Safety Data Sheet
FULCRON DETERGENTE UNIV. IGIENIZZANTE 30L

Safety Data Sheet dated 18/12/2020, version 3

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

1.1. Product identifier

Mixture identification:

Trade name: FULCRON DETERGENTE UNIV. IGIENIZZANTE 30L

Trade code: 2030

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

Recommended use:

Detergent/cleaner

sanitiser

1.3. Details of the supplier of the safety data sheet

Supplier:

Arexons S.p.A.

via Antica di Cassano, 23, 20063

Cernusco sul Naviglio (MI), Italy

Arexons S.p.A.

Tel. +39 (0)2/924361 - Fax +39 (0)2/92436306

Competent person responsible for the safety data sheet:

arexons@arexons.it

1.4. Emergency telephone number

Arexons S.p.A.

Tel. +39 (0)2/924361 - Fax +39 (0)2/92436306

Centro Antiveleni di Pavia IRCCS- Fondazione Maugeri tel. +39 (0)382 24444 (h24; it, en)

In England and Wales: NHS 111 - dial 111

In Scotland: NHS 24 - dial 111

In Ireland: Beaumont Hospital - National Poisons Information Centre 01 809 2166 (7days, 8:00 - 22:00)

In South Africa: Poison Information Helpline 0861 555 777

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.
P370+P378 EU4$P370+P378.1
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).
The product also contains: Perfumes
Allergens: (R)-p-mentha-1,8-diene; d-limonene

2.3. Other hazards
vPvB Substances: None - PBT Substances: None

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:

>= 70% - < 80% ethanol
REACH No.: 01-2119457610-43, CAS: 64-17-5, EC: 200-578-6
2.6/2 Flam. Liq. 2 H225
3.3/2 Eye Irrit. 2 H319

Specific Concentration Limits:
C >= 50%: Eye Irrit. 2 H319

>= 1% - < 2% propan-2-ol; isopropyl alcohol; isopropanol
REACH No.: 01-2119457558-25, Index number: 603-117-00-0, CAS: 67-63-0, EC: 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% ethanediol; ethylene glycol
REACH No.: 01-2119456816-28, Index number: 603-027-00-1, CAS: 107-21-1, EC: 203-473-3
3.1/4/Oral Acute Tox. 4 H302
3.9/2 STOT RE 2 H373

1 ppm sodium hydroxide; caustic soda
REACH No.: 02-2119457892-27, Index number: 011-002-00-6, CAS: 1310-73-2, EC: 215-185-5
2.16/1 Met. Corr. 1 H290
3.2/1A Skin Corr. 1A H314

Specific Concentration Limits:
0,5% <= C < 2%: Skin Irrit. 2 H315
0,5% <= C < 2%: Eye Irrit. 2 H319
2% <= C < 5%: Skin Corr. 1B H314
C >= 5%: Skin Corr. 1A H314

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

Use suitable breathing apparatus .
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Move undamaged containers from immediate hazard area if it can be done safely.

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
Wash with plenty of water.

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
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
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
ethanediol; ethylene glycol - CAS: 107-21-1
EU - TWA(8h): 52 mg/m3, 20 ppm - STEL: 104 mg/m3, 40 ppm - Notes: Skin
ACGIH - TWA(8h): 25 ppm - STEL: 50 ppm - Notes: (V), A4 - URT irr
ACGIH - STEL: 10 mg/m3 - Notes: (I, H), A4 - URT irr
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
N.A.

PNEC Exposure Limit Values
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

8.2. Exposure controls
Eye protection:

Eye glasses with side protection.
Compliant with EN 166

Protection for skin:
protective clothing

Protection for hands:
Nitrile or Viton gloves.
Compliant with EN 374.

Respiratory protection:
Not needed for normal use.

