (PROC2)

**Product (article) characteristics** 

Physical form of product: Liquid	
Amount used, frequency a	and duration of use/exposure
Duration: Covers daily exposures up to 8	3 hours
Conditions and measures	related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to	EN374.
Other conditions affecting	y worker exposure
Temperature: Covers use at amb	ient temperatures.
2.2. CS3: Worker Contributi	ng Scenario: General use from professional operators (PROC3)
Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)
Product (article) characte	eristics
Physical form of product: Liquid	
Amount used, frequency a	and duration of use/exposure
Duration: Covers daily exposures up to 8	B hours
Conditions and measures	related to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to	EN374.
Other conditions affecting	y worker exposure
Temperature: Covers use at amb	ient temperatures.
2.2. CS4: Worker Contributi	ng Scenario: General use from professional operators (PROC4)
Process Categories	Chemical production where opportunity for exposure arises (PROC4)
Product (article) characte	eristics
Physical form of product: Liquid	
Amount used, frequency a	and duration of use/exposure
Duration: Covers daily exposures up to 8	3 hours
Technical and organisation	onal conditions and measures
Technical and organisationa Natural ventilation is from door	al measures rs, 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
Personal protection Wear suitable gloves tested to	EN374.
Other conditions affecting	g worker exposure
Temperature: Covers use at amb	ient temperatures.
2.2. CS5: Worker Contributi	ng Scenario: General use from professional operators (PROC8a)
Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)
Product (article) characte	eristics
Physical form of product:	
Liquid	

Amount used, frequency and	l duration of use/exposure
Duration: Covers daily exposures up to 8 ho	urs
Technical and organisation	al conditions and measures
Technical and organisational n Natural ventilation is from doors, w	neasures windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Conditions and measures re	lated to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to ENS	374.
Other conditions affecting w	orker exposure
Temperature: Covers use at ambien	t temperatures.
2.2. CS6: Worker Contributing	Scenario: General use from professional operators (PROC13)
Process Categories	Treatment of articles by dipping and pouring (PROC13)
Product (article) characteri	stics
Physical form of product: Liquid	
Amount used, frequency and	l duration of use/exposure
Duration: Covers daily exposures up to 8 ho	urs
Technical and organisation	al conditions and measures
Technical and organisational n Natural ventilation is from doors, w	neasures windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Conditions and measures re	lated to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to ENS	374.
Other conditions affecting w	vorker exposure
Temperature: Covers use at ambien	t temperatures.
2.2. CS7: Worker Contributing	Scenario: General use from professional operators (PROC10)
Process Categories	Roller application or brushing (PROC10)
Product (article) characteri	stics
Physical form of product: Liquid	
Amount used, frequency and	l duration of use/exposure
Duration: Covers daily exposures up to 8 ho	urs
Technical and organisation	al conditions and measures
Technical and organisational n Natural ventilation is from doors, v	neasures windows etc. Controlled ventilation means air is supplied or removed by a powered fan.
Conditions and measures re	lated to personal protection, hygiene and health evaluation
Personal protection Wear suitable gloves tested to ENS	374.
Other conditions affecting w	vorker exposure
Temperature: Covers use at ambien	t temperatures.
2.2. CS8: Worker Contributing	Scenario: General use from professional operators (PROC11)

Process Categories	Non industrial spraying (PROC11)			
Product (article) character	Product (article) characteristics			
Physical form of product: Liquid				
Concentration of substance in Covers percentage substance in	•			
Amount used, frequency an	nd duration of use/exposure			
Duration: Covers daily exposures up to 8 h	iours			
Technical and organisation	nal conditions and measures			
Technical and organisational Natural ventilation is from doors,	measures , windows etc. Controlled ventilation means air is supplied or removed by a powered fan.			
Conditions and measures r	elated to personal protection, hygiene and health evaluation			
Personal protection Wear suitable gloves tested to EN	N374.			
Other conditions affecting	worker exposure			
Temperature: Covers use at ambie Ventilation rate: 30 %	nt temperatures.			
2.2. CS9: Worker Contributing	g Scenario: General use from professional operators (PROC11)			
Process Categories	Non industrial spraying (PROC11)			
Product (article) character	istics			
Physical form of product: Liquid				
Concentration of substance in Covers concentrations up to 1 %	•			
Amount used, frequency an	ad duration of use/exposure			
Duration: Covers daily exposures up to 8 h	iours			
Technical and organisation	nal conditions and measures			
Technical and organisational Provide extract ventilation to mar	measures terial transfer points and other openings.			
Conditions and measures r	elated to personal protection, hygiene and health evaluation			
Personal protection Wear suitable gloves tested to EN	<b>v</b> 374.			
Other conditions affecting	worker exposure			
Temperature: Covers use at ambie Ventilation rate: Provide forced ve				
2.2. CS10: Worker Contribution	ng Scenario: General use from professional operators (PROC10)			
Process Categories	Roller application or brushing (PROC10)			
Product (article) character	istics			
Physical form of product: Liquid				
Amount used, frequency an	nd duration of use/exposure			
Duration:				

