

Safety Data Sheet

PETRONAS Durance Brakes & Chains Clean



Safety Data Sheet dated 19/10/2021, version 7

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

1.1. Product identifier

Mixture identification:

Trade name: PETRONAS Durance Brakes & Chains Clean

Trade code: 8578

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

Recommended use:

BRAKE, CHAIN AND METAL CLEANER

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

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

In Malta: emergency number 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

EC regulation criteria 1272/2008 (CLP):

- ⚠ Danger, Aerosols 1, Extremely flammable aerosol. Pressurized container: may burst if heated.
- ⚠ Warning, Skin Irrit. 2, Causes skin irritation.
- ⚠ Warning, Eye Irrit. 2, Causes serious eye irritation.
- ⚠ Warning, STOT SE 3, May cause drowsiness or dizziness.
- ⚠ Aquatic Chronic 2, Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

2.2. Label elements

Hazard pictograms:



Danger

Hazard statements:

H222, H229 Extremely flammable aerosol. Pressurized container: may burst if heated.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

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- 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.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing vapours.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER if you feel unwell.
P391 Collect spillage.
P405 Store locked up.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122°F.
P501 Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

None

Contains

Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane
acetone; propan-2-one; propanone

Special provisions according to Annex XVII of REACH and subsequent amendments:

None

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

Product contents:

Aliphatic hydrocarbons > 30 %

2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration $\geq 0.1\%$

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

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

$\geq 35\%$ - $< 40\%$ Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics

REACH No.: 01-2119475515-33, EC: 927-510-4

- ⚠ 2.6/2 Flam. Liq. 2 H225
- ⚠ 3.10/1 Asp. Tox. 1 H304
- ⚠ 4.1/C2 Aquatic Chronic 2 H411
- ⚠ 3.2/2 Skin Irrit. 2 H315
- ⚠ 3.8/3 STOT SE 3 H336

$\geq 35\%$ - $< 40\%$ Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane

REACH No.: 01-2119475514-35, CAS: 92128-66-0, EC: 921-024-6

- ⚠ 2.6/2 Flam. Liq. 2 H225
- ⚠ 3.10/1 Asp. Tox. 1 H304
- ⚠ 4.1/C2 Aquatic Chronic 2 H411
- ⚠ 3.2/2 Skin Irrit. 2 H315

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⚠ 3.8/3 STOT SE 3 H336

>= 20% - < 25% acetone; propan-2-one; propanone

REACH No.: 01-2119471330-49, Index number: 606-001-00-8, CAS: 67-64-1, EC: 200-662-2

⚠ 2.6/2 Flam. Liq. 2 H225

⚠ 3.3/2 Eye Irrit. 2 H319

⚠ 3.8/3 STOT SE 3 H336

>= 3% - < 5% propane

Index number: 601-003-00-5, CAS: 74-98-6, EC: 200-827-9

⚠ 2.2/1A Flam. Gas 1A H220

⚠ 2.5/L Press Gas (Liq.) H280

>= 3% - < 5% and isobutane

Index number: 601-004-00-0, CAS: 75-28-5, EC: 200-857-2

⚠ 2.2/1A Flam. Gas 1A H220

⚠ 2.5/L Press Gas (Liq.) H280

>= 3% - < 5% Diossido di carbonio liquido refrigerato

CAS: 124-38-9, EC: 204-696-9

⚠ 2.5/RL Press Gas (Ref. Liq.) H281

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 ophthalmologist 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:

Foam

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- To dust.
- To carbon dioxide.
- 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:
 - Contaminated clothing should be changed before entering eating areas.
 - Do not eat or drink while working.
- 7.2. Conditions for safe storage, including any incompatibilities
 - 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
 - acetone; propan-2-one; propanone - CAS: 67-64-1
 - EU - TWA(8h): 1210 mg/m³, 500 ppm
 - ACGIH - TWA(8h): 250 ppm - STEL: 500 ppm - Notes: A4, BEI - URT and eye irr, CNS

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impair
 propane - CAS: 74-98-6
 ACGIH - Notes: (D, EX) - Asphyxia
 VLE short - 1000 ppm
 and isobutane - CAS: 75-28-5
 ACGIH - STEL: 1000 ppm - Notes: (EX) - CNS impair
 VLE short - 1000 ppm
 Diossido di carbonio liquido refrigerato - CAS: 124-38-9
 EU - TWA(8h): 9000 mg/m³, 5000 ppm
 ACGIH - TWA(8h): 5000 ppm - STEL: 30000 ppm - Notes: Asphyxia

DNEL Exposure Limit Values

N.A.