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:
Appearance and colour:	Liquid,green	--	--
Odour:	limone/alcool	--	--
Odour threshold:	N.A.	--	--
pH:	8	--	--
Melting point / freezing point:	N.A.	--	--
Initial boiling point and boiling range:	N.A.	--	--
Flash point:	20°C	IP 170	--
Evaporation rate:	N.A.	--	--
Solid/gas flammability:	N.A.	--	--
Upper/lower flammability or explosive limits:	N.A.	--	--
Vapour pressure:	N.A.	--	--
Vapour density:	N.A.	--	--
Relative density:	0,853 g/cm3	--	--
Solubility in water:	N.A.	--	--
Solubility in oil:	N.A.	--	--
Partition coefficient (n-octanol/water):	N.A.	--	--

Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
Viscosity:	N.A.	--	--
Explosive properties:	N.A.	--	--
Oxidizing properties:	N.A.	--	--

9.2. Other information

Properties	**Value**	**Method:**	**Notes:**
Miscibility:	N.A.	--	--
Fat Solubility:	N.A.	--	--
Conductivity:	N.A.	--	--
Substance Groups relevant properties	N.A.	--	--

NA=not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions
10.2. Chemical stability
Stable under normal conditions
10.3. Possibility of hazardous reactions
None
10.4. Conditions to avoid
Stable under normal conditions.
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 toxicological effects
Toxicological information of the product:
FULCRON DETERGENTE UNIV. IGIENIZZANTE 30L
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

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

j) 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

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

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

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

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

12.2. Persistence and degradability

None

N.A.

12.3. Bioaccumulative potential
propan-2-ol; isopropyl alcohol; isopropanol - CAS: 67-63-0
Test: Kow - Partition coefficient 0.05
12.4. Mobility in soil
N.A.
12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None
12.6. 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.

SECTION 14: Transport information

14.1. UN number

ADR-UN Number:	1987
IATA-UN Number:	1987
IMDG-UN Number:	1987

14.2. UN proper shipping name

ADR-Shipping Name:	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(Isopropyl alcohol, ethanol)
IATA-Shipping Name:	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(Isopropyl alcohol, ethanol)
IMDG-Shipping Name:	ALCOHOLS, N.O.S. (vapour pressure at 50 °C more than 110 kPa)(Isopropyl alcohol, ethanol)

14.3. Transport hazard class(es)

ADR-Class:	3
ADR - Hazard identification number:	33
IATA-Class:	3
IATA-Label:	3
IMDG-Class:	3

14.4. Packing group

ADR-Packing Group:	II
IATA-Packing group:	II
IMDG-Packing group:	II

14.5. Environmental hazards

ADR-Enviromental Pollutant:	No
IMDG-Marine pollutant:	No

14.6. Special precautions for user

ADR-Subsidiary hazards:	-
ADR-S.P.:	274 601 640D
ADR-Transport category (Tunnel restriction code):	2 (D/E)
IATA-Passenger Aircraft:	353
IATA-Subsidiary hazards:	-
IATA-Cargo Aircraft:	364
IATA-S.P.:	A3 A180
IATA-ERG:	3L

IMDG-EmS: F-E, S-D
IMDG-Subsidiary hazards: -
IMDG-Stowage and handling: Category B
IMDG-Segregation: -

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
No
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) 2015/830
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)

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:
No restriction.

Volatile Organic compounds - VOCs = 77.50 %
Volatile Organic compounds - VOCs = 774.99 g/Kg
Volatile Organic compounds - VOCs = 667.27 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
No Chemical Safety Assessment has been carried out for the mixture.
Substances for which a Chemical Safety Assessment has been carried out:
ethanol
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.
H336 May cause drowsiness or dizziness.
H302 Harmful if swallowed.
H373 May cause damage to organs (kidneys) through prolonged or repeated exposure if swallowed.
H290 May be corrosive to metals.
H314 Causes severe skin burns and 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/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 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 2: Hazards identification
SECTION 14: Transport information
SECTION 15: Regulatory information

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

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

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

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

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

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

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE:	Acute Toxicity Estimate
ATEmix:	Acute toxicity Estimate (Mixtures)
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	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.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

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)

1.1 TITLE SECTION

Exposure Scenario name	Car care and maintenance products - De-icing and anti-icing applications
Date - Version	22/07/2019 - 1.0
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	
CS2 Car Care - De-icing and anti-icing applications	PC4 - PC4_1
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)

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

Covers use up to 1 uses per day

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.

1.2. CS3: Consumer Contributing 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) characteristics

Concentration of substance in product:
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 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 482 cm²

1.2. CS4: Consumer Contributing 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) characteristics

Concentration of substance in product:
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

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 214 cm²

1.3 Exposure estimation and reference to its source

1.3. CS1: Environment Contributing Scenario: Covered by (ERC8d)

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/m³	N/A	8.94E-07
inhalative, local, short-term	0.000102 mg/m³	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.