Technical and even miestion	al conditions a	- d		
Technical and organisation Technical and organisational		na measures		
Provide extract ventilation to mat		and other openings.		
Conditions and measures re	elated to person	al protection, hy	giene and health e	evaluation
Personal protection Wear suitable gloves tested to EN	374.			
Other conditions affecting v	vorker exposure	е		
Temperature: Covers use at ambien	nt temperatures.			
2.2. CS11: Worker Contributir	g Scenario: Gene	eral use from profe	essional operators (	PROC10)
Process Categories	Roller application	n or brushing (PROC1	.0)	
Product (article) character	istics			
Physical form of product: Liquid Concentration of substance in	product:			
Covers percentage substance in				
Amount used, frequency and	d duration of us	se/exposure		
Duration: Covers daily exposures up to 8 h	ours			
Technical and organisation	al conditions ar	nd measures		
Technical and organisational Provide extract ventilation to point		occur.		
Conditions and measures re	elated to person	al protection, hy	giene and health e	evaluation
Personal protection Wear suitable gloves tested to EN	374.			
Other conditions affecting v	vorker exposure	e		
Temperature: Covers use at ambien	nt temperatures.			
2.2. CS12: Worker Contributir	g Scenario: Gene	eral use from profe	essional operators (	PROC4)
Process Categories	Chemical produc	tion where opportur	nity for exposure arise	s (PROC4)
Product (article) character	istics			
Physical form of product: Liquid				
Amount used, frequency an	d duration of us	se/exposure		
Duration: Covers daily exposures up to 8 h	ours			
Conditions and measures re	elated to person	al protection, hy	giene and health e	evaluation
Personal protection Wear suitable gloves tested to EN	374.			
Other conditions affecting v	vorker exposure	е		
Temperature: Covers use at ambie	nt temperatures.			
2.3 Exposure estimat	ion and refe	erence to its s	source	
2.3. CS1: Worker Contributing	Scenario: Gener	al use from profes	sional operators (P	ROC8b)
Exposure route, Health effect, Ex	posure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)

	inhalative, systemic, long-term	50 mg/m³	N/A	0.246
-	dermal, systemic, long-term	13.71 mg/kg bw/day	N/A	0.015
	combined routes, systemic, long-term	N/A	N/A	0.261

#### 2.3. CS2: Worker Contributing Scenario: General use from professional operators (PROC2)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	20 mg/m³	N/A	0.098
dermal, systemic, long-term	1.37 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.1

#### **2.3. CS3:** Worker Contributing Scenario: General use from professional operators (PROC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	25 mg/m³	N/A	0.123
dermal, systemic, long-term	0.34 mg/kg bw/day	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.123

### **2.3. CS4:** Worker Contributing Scenario: General use from professional operators (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m³	N/A	0.246
dermal, systemic, long-term	6.84 mg/kg bw/day	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.254

#### 2.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	100 mg/m³	N/A	0.492
dermal, systemic, long-term	13.71 mg/kg bw/day	N/A	0.015
combined routes, systemic, long-term	N/A	N/A	0.507

## 2.3. CS6: Worker Contributing Scenario: General use from professional operators (PROC13)

1					
	Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)	

inhalative, systemic, long-term	100 mg/m³	N/A	0.492
dermal, systemic, long-term	13.71 mg/kg bw/day	N/A	0.015
combined routes, systemic, long-term	N/A	N/A	0.507

#### 2.3. CS7: Worker Contributing Scenario: General use from professional operators (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	100 mg/m³	N/A	0.492
dermal, systemic, long-term	27.5 mg/kg bw/day	N/A	0.031
combined routes, systemic, long-term	N/A	N/A	0.523