PNEC Exposure Limit Values

N.A.

8.2. Exposure controls

Eye protection:

Safety goggles.

Compliant with EN 166

Protection for skin:

protective clothing

Protection for hands:

Butyl caoutchouc (butyl rubber).

Compliant with EN 374.

Respiratory protection:

Use adequate protective respiratory equipment.

Thermal Hazards:

None

Environmental exposure controls:

None

Appropriate engineering controls:

None

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Method:	Notes:
Physical state:	Liquid	--	--
Colour:	Colourless	--	--
Odour:	Characteristic	--	--
Melting point/freezing point:	N.A.	--	--
Boiling point or initial boiling point and boiling range:	N.A.	--	--
Flammability:	N.A.	--	--
Lower and upper explosion limit:	N.A.	--	--
Flash point:	-20°C	--	--
Auto-ignition temperature:	N.A.	--	--

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Decomposition temperature:	N.A.	--	--	PETRONAS
pH:	N.A.	--	--	
Kinematic viscosity:	N.A.	--	--	
Solubility in water:	N.A.	--	--	
Solubility in oil:	N.A.	--	--	
Partition coefficient n-octanol/water (log value):	N.A.	--	--	
Vapour pressure:	N.A.	--	--	
Density and/or relative density:	0,7431	--	--	
Relative vapour density:	N.A.	--	--	
Particle characteristics:				
Particle size:	N.A.	--	--	

9.2. Other information
No other relevant information

SECTION 10: Stability and reactivity

- 10.1. Reactivity
Stable under normal conditions
- 10.2. Chemical stability
Stable 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 hazard classes as defined in Regulation (EC) No 1272/2008
Toxicological information of the product:
PETRONAS Durance Brakes & Chains Cleaner SPRAY ML 500
 - a) acute toxicity
Not classified
Based on available data, the classification criteria are not met
Test: LC50 - Route: Inhalation - Species: Rat 796 mg/l - Duration: 4h
 - b) skin corrosion/irritation
The product is classified: Skin Irrit. 2 H315
 - c) serious eye damage/irritation
The product is classified: Eye Irrit. 2 H319

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- 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
The product is classified: STOT SE 3 H336
- 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:

Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat > 5840 mg/kg

Test: LD50 - Route: Skin - Species: Rat > 2920 mg/kg

Test: LC50 - Route: Inhalation - Species: Rat > 23300 mg/kg - Duration: 4h

Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane - CAS: 92128-66-0

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat > 5840 mg/kg

Test: LD50 - Route: Skin - Species: Rat > 2920 mg/kg

Test: LC50 - Route: Inhalation - Species: Rat 2 25.2 mg/l - Duration: 4h

acetone; propan-2-one; propanone - CAS: 67-64-1

a) acute toxicity:

Test: LD50 - Route: Oral - Species: Rat 5800 mg/kg

Test: LD50 - Route: Skin - Species: Rabbit 20000 mg/kg

Test: LC50 - Route: Inhalation - Species: Rat 76 mg/l - Duration: 4h

propane - CAS: 74-98-6

a) acute toxicity:

Test: LC50 - Route: Inhalation - Species: Rat 20 mg/l - Duration: 4h

and isobutane - CAS: 75-28-5

a) acute toxicity:

Test: LC50 - Route: Inhalation - Species: Rat > 50 mg/l - Duration: 4h

acetone; propan-2-one; propanone - CAS: 67-64-1

OBSERVATIONS ON HUMAN SUBJECTS:

Acetone's routes of entry to the body are skin absorption, swallowing and, especially, inhalation. It is eliminated through the lungs (40-70%), in urine (15-30%), and through the skin (10%). Tests carried out with C14 have demonstrated that acetone takes part as an intermediary in the metabolism of lipids and indirectly in the glycidol cycle. Trials on human subjects have demonstrated that it is impossible to inhale concentrations of 22 mg/l (9300 ppm) for more than 5 minutes owing to throat irritation. Subjects exposed to 500 ppm of acetone have displayed irritation to the eyes, throat, and nose.

Concentrations > 300 ppm cause: slight irritation to the mucous membranes.

Concentrations = 800 ppm (30') cause: malaise.