2. ES 2 Consumer use; Various products (PC39, PC28)

2.1 TITLE SECTION

Exposure Scenario name	Cosumer other uses
Date - Version	22/07/2019 - 1.0
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 categories	Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor) (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)

protection target	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
freshwater	0.00236 mg/L	N/A	0.00246
freshwater sediment	0.00904 mg/kg bw/day	N/A	0.00246
marine water	0.000301 mg/L	N/A	0.000381
marine sediment	0.00115 mg/kg bw/day	N/A	0.00038
soil	0.00115 mg/kg bw/day	N/A	0.00676

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 at industrial site

3.1 TITLE SECTION

Exposure Scenario name	Solvent
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 Scenario	
CS1 Covered by	ERC4
Worker Contributing Scenario	
CS2 Industrial	PROC1
CS3 Industrial	PROC2
CS4 Industrial	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

3.2. CS1: Environment Contributing 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

Vapour pressure:
< 10 kPa

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

Amounts used:
Annual site tonnage 3000 t(onnes)/year

Maximum allowable site tonnage (MSafe): 124000 kg/day

Release type: Continuous release

Emission days: 300 days per year

Technical and organisational conditions and measures

Control measures to prevent releases

Treat air emission to provide the 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 measures related to sewage treatment plant

STP type:
Municipal Sewage Treatment Plant
STP effluent (m³/day): 2000

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

Waste treatment

Incineration, disposal or recycling at specific offsite provider Contain and dispose of waste according to local regulations.	Waste - minimum efficiency of: 99.98 %

Other conditions affecting environmental exposure

Local marine water dilution factor: 100
Local freshwater dilution factor: 10
Receiving surface water flow: 2000 m³/h

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.

Additional Good Practice Advice:
Contain leaks or spills within cabinets with removable trays.

3.2. CS2: Worker Contributing 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) 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. 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) 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 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) 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 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. CS6: Worker Contributing Scenario: Industrial (PROC5)

Process Categories	Mixing or blending in batch processes (PROC5)

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. CS7: Worker Contributing Scenario: Industrial (PROC7)

Process Categories	Industrial spraying (PROC7)

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

Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)

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 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. CS12: Worker Contributing Scenario: Industrial (PROC15)

Process Categories	Use as laboratory reagent (PROC15)

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.

3.3 Exposure estimation and reference to its source

3.3. CS1: Environment Contributing Scenario: Covered by (ERC4)

Release route	Release rate	Release estimation method
Air	0.98 %	N/A
Water	0.01 %	N/A
soil	0 %	N/A

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/m³	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)

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	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 (RCR)

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 industrial site

4.1 TITLE SECTION

Exposure Scenario name	Fuel
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 Scenario	
CS1 Covered by	ERC7
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

4.2. CS1: Environment Contributing Scenario: Covered by (ERC7)

Environmental release categories	Use of functional fluid at industrial site (ERC7)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

< 10 kPa

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

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 %

Conditions and measures related to sewage treatment plant

STP type:
Municipal Sewage Treatment Plant
Water - minimum efficiency of: = 87 %
STP effluent (m³/day): 2000

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

Waste treatment
Product residual disposal complies with applicable regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100
Local freshwater dilution factor: 10
Receiving surface water flow: 2000 m³/day

Additional good practice advice. Obligations according to Article 37(4) of REACH do not apply.

Additional Good Practice Advice:
Adequate closed storage facilities (e.g., bulk storage tanks, intermediate bulk containers, drums) are required.

4.2. CS2: Worker Contributing 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) 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
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.

4.2. 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) 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
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.

4.2. 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) 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
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.

4.2. CS5: 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

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.

4.2. CS6: Worker Contributing Scenario: Industrial (PROC8b)

Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)

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

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.

4.2. CS7: Worker Contributing Scenario: Industrial (PROC15)

Process Categories	Use as laboratory reagent (PROC15)

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

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.