#### 2.3. CS8: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	150 mg/m³	N/A	0.737
dermal, systemic, long-term	107.14 mg/kg bw/day	N/A	0.121
combined routes, systemic, long-term	N/A	N/A	0.858

#### 2.3. CS9: Worker Contributing Scenario: General use from professional operators (PROC11)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	35 mg/m³	N/A	0.172
dermal, systemic, long-term	107.14 mg/kg bw/day	N/A	0.121
combined routes, systemic, long-term	N/A	N/A	0.293

#### 2.3. CS10: Worker Contributing Scenario: General use from professional operators (PROC10)

Exposure level	Calculation method	Risk Characterization Ratio (RCR)
100 mg/m³	N/A	0.492
27.43 mg/kg bw/day	N/A	0.031
N/A	N/A	0.523
1	.00 mg/m³ 27.43 mg/kg bw/day	N/A N/A N/A N/A N/A

### 2.3. CS11: Worker Contributing Scenario: General use from professional operators (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)

inhalative, systemic, long-term	100 mg/m³	N/A	0.492
dermal, systemic, long-term	27.43 mg/kg bw/day	N/A	0.031
combined routes, systemic, long-term	N/A	N/A	0.523

#### 2.3. CS12: Worker Contributing Scenario: General use from professional operators (PROC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 mg/m³	N/A	0.246
dermal, systemic, long-term	6.86 mg/kg bw/day	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.254

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

#### Guidance to check compliance with the exposure scenario:

## 3. ES 3 Consumer use; Various products (PC9b, PC9a, PC3, PC4, PC8)

## **3.1 TITLE SECTION**

<b>3.1 TITLE SECTION</b>			
Exposure Scenario name	osure Scenario name Cleaning agent		
Date - Version	24/07/2019 - 1.0		
Life Cycle Stage	Consumer use		
Main user group	Consumer uses		
Sector(s) of use	Consumer uses (SU21)		
Product Categories	Fillers, putties, plasters, modelling clay (PC9b) - Coatings and paints, thinners, paint removers (PC9a) - Air care products (PC3) - Anti-freeze and de-icing products (PC4) - Biocidal products (PC8) - Lubricants, greases, release products (PC24) - Washing and cleaning products (PC35) - Welding and soldering products, flux products (PC38)		
Consumer Contributing Scena	rio		
CS1 Consumer		PC3	
CS2 Consumer		PC3	
CS3 Consumer		PC4	
CS4 Consumer		PC4	
CS5 Consumer		PC4	
CS6 Consumer		PC8	
CS7 Consumer		PC8	
CS8 Consumer		PC8	
CS9 Consumer		PC9a	
CS10 Consumer		PC9a	
CS11 Consumer		PC9a	
CS12 Consumer		PC9a	
CS13 Consumer		PC9b	
CS14 Consumer		PC9b	
CS15 Consumer		PC9b	
CS16 Consumer		PC9c	
CS17 Consumer		PC24	
CS18 Consumer		PC24	
CS19 Consumer		PC24	
CS20 Consumer		PC35	
CS21 Consumer		PC35	
CS22 Consumer		PC35	
CS23 Consumer	CS23 Consumer PC35		
3.2 Conditions of use	affecting exposure		

3.2. CS1: Consumer Contribut	ing Scenario: Consumer (PC3)
Product Categories	Air care products (PC3)
Product (article) character	istics
Physical form of product: Liquid	
Concentration of substance in Covers concentrations up to 50 %	
Amount used, frequency and	d duration of use/exposure
Amounts used: Amount per use 0.5 g	
Frequency: Use frequency 365 days per year	
<b>Frequency:</b> 1 events per day	
Other conditions affecting c	-
Additional conditions human Covers skin contact area up to 428	
3.2. CS2: Consumer Contribut	ing Scenario: Consumer (PC3)
Product Categories	Air care products (PC3)
Product (article) character	istics
Physical form of product: Liquid Concentration of substance in	product
Covers concentrations up to 50 %	- 6
Amount used, frequency and	d duration of use/exposure
Amounts used: Amount per use 0.5 g	
Frequency: Use frequency 365 days per year	
Frequency: 1 events per day	
Other conditions affecting c	а. А.
Additional conditions human Covers skin contact area up to 37.	
3.2. CS3: Consumer Contribut	ing Scenario: Consumer (PC4)
Product Categories	Anti-freeze and de-icing products (PC4)
Product (article) character	istics
Physical form of product: Liquid	
Concentration of substance in Covers concentrations up to 50 %	•
Amount used, frequency and	d duration of use/exposure

