

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: | 8403 |
| | ibstance 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 | ly data sheet |
| Supplier: Arexons S.p.A. | |
| via Antica di Cassano, 23, 200 | 83 |
| 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 | 9 (0)2/92436306 |
| In England and Wales: NHS 11 | 1 - dial 111 |
| In Scotland: NHS 24 - dial 111 | |
| In Ireland: emergency number | |
| In South Africa: Poison Informa | |
| 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.

8403/13 Page n. 1 of 14



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 | |
| >= 5% - < 7% | ethanediol; ethylene glycol | Index number: CAS: EC: REACH No.: | 107-21-1 203-473-3 | |
| >= 1% - < 2% | propan-2-ol; isopropyl alcohol; isopropanol | Index number: CAS: EC: REACH No.: | 67-63-0 200-661-7 | ♦ 2.6/2 Flam. Liq. 2 H225 ♥ 3.3/2 Eye Irrit. 2 H319 ♥ 3.8/3 STOT SE 3 H336 |
| >= 0,5% - < 1% | butanone; ethyl methyl ketone | Index number: CAS: EC: REACH No.: | 78-93-3 201-159-0 | ♦ 2.6/2 Flam. Liq. 2 H225 ♦ 3.3/2 Eye Irrit. 2 H319 ♦ 3.8/3 STOT SE 3 H336 EUH066 |
| | 2-methylpropan-2-ol; tert-butyl alcohol | CAS: EC: REACH No.: | 75-65-0 200-889-7 01- | |



| | | | 2119444321 -51 | 1 3.8/3 STOT SE 3 H335 |
|-----------------------------|-----------------------------------|---|------------------------|---|
| >= 0,001% - < 0, 005% | sodium hydroxide; caustic soda | Index number: CAS: EC: REACH No.: | 1310-73-2 215-185-5 | ♦ 2.16/1 Met. Corr. 1 H290 ♦ 3.2/1A Skin Corr. 1A H314 ♦ 3.3/1 Eye Dam. 1 H318 Specific Concentration Limits: C >= 5%: Skin Corr. 1A H314 2% <= C < 5%: Skin Corr. 1B H314 0,5% <= C < 2%: Skin Irrit. 2 H315 0,5% <= C < 2%: Eye Irrit. 2 H319 |

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).

8403/13

Page n. 3 of 14



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

8403/13 Page n. 4 of 14



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 8403/13

Page n. 5 of 14



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. | | |

8403/13 Page n. 6 of 14



| 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 L 1

- 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

8403/13

Page n. 7 of 14



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

8403/13 Page n. 8 of 14



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.

8403/13

Page n. 9 of 14



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



| IATA-UN Number: | 1987 1987 1987 |
|--|---|
| 14.2. UN proper shipping name | |
| | ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(ethanol, propan-2-ol; isopropyl alcohol; isopropanol) |
| IATA-Shipping Name: | 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) | |
| | 3 |
| ADR - Hazard identification num | |
| | 3 |
| | 3 |
| | 3 |
| (-) | 3. PG II |
| 14.4. Packing group | 11 |
| 0 1 | |
| 5 5 5 5 1 | |
| | II |
| 14.5. Environmental hazards | Na |
| | No |
| · · · · · · · · · · · · · · · · · · · | No |
| | F-E, S-D |
| 14.6. Special precautions for user | |
| ADR-Subsidiary hazards: | - |
| | 274 601 640D |
| ADR-Transport category (Tunne | , , , |
| IATA-Passenger Aircraft: IATA-Subsidiary hazards: | 353 - |
| 8403/13 | |

Page n. 10 of 14



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

8403/13 Page n. 11 of 14



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: GefStoffVO: | European Inventory of Existing Commercial Chemical Substances. Ordinance on Hazardous Substances, Germany. |
| 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. |

8403/13

Page n. 13 of 14



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

8403/13 Page n. 14 of 14

Exposure Scenario, 23/07/2019

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

Table of contents

- 1. **ES 1** Consumer use; Anti-freeze and de-icing products (PC4)
- 2. **ES 2** Consumer use; Various products (PC39, PC28)
- 3. **ES 3** Use at industrial site
- 4. **ES 4** Use at industrial site
- 5. **ES 5** Widespread use by professional workers
- 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 |
| Concentration of substance in 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 ³) 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 ³) 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 ³) 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 ³) under typical ventilation. t temperatures. nealth cm ² |

| 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 ³ | N/A | 8.94E-07 |
| inhalative, local, short-term | 0.000102 mg/m ³ | 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 | |
| GTP type: Municipal Sewage Treatmen GTP effluent (m³/day): 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 | actor: 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
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 |
| 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. 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 |
| Technical and organisational i 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

| Concentration of substance 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 %. nd duration of use/exposur hours nal conditions and measur | |
| 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 ³ | 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 ³ (%): Water - minimum efficiency of: 87 % | | | | |
| | | | | |