4.2. CS8: Worker Contributing Scenario: Industrial (PROC16)

Process Categories	Use of fuels (PROC16)

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

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/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	0.0222

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:

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

5. ES 5 Widespread use by professional workers

5.1 TITLE SECTION

Exposure Scenario name	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 Scenario	
CS1 Covered by	ERC8a - ERC8d
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 professional 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 professional 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

Control measures to prevent releases

Treat air emission to provide the required removal efficiency of (%):	Air - minimum efficiency of: 90 %
Prevent discharge of undissolved substance to or recover from onsite wastewater.	

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

Waste treatment

Hazardous waste incineration	Waste - minimum efficiency of: 99.98 %

5.2. 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) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

5.2. 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) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

5.2. 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) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

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

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

5.2. CS6: Worker Contributing 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) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

5.2. CS7: 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) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

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

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:

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

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

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.
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:

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

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

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.
Wear suitable gloves tested to EN374.
Wear a respirator conforming to EN140.

Other conditions affecting worker exposure

Outdoor use

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

Process Categories	Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.
Wear suitable gloves tested to EN374.

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

Process Categories	Manual activities involving hand contact (PROC19)

Product (article) characteristics

Physical form of product:

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

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

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

Personal protection

Use suitable eye protection.
Wear suitable gloves tested to EN374.

5.3 Exposure estimation and reference to its source

5.3. CS1: Environment Contributing Scenario: Covered 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)

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

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/m³	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/m³	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:

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

6. ES 6 Widespread use by professional workers

6.1 TITLE SECTION

Exposure Scenario name	Fuel
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 Scenario

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 categories	Widespread use of functional fluid (indoor) - Widespread use of functional fluid (outdoor) (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)

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

Product (article) characteristics

Physical form of product:

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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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.

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) characteristics

Physical form of product:

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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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.

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) characteristics

Physical form of product:

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

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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.

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) characteristics

Physical form of product:

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

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

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.

6.2. 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) characteristics

Physical form of product:
Liquid, vapour pressure 0,5 - 10 kPa at STP

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

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.

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 kPa at STP

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

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.

6.3 Exposure estimation and reference to its source

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

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 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

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:

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

7. ES 7 Consumer 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 Scenario

CS1 Covered by	ERC9b

Consumer Contributing Scenario

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 Contributing Scenario: Covered by (ERC9b)

Environmental release categories	Widespread use of functional fluid (outdoor) (ERC9b)

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
Product residual disposal complies 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) characteristics

Concentration of substance in product:
Covers concentrations up to 85 %

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 37500 g

Duration:
Exposure duration 0.05 h/event
Frequency:
Covers use up to 51 times per year

Other conditions affecting consumers exposure

Outdoor use

Additional conditions human health
Covers skin contact area up to 210 cm²

7.2. CS3: Consumer Contributing Scenario: Consumer (PC13)	
Product Categories	Fuels (PC13)
Product (Sub-)Categories	Liquid Scooter Refuelling (PC13_2)

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 37500 g

Duration:
Exposure duration 0.033 h/event
Frequency:
Covers use up to 51 times per year

Other conditions affecting consumers exposure

Outdoor use

Additional conditions human health
Covers skin contact area up to 210 cm²

7.2. CS4: Consumer Contributing Scenario: Consumer (PC13)	
Product Categories	Fuels (PC13)
Product (Sub-)Categories	Liquid, Garden equipment - Use (PC13_3)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 15 %

Amount used, frequency and 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 year

Other conditions affecting consumers exposure

Outdoor use

Additional conditions human health
Covers skin contact area up to 210 cm²

7.2. CS5: Consumer Contributing Scenario: Consumer (PC13)	
Product Categories	Fuels (PC13)

Product (Sub-)Categories	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/m³	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/m³	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/m³	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:

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

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

8.1 TITLE SECTION

Exposure Scenario name	Cosumer other uses
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	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 Scenario

CS1 Covered by	ERC8a - ERC8d

Consumer Contributing Scenario

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_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)

Waste treatment

Hazardous waste incineration	Waste - minimum efficiency of: 99.8 %

Other conditions affecting environmental exposure

Local marine water dilution factor: 100
Local freshwater dilution factor: 10
Receiving surface water flow: 2000 m³/day

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

Product Categories	Adhesives, sealants (PC1)
Product (Sub-)Categories	Glues, hobby use (PC1_1)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 70 %