Amounts used: Amount per use 0.5 g	
Frequency: Use frequency 365 days per ye	ear
Frequency: 1 events per day	
Other conditions affecting	j consumers exposure
Room size: Covers use in a one ca	ar garage (>34 m <sup>3</sup> ) under typical ventilation.
3.2. CS4: Consumer Contribu	uting Scenario: Consumer (PC4)
Product Categories	Anti-freeze and de-icing products (PC4)
Product (article) characte	eristics
Physical form of product: Liquid	
<b>Concentration of substance</b> Covers concentrations up to 50	•
Amount used, frequency a	and duration of use/exposure
Frequency: Use frequency 365 days per ye	ear
Frequency: 1 events per day	
Other conditions affecting	) consumers exposure
Additional conditions huma Covers skin contact area up to 4	
3.2. CS5: Consumer Contribu	uting Scenario: Consumer (PC4)
Product Categories	Anti-freeze and de-icing products (PC4)
Product (article) characte	eristics
Physical form of product: Liquid	
<b>Concentration of substance</b> Covers concentrations up to 50	
	ind duration of use/exposure
Amount used, frequency a	
Amount used, frequency a Frequency: Use frequency 365 days per ye	
Frequency:	
Frequency: Use frequency 365 days per ye	ear
Frequency: Use frequency 365 days per ye Frequency: 1 events per day	ear <i>g consumers exposure</i> in health
Frequency: Use frequency 365 days per ye Frequency: 1 events per day Other conditions affecting Additional conditions human Covers skin contact area up to 2	ear <i>g consumers exposure</i> in health
Frequency: Use frequency 365 days per ye Frequency: 1 events per day Other conditions affecting Additional conditions human Covers skin contact area up to 2	ear <i>o consumers exposure</i> <b>in health</b> 214.4 cm <sup>2</sup>
Frequency: Use frequency 365 days per ye Frequency: 1 events per day Other conditions affecting Additional conditions human Covers skin contact area up to 2 3.2. CS6: Consumer Contribu	ear <i>Consumers exposure</i> <b>In health</b> 214.4 cm <sup>2</sup> <b>uting Scenario: Consumer (PC8)</b> Biocidal products (PC8)

Concentration of substan Covers concentrations up to	•
Amount used, frequency	y and duration of use/exposure
Frequency: Use frequency 365 days per	r year
Frequency: 1 events per day	
Other conditions affecti	ing consumers exposure
Additional conditions hur Covers skin contact area up	
3.2. CS7: Consumer Contr	ibuting Scenario: Consumer (PC8)
Product Categories	Biocidal products (PC8)
Product (article) chara	cteristics
Physical form of product: Liquid	
<b>Concentration of substan</b> Covers concentrations up to	•
Amount used, frequency	y and duration of use/exposure
Frequency: Use frequency 365 days per	r year
Frequency: 1 events per day	
Other conditions affecti	ing consumers exposure
Additional conditions hur Covers skin contact area up	
3.2. CS8: Consumer Contr	ibuting Scenario: Consumer (PC8)
Product Categories	Biocidal products (PC8)
Product (article) chara	cteristics
Physical form of product: Liquid	
<b>Concentration of substan</b> Covers concentrations up to	
Amount used, frequency	y and duration of use/exposure
Frequency: Use frequency 365 days per	r year
Frequency: 1 events per day	
Other conditions affecti	ing consumers exposure
Additional conditions hur Covers skin contact area up	
3.2. CS9: Consumer Contr	ibuting Scenario: Consumer (PC9a)
Product Categories	Coatings and paints, thinners, paint removers (PC9a)
Product (article) chara	cteristics

#### Physical form of product:

Liquid

#### Concentration of substance in product:

Covers concentrations up to 50 %

Amount used, frequency and duration of use/exposure

#### Amounts used:

Amount per use 27 g

#### **Frequency:**

Use frequency 4 days per year

#### **Frequency:**

1 events per day

Other conditions affecting consumers exposure

#### Additional conditions human health

Covers skin contact area up to 428.75 cm<sup>2</sup>

#### 3.2. CS10: Consumer Contributing Scenario: Consumer (PC9a)

**Product Categories** 

Coatings and paints, thinners, paint removers (PC9a)