| | es related to sewage treatment plant |
|--|---|
| STP type: Municipal Sewage Treatmer Water - minimum efficiency STP effluent (m ³ /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 | |
| | |
| | ce in product: 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 Contribution | 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 organisatio Handle substance within a close Store substance within a close Conditions and measure 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) characteries 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 covers within a closed system covers and measures reserves. Conditions and measures reserves. Personal protection Use suitable eye protection. | 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 percentage substance in the Covers daily exposures up to 8 here. Duration: Covers daily exposures up to 8 here. Technical and organisational in Handle substance within a closed system of substance within a closed system of the covers of the co | 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 ³ | 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 | ce in product: 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 e in product: 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 | | |
| Concentration of substance 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) | | |
| Product (article) characte 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 | il measures 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 | | |
| Concentration of substance 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 | ce in product: 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 _l | 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 ³ 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 ³ | 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 ³ | 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 | | |
| Concentration of substance in 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 ³ | 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 Frequency: | |
| 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 |
| Concentration of substance in 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 |
| Concentration of substance in 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 m³) under typical ventilation. **Temperature:** Covers use at ambient temperatures.

Additional conditions human health

Covers skin contact area up to 210 cm²

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 ³ | 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 ³ | 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 ³ | 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 | |
| CS16 Consumer 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 ³ 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 ³ an health 35 cm ² | 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 |
| Concentration of substance 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 ³ |
| 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 |
| Concentration of substance 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 ³ |
| 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 |
| Concentration of substance i 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 |
| Concentration of substance i 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 m³ **Ventilation rate:** Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 430 cm²

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 ³ | N/A | 0.00682 |
| inhalative, local, short-term | 47.3 mg/m ³ | 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 ³ | N/A | 0.00589 |
| inhalative, local, short-term | 0.672 mg/m ³ | 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 ³ | 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 ³ | N/A | 0.00119 |
| inhalative, local, short-term | 6.24 mg/m ³ | 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 ³ | 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 ³ | N/A | 0.137 |
| inhalative, local, short-term | 15.7 mg/m ³ | 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 ³ | 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 ³ | 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 | | |
|---|--|----------------|--|
| 1.1 TITLE SECTION | | | |
| 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 | |
| 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 | 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 | |
| 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 | |
| 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 |
| 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 | |
| | |
| 1.3 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 | |
|--------------------------------------|-----|---------------|------|--|
|--------------------------------------|-----|---------------|------|--|

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 | |
| Concentration of substance in 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 | |
| Concentration of substanc Covers percentage substanc | c e in product: 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 | | |
| Concentration of substa 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). |
| Conditions and measures | 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 Room size: 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

| 3.1 TITLE SECTION | | | | | |
|--|--|----------------|--|--|--|
| 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 | | | | |
| Concentration of substance in 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 | | | | | | |
| Concentration of substance in 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 Room size: 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 |
|-----------|-----------|
|-----------|-----------|