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 50 g

Duration:
Exposure duration 4 h/event
Frequency:
Covers exposure up to 1 events per day

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health
Covers skin contact area up to 35 cm²

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

Product Categories	Adhesives, sealants (PC1)
Product (Sub-)Categories	Glue from spray (PC1_3)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 30 %

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 50 g

Duration:
Exposure duration 4 h/event
Frequency:
Covers exposure up to 6 times per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health
Covers skin contact area up to 35 cm²

8.2. CS4: Consumer Contributing Scenario: Consumer (PC1)

Product Categories	Adhesives, sealants (PC1)

Product (Sub-)Categories	Sealants (PC1_4)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 30 %

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 50 g

Duration:
Exposure duration 1 h/event

Frequency:
Covers exposure up to 1 events per day

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health
Covers skin contact area up to 35 cm²

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

Product Categories	Air care products (PC3)
Product (Sub-)Categories	Air care, instant action (aerosol sprays) (PC3_1)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 40 %

Amount used, frequency and 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 per day

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health
Covers skin contact area up to 35 cm²

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

Product Categories	Air care products (PC3)
Product (Sub-)Categories	Air care, continuous action (solid and liquid) (PC3_2)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 10 %

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 events per day

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health

Covers skin contact area up to 35 cm²

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

Product Categories	Biocidal products (PC8)
Product (Sub-)Categories	Laundry and dish washing products (PC35_1, PC8_1)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 5 %.

Amount used, frequency and 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 per day

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Additional conditions human health

Covers skin contact area up to 857 cm²

8.2. CS8: Consumer Contributing 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) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 5 %.

Amount used, frequency and 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 20 m³

Additional conditions human health

Covers skin contact area up to 857 cm²

8.2. CS9: Consumer Contributing 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) characteristics

Concentration of substance in product:
Covers concentrations up to 15 %

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 50 g

Duration:
Exposure duration 0.2 h/event

Frequency:
Covers exposure up to 125 times per 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 428 cm²

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

Product Categories	Ink and toners (PC18)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 50 %

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 per day

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 71 cm²

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

Product Categories	Leather treatment products (PC23)
Product (Sub-)Categories	Polishes, wax/cream (floor, furniture, shoes) (PC23_1, PC31_1)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 50 %

Amount used, frequency and 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 of 20 m³
Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health
Covers skin contact area up to 430 cm²

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

Product Categories	Leather treatment products (PC23)
Product (Sub-)Categories	Polishes, spray (furniture, shoes) (PC23_2, PC31_2)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 20 %

Amount used, frequency and 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 per 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

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

Product Categories	Lubricants, greases, release products (PC24)
Product (Sub-)Categories	Liquids (PC16_1, PC17_1, PC24_1, 36)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 20 %

Amount used, frequency and 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 per 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 468 cm²

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

Product Categories	Plant protection products (PC27)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 50 %

Amount used, frequency and 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 of 20 m³
Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health
Covers skin contact area up to 857 cm²

8.2. CS15: Consumer Contributing 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) characteristics

Concentration of substance in product:
Covers concentrations up to 50 %

Amount used, frequency and 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 of 20 m³
Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health
Covers skin contact area up to 430 cm²

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

Product Categories	Polishes and wax blends (PC31)
Product (Sub-)Categories	Polishes, spray (furniture, shoes) (PC23_2, PC31_2)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 10 %

Amount used, frequency and 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 per 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/m³	N/A	0.00682
inhalative, local, short-term	47.3 mg/m³	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

8.2. CS4: Consumer Contributing Scenario: Consumer (PC1)

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

inhalative, systemic, long-term	23.5 mg/m³	N/A	0.206
inhalative, local, short-term	23.5 mg/m³	N/A	0.206
dermal, systemic, long-term	1.4 mg/kg bw/day	N/A	0.00679
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/m³	N/A	0.00589
inhalative, local, short-term	0.672 mg/m³	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/m³	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/m³	N/A	0.00119
inhalative, local, short-term	6.24 mg/m³	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/m³	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/m³	N/A	0.137
inhalative, local, short-term	15.7 mg/m³	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/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. 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/m³	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:

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

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

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 duration of use/exposure

Duration:
Covers daily exposures up to 8 hours

Technical and organisational conditions and measures

Technical and organisational measures
Clear transfer 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 gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

1.2. CS2: 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) 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

Technical and organisational measures
Clear transfer lines prior to de-coupling.