#### Product (article) characteristics

#### **Physical form of product:**

Liquid

#### **Concentration of substance in product:**

Covers concentrations up to 50 %

#### Amount used, frequency and duration of use/exposure

#### Amounts used:

Amount per use 74 g

#### **Frequency:**

Use frequency 6 days per year

#### **Frequency:**

1 events per day

**Product Categories** 

#### Other conditions affecting consumers exposure

#### Additional conditions human health

Covers skin contact area up to 428.75 cm<sup>2</sup>

#### 3.2. CS11: Consumer Contributing Scenario: Consumer (PC9a)

Coatings and paints, thinners, paint removers (PC9a)

#### Product (article) characteristics

#### Physical form of product:

Liquid

#### Concentration of substance in product:

Covers concentrations up to 50 %

#### Amount used, frequency and duration of use/exposure

#### Amounts used:

Amount per use 215 g

#### Frequency:

Use frequency 2 days per year

Frequency: 1 events per day	
Other conditions affecting c	onsumers exposure
Room size: Covers use in a one car g	arage (>34 m <sup>3</sup> ) under typical ventilation.
3.2. CS12: Consumer Contribut	ting Scenario: Consumer (PC9a)
Product Categories	Coatings and paints, thinners, paint removers (PC9a)
Product (article) characteri	stics
Physical form of product: Liquid	
<b>Concentration of substance in</b> Covers concentrations up to 50 %	
Amount used, frequency and	d duration of use/exposure
Amounts used: Amount per use 49 g	
Frequency: Use frequency 3 days per year	
Frequency: 1 events per day	
Other conditions affecting c	onsumers exposure
Additional conditions human l Covers skin contact area up to 857	
3.2. CS13: Consumer Contribut	ting Scenario: Consumer (PC9b)
Product Categories	Fillers, putties, plasters, modelling clay (PC9b)
Product (article) characteri	stics
Physical form of product: Liquid	
<b>Concentration of substance in</b> Covers concentrations up to 20 %	
Amount used, frequency and	l duration of use/exposure
Amounts used: Amount per use 85 g	
Frequency: Use frequency 12 days per year	
Frequency: 1 events per day	
Other conditions affecting c	-
Additional conditions human l Covers skin contact area up to 37.	
	ting Scenario: Consumer (PC9b)
Product Categories	Fillers, putties, plasters, modelling clay (PC9b)
Product (article) characteri	stics

#### Physical form of product:

Liquid

#### Concentration of substance in product:

Covers concentrations up to 2 %

Amount used, frequency and duration of use/exposure

#### Amounts used:

Amount per use 13 g

#### **Frequency:**

Use frequency 12 days per year

#### **Frequency:**

1 events per day

Other conditions affecting consumers exposure

#### Additional conditions human health

Covers skin contact area up to 37.5 cm<sup>2</sup>

3.2. CS15: Consumer Contributing Scenario: Consumer (PC9b)

#### **Product Categories**

Fillers, putties, plasters, modelling clay (PC9b)

#### Product (article) characteristics

#### **Physical form of product:**

Liquid

#### **Concentration of substance in product:**

Covers concentrations up to 20 %

#### Amount used, frequency and duration of use/exposure

#### **Frequency:**

Use frequency 365 days per year

#### **Frequency:**

1 events per day

#### Other conditions affecting consumers exposure

#### Additional conditions human health

Covers skin contact area up to 254.5 cm<sup>2</sup>

#### 3.2. CS16: Consumer Contributing Scenario: Consumer

Product (Sub-)Categories Finger paints (PC9c)