DL (oral, estimated) = 50 ml

11.2. Information on other hazards

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Endocrine disrupting properties:
No endocrine disruptor substances present in concentration $\geq 0.1\%$

SECTION 12: Ecological information

- 12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
Hydrocarbons, C7, n-alkanes, isoalkanes, cyclics
a) Aquatic acute toxicity:
Endpoint: EC50 - Species: Daphnia 3 mg/l - Duration h: 48
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, <5% n-hexane - CAS: 92128-66-0
a) Aquatic acute toxicity:
Endpoint: EC50 - Species: Daphnia 3 mg/l - Duration h: 48
acetone; propan-2-one; propanone - CAS: 67-64-1
a) Aquatic acute toxicity:
Endpoint: EC50 - Species: Daphnia 8800 mg/l - Duration h: 48
- 12.2. Persistence and degradability
None
N.A.
- 12.3. Bioaccumulative potential
N.A.
- 12.4. Mobility in soil
N.A.
- 12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None
- 12.6. Endocrine disrupting properties
No endocrine disruptor substances present in concentration $\geq 0.1\%$
- 12.7. Other adverse effects
None

SECTION 13: Disposal considerations

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

SECTION 14: Transport information



- 14.1. UN number or ID number
ADR-UN Number: 1950
IATA-UN Number: 1950
IMDG-UN Number: 1950
- 14.2. UN proper shipping name
ADR-Shipping Name: AEROSOLS, flammable
IATA-Shipping Name: AEROSOLS, flammable
IMDG-Shipping Name: AEROSOLS, flammable
IMDG-Technical name: AEROSOLS
- 14.3. Transport hazard class(es)
ADR-Class: 2
ADR - Hazard identification number: -
IATA-Class: 2
IATA-Label: 2.1

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IMDG-Class:	2
Sea (IMO):	2.1 UN 1950
14.4. Packing group	
ADR-Packing Group:	-
IATA-Packing group:	-
IMDG-Packing group:	-
14.5. Environmental hazards	
ADR-Environmental Pollutant:	Yes
IMDG-Marine pollutant:	Marine Pollutant
IMDG-EmS:	F-D, S-U
14.6. Special precautions for user	
ADR-Subsidiary hazards:	See SP63
ADR-S.P.:	190 327 344 625
ADR-Transport category (Tunnel restriction code):	2 (D)
IATA-Passenger Aircraft:	203
IATA-Subsidiary hazards:	See SP63
IATA-Cargo Aircraft:	203
IATA-S.P.:	A145 A167 A802
IATA-ERG:	10L
IMDG-Subsidiary hazards:	See SP63
IMDG-Stowage and handling:	SW1 SW22
IMDG-Segregation:	SG69
14.7. Maritime transport in bulk according to IMO instruments	
N.A.	
Limited Quantity:	1 L
Exempted Quantity:	E0

SECTION 15: Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
- Dir. 98/24/EC (Risks related to chemical agents at work)
 - Dir. 2000/39/EC (Occupational exposure limit values)
 - Regulation (EC) n. 1907/2006 (REACH)
 - Regulation (EC) n. 1272/2008 (CLP)
 - Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
 - Regulation (EU) n. 2020/878
 - Regulation (EU) n. 286/2011 (ATP 2 CLP)
 - Regulation (EU) n. 618/2012 (ATP 3 CLP)
 - Regulation (EU) n. 487/2013 (ATP 4 CLP)
 - Regulation (EU) n. 944/2013 (ATP 5 CLP)
 - Regulation (EU) n. 605/2014 (ATP 6 CLP)
 - Regulation (EU) n. 2015/1221 (ATP 7 CLP)
 - Regulation (EU) n. 2016/918 (ATP 8 CLP)
 - Regulation (EU) n. 2016/1179 (ATP 9 CLP)
 - Regulation (EU) n. 2017/776 (ATP 10 CLP)
 - Regulation (EU) n. 2018/669 (ATP 11 CLP)
 - Regulation (EU) n. 2018/1480 (ATP 13 CLP)
 - Regulation (EU) n. 2019/521 (ATP 12 CLP)
 - Regulation (EU) n. 2020/217 (ATP 14 CLP)
 - Regulation (EU) n. 2020/1182 (ATP 15 CLP)
 - Regulation (EU) n. 2021/643 (ATP 16 CLP)
- 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

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Restrictions related to the substances contained:
Restriction 75

Volatile Organic compounds - VOCs = 96.70 %
Volatile Organic compounds - VOCs = 967.00 g/Kg
Volatile Organic compounds - VOCs = 718.58 g/l

Where applicable, refer to the following regulatory provisions :

Regulated Product according to Regulation (EU) 1148/2019. All suspicious transactions and significant disappearances and thefts must be reported to the relevant national contact point.