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. 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) 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

Technical and organisational measures
Clear transfer lines prior to de-coupling.

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. CS4: Worker Contributing Scenario: Industrial (PROC8b)

Process Categories	Transfer of substance or mixture (charging and discharging) at dedicated facilities (PROC8b)

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

Technical and organisational measures
Clear transfer lines prior to de-coupling.

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. CS5: Worker Contributing Scenario: Industrial (PROC4)

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

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

Technical and organisational measures
Clear transfer 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 gloves tested to EN374.

Other conditions affecting worker exposure

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:
Liquid

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
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.

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.

1.2. CS8: Worker Contributing Scenario: Industrial (PROC7)

Process Categories	Industrial spraying (PROC7)

Product (article) characteristics

Physical form of product:

Liquid

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Covers exposure up to 4 h/event

Technical and organisational conditions and measures

Technical and organisational measures

Provide a good standard of controlled ventilation (5 to 10 air changes per hour).

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

Personal protection

Wear suitable gloves tested to EN374.
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/m³	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/m³	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/m³	N/A	0.123
dermal, systemic, long-term	0.34 mg/m³	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/m³	N/A	0.246
dermal, systemic, long-term	6.86 mg/m³	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/m³	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/m³	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/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

1.3. 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:

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

2. ES 2 Widespread use by professional workers

2.1 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	Professional uses
Sector(s) of use	Professional uses (SU22)

Worker Contributing Scenario	
CS1 General use from professional operators	PROC8b
CS2 General use from professional operators	PROC2
CS3 General use from professional operators	PROC3
CS4 General use from professional operators	PROC4
CS5 General use from professional operators	PROC8a
CS6 General use from professional operators	PROC13
CS7 General use from professional operators	PROC10
CS8 General use from professional operators	PROC11
CS9 General use from professional operators	PROC11
CS10 General use from professional operators	PROC10
CS11 General use from professional operators	PROC10
CS12 General use from professional operators	PROC4

2.2 Conditions of use affecting exposure

2.2. CS1: 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) 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.

2.2. CS2: 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) 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.

2.2. CS3: 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) 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.

2.2. CS4: Worker Contributing Scenario: General use from professional operators (PROC4)

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

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

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

2.2. 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) 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

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient 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) 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

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

2.2. CS7: Worker Contributing Scenario: General use from professional operators (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

Technical and organisational conditions and measures

Technical and organisational measures
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Liquid

Concentration of substance in product:
Covers percentage substance in the product up to 5 %.

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
Natural ventilation is from doors, windows etc. Controlled ventilation means air is supplied or removed by a powered fan.

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.
Ventilation rate: 30 %

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Liquid

Concentration of substance in product:
Covers concentrations up to 1 %

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
Provide extract ventilation to material transfer points and other openings.

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.
Ventilation rate: Provide forced ventilation 70 %

2.2. CS10: Worker Contributing Scenario: General use from professional operators (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

Technical and organisational conditions and measures

Technical and organisational measures

Provide extract ventilation to material transfer points and other openings.

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.

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

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 25 %.

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

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.

Other conditions affecting worker exposure

Temperature: Covers use at ambient temperatures.

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

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

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.

2.3 Exposure estimation and reference to its source

2.3. CS1: 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	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)

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 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. 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:

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 Consumer use; Various products (PC9b, PC9a, PC3, PC4, PC8)

3.1 TITLE SECTION

Exposure 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 Scenario	
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	PC35

3.2 Conditions of use affecting exposure

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

Product Categories	Air care products (PC3)

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 0.5 g

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 428 cm^2

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

Product Categories	Air care products (PC3)

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 0.5 g

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 37.5 cm^2

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

Product Categories	Anti-freeze and de-icing products (PC4)

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 0.5 g

Frequency:
Use frequency 365 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Room size: Covers use in a one car garage (>34 m³) under typical ventilation.