#### Product (article) characteristics

## Physical form of product:

Liquid

#### Concentration of substance in product:

Covers concentrations up to 20 %

#### Amount used, frequency and duration of use/exposure

#### Frequency:

Use frequency 365 days per year

#### **Frequency:**

1 events per day

Other conditions affecting consumers exposure

### Additional conditions human health

Covers skin contact area up to 254.5 cm<sup>2</sup>

	Lubricante graces relace products (PC24)		
Product Categories			
Product (article) character	istics		
Physical form of product: Liquid			
Concentration of substance in Covers percentage substance in	•		
Amount used, frequency an	d duration of use/exposure		
Amounts used: Amount per use 2 g			
Frequency: Use frequency 4 days per year			
Frequency: 1 events per day			
Other conditions affecting o	consumers exposure		
Additional conditions human Covers skin contact area up to 46			
3.2. CS18: Consumer Contribu	uting Scenario: Consumer (PC24)		
Product Categories	Lubricants, greases, release products (PC24)		
Product (article) character	istics		
Physical form of product: Liquid			
Concentration of substance in Covers concentrations up to 20 9	•		
Amount used, frequency an	d duration of use/exposure		
Amounts used: Amount per use 3 g			
Frequency: Use frequency 10 days per year			
Frequency: 1 events per day			
Other conditions affecting a	consumers exposure		
Additional conditions human Covers skin contact area up to 46			
3.2. CS19: Consumer Contribu	uting Scenario: Consumer (PC24)		
Product Categories	oduct Categories Lubricants, greases, release products (PC24)		
Product (article) character	istics		
Physical form of product:			
Liquid			
	d duration of use/exposure		

Frequency: Use frequency 6 days per ye	ear		
Frequency: 1 events per day			
Other conditions affecti	ing consumers exposure		
Additional conditions hur Covers skin contact area up			
3.2. CS20: Consumer Cont	tributing Scenario: Consumer (PC35)		
Product Categories	Washing and cleaning products (PC35)		
Product (article) chara	cteristics		
Physical form of product: Liquid			
Amount used, frequency	y and duration of use/exposure		
Frequency: Use frequency 6 days per ye	ear		
Frequency: 1 events per day			
Other conditions affecti	ing consumers exposure		
Additional conditions hur Covers skin contact area up			
	tributing Scenario: Consumer (PC35)		
Product Categories	Washing and cleaning products (PC35)		
Product (article) chara	cteristics		
Physical form of product: Liquid			
Amount used, frequency	y and duration of use/exposure		
Frequency: Use frequency 128 days per	r year		
Frequency: 1 events per day			
	ing consumers exposure		
Additional conditions hur Covers skin contact area up	man health		
3.2. CS22: Consumer Con	tributing Scenario: Consumer (PC35)		
Product Categories	Washing and cleaning products (PC35)		
Product (article) chara	cteristics		
Physical form of product: Liquid			
Amount used, frequency	y and duration of use/exposure		
Frequency: Use frequency 128 days per	r year		
Frequency: 1 events per day			
Other conditions affecti	ing consumers exposure		

Additional conditions hu	
3.2. CS23: Consumer Co	ntributing Scenario: Consumer (PC35)
Product Categories	Washing and cleaning products (PC35)
Product (article) char	acteristics
Physical form of product	t:
Amount used, frequen	cy and duration of use/exposure
Amounts used: Amount per use 12 g	
Frequency: Use frequency 365 days p	er year
Frequency: 1 events per day	
Other conditions affec	ting consumers exposure

other conditions affecting consumers exposi-

Room size: Covers use in room size of 20 m<sup>3</sup>

## 3.3 Exposure estimation and reference to its source

## 3.2. CS1: Consumer Contributing Scenario: Consumer (PC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.1 mg/m³	N/A	0.001
dermal, systemic, long-term	142.67 mg/kg bw/day	N/A	0.447
combined routes, systemic, long-term	N/A	N/A	0.448

## 3.2. CS2: Consumer Contributing Scenario: Consumer (PC3)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.83 mg/m <sup>3</sup>	N/A	0.009
dermal, systemic, long-term	N/A	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.009

## 3.2. CS3: Consumer Contributing Scenario: Consumer (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.01 mg/m <sup>3</sup>	N/A	0
dermal, systemic, long-term	N/A	N/A	0
combined routes, systemic, long-term	N/A	N/A	0

## 3.2. CS4: Consumer Contributing Scenario: Consumer (PC4)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.04 mg/m³	N/A	0.102
dermal, systemic, long-term	35.67 mg/kg bw/day	N/A	0.112
combined routes, systemic, long-term	N/A	N/A	0.214

## 3.2. CS5: Consumer Contributing Scenario: Consumer (PC4)

xposure level	Calculation method	Risk Characterization Ratio (RCR)
.51 mg/m³	N/A	0.006
7.87 mg/kg bw/day	N/A	0.056
/A	N/A	0.177
- 7	51 mg/m³ 7.87 mg/kg bw/day	51 mg/m <sup>3</sup> N/A 7.87 mg/kg bw/day N/A

#### 3.2. CS6: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	6.75 mg/m³	N/A	0.076
dermal, systemic, long-term	0.71 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.078

## 3.2. CS7: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	8.42 mg/m³	N/A	0.095
dermal, systemic, long-term	71.46 mg/kg bw/day	N/A	0.224
combined routes, systemic, long-term	N/A	N/A	0.319