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: P3a, E2

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:

None

SECTION 16: Other information

Text of phrases referred to under heading 3:

H225 Highly flammable liquid and vapour.

H304 May be fatal if swallowed and enters airways.

H411 Toxic to aquatic life with long lasting effects.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H319 Causes serious eye irritation.

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated.

H281 Contains refrigerated gas; may cause cryogenic burns or injury.

Hazard class and hazard category	Code	Description
Flam. Gas 1A	2.2/1A	Flammable gas, Category 1A
Aerosols 1	2.3/1	Aerosol, Category 1
Press Gas (Liq.)	2.5/L	Gases under pressure (Liquefied gas)
Press Gas (Ref. Liq.)	2.5/RL	Gases under pressure (Refrigerated liquefied gas)
Flam. Liq. 2	2.6/2	Flammable liquid, Category 2
Asp. Tox. 1	3.10/1	Aspiration hazard, Category 1
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

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Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2
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Paragraphs modified from the previous revision:

- SECTION 1: Identification of the substance/mixture and of the company/undertaking
- SECTION 2: Hazards identification
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- 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
Aerosols 1, H222, H229	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Chronic 2, H411	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).

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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, 17/07/2019

Substance identity

Chemical name	Heptane HYDROCARBONS C7, N-ALKANES, ISOALKANES, CYCLICS
EINECS No.	927-510-4

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1. **ES 1** Use at industrial site
2. **ES 2** Widespread use by professional workers
3. **ES 3** Use at industrial site
4. **ES 4** Widespread use by professional workers

1. ES 1 Use at industrial site

1.1 TITLE SECTION

Exposure Scenario name	Use in coatings
Date - Version	17/07/2019 - 1.0
Life Cycle Stage	Use at industrial site
Main user group	Industrial uses

Environment Contributing Scenario

CS1 Covered by	ERC4
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Worker Contributing Scenario

CS2 Industrial	PROC5 - PROC1 - PROC2 - PROC3 - PROC4 - PROC7 - PROC8a - PROC8b - PROC9 - PROC10 - PROC13 - PROC14 - PROC15
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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)
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Amount used, frequency and duration of use (or from service life)

Amounts used:

Annual site tonnage 400 t(tonnes)/year

Daily amount per site 20000 kg/day

Maximum allowable site tonnage (MSafe): 62000 kg/day

Release type: Continuous release

Emission days: 20 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 %
No discharge of substance into waste water	Water - minimum efficiency of: 88.2 %

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant

Water - minimum efficiency of: = 96.2 %

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

1.2. CS2: Worker Contributing Scenario: Industrial (PROC5, PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15)

Process Categories

Mixing or blending in batch processes - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Chemical production where opportunity for exposure arises - Industrial spraying - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - Roller application or brushing - Treatment of articles by dipping and pouring - Tableting, compression, extrusion, pelletisation, granulation - Use as laboratory reagent (PROC5, PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15)

Product (article) characteristics**Physical form of product:**

Liquid

Vapour pressure:

< 20 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**

- Remove spills immediately
- Ensure operatives are trained to minimise exposures.
- Store substance within a closed system.

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

- Wear suitable gloves tested to EN374.
- Wear suitable face shield.
- Use suitable eye protection.

1.3 Exposure estimation and reference to its source**1.3. CS1: Environment Contributing Scenario: Covered by (ERC4)**

Release route	Release rate	Release estimation method
Air	98 %	N/A
Water	0.07 %	N/A
soil	0 %	N/A

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 coatings
Date - Version	17/07/2019 - 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
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Worker Contributing Scenario

CS2 General use from professional operators	PROC5 - PROC1 - PROC2 - PROC3 - PROC4 - PROC8a - PROC8b - PROC10 - PROC11 - PROC13 - PROC15 - PROC19
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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)
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Amount used, frequency and duration of use (or from service life)

Amounts used:

Annual site tonnage 0.15 t(tonnes)/year
Daily amount per site 0.41 kg/day

Maximum allowable site tonnage (MSafe): 1500 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 (%):
Prevent discharge of undissolved substance to or recover from onsite wastewater.

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant
Water - minimum efficiency of: = 96.2 %

STP effluent (m³/day): 2000

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

Waste treatment

Do not apply industrial sludge to natural soils.
Product residual disposal complies with applicable regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

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

Additional Good Practice Advice:

Do not use sludge as fertiliser.