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

Product Categories	Anti-freeze and de-icing products (PC4)

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

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 420 cm²

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

Product Categories	Anti-freeze and de-icing products (PC4)

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

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 214.4 cm²

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

Product Categories	Biocidal products (PC8)

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

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 857.5 cm²

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

Product Categories	Biocidal products (PC8)

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

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 857.5 cm²

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

Product Categories	Biocidal products (PC8)

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

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 428 cm²

3.2. CS9: 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 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

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)

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 215 g

Frequency:
Use frequency 2 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Room size: Covers use in a one car garage (>34 m³) under typical ventilation.

3.2. CS12: 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 49 g

Frequency:
Use frequency 3 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Additional conditions human health
Covers skin contact area up to 857.5 cm²

3.2. CS13: 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

Amounts used:
Amount per use 85 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. CS14: 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 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

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

Product Categories	Lubricants, greases, release products (PC24)

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and 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 consumers exposure

Additional conditions human health

Covers skin contact area up to 468 cm²

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

Product Categories	Lubricants, greases, release products (PC24)

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

Amounts used:

Amount per use 3 g

Frequency:

Use frequency 10 days per year

Frequency:

1 events per day

Other conditions affecting consumers exposure

Additional conditions human health

Covers skin contact area up to 468 cm²

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

Product Categories	Lubricants, greases, release products (PC24)

Product (article) characteristics

Physical form of product:

Liquid

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 73 g

Frequency:
Use frequency 6 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. CS20: Consumer Contributing Scenario: Consumer (PC35)

Product Categories	Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:
Liquid

Amount used, frequency and duration of use/exposure

Frequency:
Use frequency 6 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Additional conditions human health
Covers skin contact area up to 857.5 cm²

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

Product Categories	Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:
Liquid

Amount used, frequency and duration of use/exposure

Frequency:
Use frequency 128 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Additional conditions human health
Covers skin contact area up to 857.5 cm²

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

Product Categories	Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:
Liquid

Amount used, frequency and duration of use/exposure

Frequency:
Use frequency 128 days per year

Frequency:
1 events per day

Other conditions affecting consumers exposure

Additional conditions human health

Covers skin contact area up to 428 cm²

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

Product Categories	Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:

Liquid

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 12 g

Frequency:

Use frequency 365 days per year

Frequency:

1 events per day

Other conditions affecting consumers exposure

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/m³	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/m³	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)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	0.51 mg/m³	N/A	0.006
dermal, systemic, long-term	17.87 mg/kg bw/day	N/A	0.056
combined routes, systemic, long-term	N/A	N/A	0.177

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 route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	15.15 mg/m³	N/A	0.17
dermal, systemic, long-term	0.57 mg/kg bw/day	N/A	0.002
combined routes, systemic, long-term	N/A	N/A	0.172

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/m³	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/m³	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/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. 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/m³	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.

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

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 Scenario	
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 Contributing 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 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) characteristics

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker 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) characteristics

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker 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) characteristics

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

1.2. CS5: Worker Contributing Scenario: Industrial (PROC4)

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

1.2. CS6: Worker Contributing Scenario: Industrial (PROC8b)

Process 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/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

1.2. CS7: Worker Contributing Scenario: Industrial (PROC7)

Process Categories	Industrial spraying (PROC7)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 1 L/min

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 5 days per week

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

Personal protection

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 90 %

Other conditions affecting worker exposure

Indoor use

Room size: Covers use in room size of > 1000 m^3

1.2. CS8: Worker Contributing Scenario: Industrial (PROC8a)

Process Categories	Transfer of substance or mixture (charging and discharging) at non-dedicated facilities (PROC8a)

Product (article) characteristics

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use
Ventilation rate: > 90 %

1.2. CS9: Worker Contributing Scenario: Industrial (PROC10)

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

1.2. CS10: Worker Contributing Scenario: Industrial (PROC13)

Process Categories	Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

1.3 Exposure estimation and reference to its source

1.3. CS2: Worker Contributing Scenario: Industrial (PROC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	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

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:

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

2. ES 2 Widespread use by professional workers

2.1 TITLE 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 Scenario

CS1 Covered by	ERC8a - ERC8d

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	PROC8b
CS7 General use from professional operators	PROC8a
CS8 General use from professional operators	PROC10
CS9 General use from professional operators	PROC11
CS10 General use from professional 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) characteristics

Physical form of product:

Liquid

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

2.2. 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) characteristics

Physical form of product:
Liquid

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

2.2. 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) characteristics

Physical form of product:
Liquid

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Chemical production where opportunity for exposure arises (PROC4)

Product (article) characteristics

Physical form of product:

Liquid

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker 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) characteristics

Physical form of product:

Liquid

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

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use

2.2. CS7: 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) characteristics

Physical form of product:

Liquid

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
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.
Use suitable eye protection.