## 3.2. CS8: Consumer Contributing Scenario: Consumer (PC8)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.78 mg/m³	N/A	0.065
dermal, systemic, long-term	35.87 mg/kg bw/day	N/A	0.112
combined routes, systemic, long-term	N/A	N/A	0.177

## 3.2. CS9: Consumer Contributing Scenario: Consumer (PC9a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	38.53 mg/m³	N/A	0.433
dermal, systemic, long-term	0.39 mg/kg bw/day	N/A	0.001
combined routes, systemic, long-term	N/A	N/A	0.434

## 3.2. CS10: Consumer Contributing Scenario: Consumer (PC9a)

Exposure level	Calculation method	Risk Characterization Ratio (RCR)
15.15 mg/m³	N/A	0.17
0.57 mg/kg bw/day	N/A	0.002
N/A	N/A	0.172
	15.15 mg/m <sup>3</sup> 0.57 mg/kg bw/day	15.15 mg/m³     N/A       0.57 mg/kg bw/day     N/A

#### 3.2. CS11: Consumer Contributing Scenario: Consumer (PC9a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	34.29 mg/m <sup>3</sup>	N/A	0.385
dermal, systemic, long-term	0 mg/kg bw/day	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.385

## 3.2. CS12: Consumer Contributing Scenario: Consumer (PC9a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	4.9 mg/m <sup>3</sup>	N/A	0.055
dermal, systemic, long-term	0.59 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.057

## 3.2. CS13: Consumer Contributing Scenario: Consumer (PC9b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	53.63 mg/m³	N/A	0.603
dermal, systemic, long-term	1.19 mg/kg bw/day	N/A	0.004
combined routes, systemic, long-term	N/A	N/A	0.607

#### 3.2. CS14: Consumer Contributing Scenario: Consumer (PC9b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	22.02 mg/m³	N/A	0.247
dermal, systemic, long-term	0.09 mg/kg bw/day	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.247

## 3.2. CS15: Consumer Contributing Scenario: Consumer (PC9b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
oral, systemic, long-term	20 mg/kg bw/day	N/A	0.769
dermal, systemic, long-term	2.54 mg/kg bw/day	N/A	0.008
combined routes, systemic, long-term	N/A	N/A	0.777

#### 3.2. CS16: Consumer Contributing Scenario: Consumer

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
oral, systemic, long-term	20.25 mg/kg bw/day	N/A	0.779
dermal, systemic, long-term	38.16 mg/kg bw/day	N/A	0.12
combined routes, systemic, long-term	N/A	N/A	0.899

## 3.2. CS17: Consumer Contributing Scenario: Consumer (PC24)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	3.98 mg/m³	N/A	0.045
dermal, systemic, long-term	78 mg/kg bw/day	N/A	0.245
combined routes, systemic, long-term	N/A	N/A	0.29

## 3.2. CS18: Consumer Contributing Scenario: Consumer (PC24)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0 mg/m³	N/A	0
dermal, systemic, long-term	15.6 mg/kg bw/day	N/A	0.049
combined routes, systemic, long-term	N/A	N/A	0.049

#### 3.2. CS19: Consumer Contributing Scenario: Consumer (PC24)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	12.06 mg/m³	N/A	0.136
dermal, systemic, long-term	35.73 mg/kg bw/day	N/A	0.112
combined routes, systemic, long-term	N/A	N/A	0.29

## 3.2. CS20: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.75 mg/m³	N/A	0.008
dermal, systemic, long-term	0.71 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.01

#### 3.2. CS21: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	8.42 mg/m <sup>3</sup>	N/A	0.095
dermal, systemic, long-term	71.46 mg/kg bw/day	N/A	0.224
combined routes, systemic, long-term	N/A	N/A	0.319

## 3.2. CS22: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	5.78 mg/m <sup>3</sup>	N/A	0.065
dermal, systemic, long-term	35.67 mg/kg bw/day	N/A	0.112
combined routes, systemic, long-term	N/A	N/A	0.177

## 3.2. CS23: Consumer Contributing Scenario: Consumer (PC35)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	9.4 mg/m³	N/A	0.106
dermal, systemic, long-term	0 mg/kg bw/day	N/A	0
combined routes, systemic, long-term	N/A	N/A	0.106

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

#### Guidance to check compliance with the exposure scenario:

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