| Product (article) characte | pristics | | |
|---|---|--|--|
| Concentration of substance 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 | | |
| Concentration of substance Covers concentrations up to 45 | • | | |
| Amount used, frequency a | nd duration of use/exposure | | |
| Duration: 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 | | |
| Concentration of substance 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 | | |
| Concentration of substance Covers percentage substance i | • | | |
| 4.2. CS8: Consumer Contribu | uting Scenario: Consumer (PC31) | | |
| Product Categories | Polishes and wax blends (PC31) | | |
| Product (article) characte | ristics | | |
| Concentration of substance 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 | | |
| Concentration of substance 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 | | |
|---|--|--------|--|--|
| 1.1 TITLE SECTION | | | | |
| 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 | | | |
| Covers daily exposures up to 8 hours Technical and organisational measures Centransfer lines prior to de-coupling. Provide extract ventilation to points where emissions occur. Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gives tested to EN374. L.2.CSG: Worker Contributing Cenarization of product: Liquid Amount used, frequency and duration of use/exposure Technical and organisational measures Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Covers daily exposures up to 8 hours Technical and organisational measures Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Covers daily exposures up to 8 hours Technical and organisational measures Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gives tested to EN374. L.2.CST: Worker Contributing Scenario: Industrial (PROC13) Provide extract ventilation to points where emissions occur. Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gives tested to EN374. L.2.CST: Worker Contributing Scenario: Industrial (PROC10) Product (article) characteristics Physical form of product: Liquid Amount used, frequency and duration of use/exposure Provide extract exposures up to 8 hours Conditions affecting worker exposure Provide extract exposures Conditions affecting worker exposure Provide extract entitiation provide extract exposure Provide extract entitiation Provide extract Conditions affecting worker exposure Provide extract extraction of provide: Covers daily exposures up to 8 hours Covers daily exposures up to 8 hours Conditions affecting worker exposure Provide extract extraction of provide: Covers daily exposures up to 8 hours Covers daily exposu | Amount used, frequency an | d duration of use/exposure | | |
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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 | | |
| Temperature: Covers use at ambient temperatures. 1.2. CS6: Worker Contributing Scenario: Industrial (PROC13) Process Categories Treatment of articles by dipping and pouring (PROC13) Product (article) characteristics Physical form of product: Itaquid Uiquid Itaquid Amount used, frequency and duration of use/exposure Duration: Covers dally exposures up to 8 hours Technical and organisational measures Provide extract ventilation to points where emissions occur. Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable glowes tested to EN374. Other conditions affecting worker exposure Remperature: Covers use at ambient temperatures. 1.2. CS7: Worker Contributing Scenario: Industrial (PROC10) Process Categories Roller application or brushing (PROC10) Prosess Categories Roller application or brushing (PROC10) Proside form of product: Itaguid Amount used, frequency and duration of use/exposure Covers daily exposures up to 8 hours Covers daily exposures up to 8 hours Covers daily exposures up to 8 hours Covers daily exposures up to 8 hours Covers daily exposures up to 8 hours | Personal protection Wear suitable gloves tested to EN | 1374. | | |
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| Product (article) characteristics Physical form of product: Liquid Amount used, frequency and duration of use/exposure Duration: Covers daily exposures up to 8 hours Technical and organisational conditions and measures Provide extract ventilation to points where emissions occur. Conditions and measures related to personal protection, hygiene and health evaluation Personal protection Wear suitable gloves tested to EN374. Dther conditions affecting worker exposure Product (article) characteristics Physical form of product: Liquid Amount used, frequency and duration of use/exposure Duration: Cover 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 Product (article) characteristics Physical form of product: Liquid Amount used, frequency and duration of use/exposure Duration: Cover 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 Emperature: Covers use at ambient temperatures. Conditions affecting worker exposure Duration: Cover daily exposures up to 8 hours Conditions affecting worker exposure Emperature: Covers use at ambient temperatures. Conditions affecting worker exposure Duration: Cover daily exposures up to 8 hours Conditions affecting worker exposure Duration: Cover daily exposures up to 8 hours Conditions affecting worker exposure Duration: Cover suble gloves tested to EN374. Dther conditions affecting worker exposure Conditions affecting worker exposure Conditions affecting worker exposure Cover suble gloves tested to EN374. Dther conditions affecting worker exposure Cover suble gloves tested to EN374. Dther conditions affecting worker exposure Cover daily exposures up to 8 hours Cover daily exposures up to 8 hours Cover daily exposures up to 8 hours Cover daily exposures up to | 1.2. CS6: Worker Contributing | g Scenario: Industrial (PROC13) | | |
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| Personal protection Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: 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 Temperature: Covers use at ambient temperatures. | - | | | |
| Wear suitable gloves tested to EN374. Other conditions affecting worker exposure Temperature: 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 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. | Conditions and measures r | elated to personal protection, hygiene and health evaluation | | |
| 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. | | |
| 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 Temperature: Covers use at ambient temperatures. | Other conditions affecting | worker exposure | | |
| Process Categories Roller application or brushing (PROC10) Product (article) characteristics Physical form of product: Liquid 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. | Temperature: Covers use at ambie | nt temperatures. | | |
| 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 Temperature: Covers use at ambient temperatures. | 1.2. CS7: Worker Contributing | g Scenario: Industrial (PROC10) | | |
| 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 ³ | 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 ³ | 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 ³ | N/A | 0.123 |
| dermal, systemic, long-term | 0.34 mg/m ³ | 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 ³ | N/A | 0.246 |
| dermal, systemic, long-term | 6.86 mg/m ³ | 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 ³ | 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 ³ | 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 ³ | N/A | 0.246 |
| dermal, systemic, long-term | 27.43 mg/m ³ | 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

| 2.1 TITLE SECTION | | | | |
|---|--|--|--|--|
| 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 | v 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

| 3.1 TITLE SECTION | | | |
|-----------------------------|--|------|--|
| 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 | |
| Frequency: 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 ³) 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 | |
| Concentration of substance 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 | |
| Concentration of substance 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> in health 214.4 cm ² |
| 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> In health 214.4 cm ² uting Scenario: Consumer (PC8) 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 | |
| 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. CS8: Consumer Contr | ibuting Scenario: Consumer (PC8) |
| Product Categories | Biocidal products (PC8) |
| Product (article) chara | cteristics |
| Physical form of product: Liquid | |
| 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. 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 cm²

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 cm²

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 ³) 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 | |
| Concentration of substance in 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 | |
| Concentration of substance in 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 cm²

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 cm²

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 cm²

| | 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 m³

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 ³ | 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 ³ | 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 ³ 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 ³ 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 ³ | 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 ³ | 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 ³ | 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 ³ | 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.