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

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

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:
Liquid

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
Frequency:
Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374. Use suitable eye protection.	
Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 80 %

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Liquid

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 0.05 L/min

Duration:
Exposure duration 180 min
Frequency:

Use frequency < 5 days per week

Technical and organisational conditions and measures

Technical and organisational measures

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

Wear suitable gloves tested to EN374. Use suitable eye protection.	Inhalation - minimum efficiency of: 90 %
Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 80 %

Other conditions affecting worker exposure

Indoor use

Room size: Covers use in room size of > 100 m³

Ventilation rate: 80 %

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

Process Categories	Treatment of articles by dipping and pouring (PROC13)

Product (article) characteristics

Physical form of product:

Liquid

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

Frequency:

Use frequency < 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374. Use suitable eye protection.	Inhalation - minimum efficiency of: 90 %

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:

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 Widespread use by professional workers

3.1 TITLE SECTION

Exposure Scenario name	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 Scenario

CS1 Covered by	ERC8d

Worker Contributing Scenario

CS2 General use from professional operators	PROC1
CS3 General use from professional operators	PROC2
CS4 General use from professional operators	PROC8a
CS5 General use from professional operators	PROC8b
CS6 General use from professional operators	PROC11

3.2 Conditions of use affecting exposure

3.2. CS1: Environment Contributing Scenario: Covered by (ERC8d)

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

Product (article) characteristics

Physical form of product:
Liquid

Vapour pressure:
0.123 hPa

3.2. 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) characteristics

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

Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

3.2. 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) characteristics

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
Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

3.2. CS4: 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) characteristics

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
Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection

Wear suitable gloves tested to EN374.	
Wear suitable respiratory protection.	Inhalation - minimum efficiency of: 80 %

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

3.2. CS5: 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) characteristics

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

Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

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 related to personal protection, hygiene and health evaluation

Personal protection

Wear suitable gloves tested to EN374.	Dermal - minimum efficiency of: 90 %

Other conditions affecting worker exposure

Indoor use
Room size: Covers use in room size of > 100 m³

3.3 Exposure estimation and reference to its source

3.3. 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	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:

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 Consumer use; Various products (PC9a, PC1, PC4, PC8, PC15)

4.1 TITLE 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 Scenario

CS1 Covered by	ERC8a - ERC8c - ERC8d - ERC8f - ERC9a - ERC9b

Consumer Contributing Scenario

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 non-reactive 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 Contributing Scenario: Consumer (PC1)

Product Categories	Adhesives, sealants (PC1)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 0.75 %

4.2. CS3: Consumer Contributing 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) characteristics

Concentration of substance in product:
Covers concentrations up to 45 %

Amount used, frequency and duration of use/exposure

Duration:
Exposure duration < 15 min

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

Product Categories	Anti-freeze and de-icing products (PC4)
Product (Sub-)Categories	Pouring into radiator (PC4_2)

Product (article) characteristics

Concentration of substance in product:
Covers percentage substance in the product up to 100 %.

4.2. CS5: Consumer Contributing 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) characteristics

Concentration of substance in product:
Covers concentrations up to 10 %

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

Product Categories	Biocidal products (PC8)

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

Product Categories	Ink and toners (PC18)

Product (article) characteristics

Concentration of substance in product:
Covers percentage substance in the product up to 5 %.

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

Product Categories	Polishes and wax blends (PC31)

Product (article) characteristics

Concentration of substance in product:
Covers concentrations up to 10 %

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

Product Categories	Polymer preparations and compounds (PC32)

Product (article) characteristics

Concentration of substance in product:
Covers percentage substance in the product up to 5 %.

4.2. CS10: Consumer Contributing 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) characteristics

Concentration of substance in product:

Covers concentrations up to 20 %

4.2. CS11: Consumer Contributing 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) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 5 %.

4.2. CS12: Consumer Contributing 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 estimation and reference to its source

4.2. CS2: Consumer Contributing Scenario: Consumer (PC1)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	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:

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