2.2. CS2: Worker Contributing Scenario: General use from professional operators (PROC5, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19)
Process Categories

Mixing or blending in batch processes - Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Chemical production where opportunity for exposure arises - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Roller application or brushing - Non industrial spraying - Treatment of articles by dipping and pouring - Use as laboratory reagent - Manual activities involving hand contact (PROC5, PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13, PROC15, PROC19)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

< 20 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
Ensure operatives are trained to minimise exposures.
Carry out in a vented booth or extracted enclosure.

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

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

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

2.3 Exposure estimation and reference to its source
2.3. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8d)

Release route	Release rate	Release estimation method
Air	98 %	N/A
soil	1 %	N/A
Water	0.1 %	N/A

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

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	Use in cleaning agents
Date - Version	17/07/2019 - 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
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Worker Contributing Scenario

CS2 Industrial	PROC1 - PROC2 - PROC3 - PROC4 - PROC7 - PROC8a - PROC8b - PROC10 - PROC13
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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)
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Amount used, frequency and duration of use (or from service life)

Amounts used:

Annual site tonnage 74 t(tonnes)/year
Daily amount per site 3700 kg/day

Maximum allowable site tonnage (MSafe): 4600000 kg/day

Release type: Continuous release

Emission days: 20 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: 70 %
Prevent discharge of undissolved substance to or recover from onsite wastewater.	

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant
Water - minimum efficiency of: = 96.2 %

STP effluent (m³/day): 2000

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

Waste treatment

Do not apply industrial sludge to natural soils.
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

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

Additional Good Practice Advice:

Do not apply industrial sludge to natural soils.

3.2. CS2: Worker Contributing Scenario: Industrial (PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13)

Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Chemical production where opportunity for exposure arises - Industrial spraying - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Roller application or brushing - Treatment of articles by dipping and pouring (PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

< 20 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

Remove spills immediately

Ensure operatives are trained to minimise exposures.

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: Assumes use at not more than 20 °C above ambient temperature.

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	1 %	N/A
Water	3E-06 %	N/A
soil	0 %	N/A

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

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 Widespread use by professional workers

4.1 TITLE SECTION

Exposure Scenario name	Cleaning agent
Date - Version	17/07/2019 - 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
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Worker Contributing Scenario

CS2 General use from professional operators	PROC1 - PROC2 - PROC3 - PROC4 - PROC8a - PROC8b - PROC10 - PROC11 - PROC13
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4.2 Conditions of use affecting exposure

4.2. 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)
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Amount used, frequency and duration of use (or from service life)

Amounts used:

Annual site tonnage 0.012 t(tonnes)/year
Daily amount per site 0.032 kg/day

Maximum allowable site tonnage (MSafe): 170 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 (%):
Prevent discharge of undissolved substance to or recover from onsite wastewater.
Do not apply industrial sludge to natural soils.

Conditions and measures related to sewage treatment plant

STP type:

Municipal Sewage Treatment Plant
Water - minimum efficiency of: = 96.2 %

STP effluent (m³/day): 2000

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

Waste treatment

Do not apply industrial sludge to natural soils.
External treatment and disposal of waste should comply with applicable local and/or national regulations.

Other conditions affecting environmental exposure

Local marine water dilution factor: 100

Local freshwater dilution factor: 10

4.2. CS2: Worker Contributing Scenario: General use from professional operators (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13)

Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Chemical production where opportunity for exposure arises - Transfer of substance or mixture (charging and discharging) at non-dedicated facilities - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Roller application or brushing - Non industrial spraying - Treatment of articles by dipping and pouring (PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC10, PROC11, PROC13)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

< 20 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

- Remove spills immediately
- Ensure operatives are trained to minimise exposures.
- Handle substance within a closed system.

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: Assumes use at not more than 20 °C above ambient temperature.

Ventilation rate: Provide forced ventilation

4.3 Exposure estimation and reference to its source

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

Release route	Release rate	Release estimation method
Air	2 %	N/A
soil	0 %	N/A
Water	1E-06 %	N/A

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.

Exposure Scenario, 28/08/2019

Substance identity	
Chemical name	2-PROPANONE
CAS No.	67-64-1
EINECS No.	200-662-2

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5. **ES 5** Widespread use by professional workers
6. **ES 6** Consumer use; Various products (PC9b, PC9a, PC3, PC4, PC24)

1. ES 1 Use at industrial site

1.1 TITLE SECTION

Exposure Scenario name	Professional application of coatings and inks
Date - Version	28/08/2019 - 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
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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	PROC9
CS11 Industrial	PROC10
CS12 Industrial	PROC13
CS13 Industrial	PROC15
CS14 Industrial	PROC19

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

Release type: Continuous release

Emission days: 360 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 %

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

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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	
Physical form of product: Liquid, vapour pressure > 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 Handle substance within a closed system. Ensure operation is undertaken outdoors.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	

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	
Physical form of product: Liquid, vapour pressure > 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 Handle substance within a closed system. Ensure operation is undertaken outdoors.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	

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	
Physical form of product: Liquid, vapour pressure > 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**

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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, vapour pressure > 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**

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. 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 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**

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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

Process Categories	Industrial spraying (PROC7)
Product (article) characteristics	
Physical form of product: Liquid, vapour pressure > 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 Ensure operation is undertaken outdoors. For measures to control risks from physicochemical properties, refer to main body of the SDS, section 7 and/or 8.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166. Respiratory protection in accordance with EN141	
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	
Physical form of product: Liquid, vapour pressure > 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 Handle substance within a closed system. Ensure operation is undertaken outdoors.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
1.2. 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 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. CS10: Worker Contributing Scenario: Industrial (PROC9)

Process Categories

Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. CS11: Worker Contributing Scenario: Industrial (PROC10)

Process Categories

Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. CS12: 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 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. CS13: Worker Contributing Scenario: Industrial (PROC15)

Process Categories

Use as laboratory reagent (PROC15)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

1.2. CS14: Worker Contributing Scenario: Industrial (PROC19)

Process Categories

Manual activities involving hand contact (PROC19)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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	0.01 ppm	EASY TRA v2.0	2E-05
dermal, systemic, long-term	0.34 mg/kg bw/day	EASY TRA v2.0	0.002

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	50 ppm	EASY TRA v2.0	0.1
dermal, systemic, long-term	1.37 mg/kg bw/day	EASY TRA v2.0	0.01

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	100 ppm	EASY TRA v2.0	0.2
dermal, systemic, long-term	0.34 mg/kg bw/day	EASY TRA v2.0	0.002

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 ppm	EASY TRA v2.0	0.2
dermal, systemic, long-term	6.86 mg/kg bw/day	EASY TRA v2.0	0.04

1.3. CS6: Worker Contributing Scenario: Industrial (PROC5)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	EASY TRA v2.0	0.07

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	25 ppm	EASY TRA v2.0	0.05
dermal, systemic, long-term	42.86 mg/kg bw/day	EASY TRA v2.0	0.23
inhalative, systemic, long-term	350 ppm	EASY TRA v2.0	0.7
inhalative, systemic, long-term	50 ppm	EASY TRA v2.0	0.1
dermal, systemic, long-term	2.14 mg/kg bw/day	EASY TRA v2.0	0.01

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	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	EASY TRA v2.0	0.07

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	150 ppm	EASY TRA v2.0	0.3
dermal, systemic, long-term	6.86 mg/kg bw/day	EASY TRA v2.0	0.037

1.3. CS10: Worker Contributing Scenario: Industrial (PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	200 ppm	EASY TRA v2.0	0.4
dermal, systemic, long-term	6.86 mg/kg bw/day	EASY TRA v2.0	0.04

1.3. CS11: Worker Contributing Scenario: Industrial (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	27.43 mg/kg bw/day	EASY TRA v2.0	0.15

1.3. CS12: Worker Contributing Scenario: Industrial (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
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inhalative, systemic, long-term	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	EASY TRA v2.0	0.07

1.3. CS13: Worker Contributing Scenario: Industrial (PROC15)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	50 ppm	EASY TRA v2.0	0.1
dermal, systemic, long-term	0.34 mg/kg bw/day	EASY TRA v2.0	0

1.3. CS14: Worker Contributing Scenario: Industrial (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	28.29 mg/kg bw/day	EASY TRA v2.0	0.15

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	Professional application of coatings and inks
Date - Version	28/08/2019 - 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	ERC6d - ERC8a - ERC8c - ERC8f
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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 - PROC8b - PROC9
CS6 General use from professional operators	PROC5 - PROC8a
CS7 General use from professional operators	PROC10
CS8 General use from professional operators	PROC11
CS9 General use from professional operators	PROC13
CS10 General use from professional operators	PROC19

2.2 Conditions of use affecting exposure

2.2. CS1: Environment Contributing Scenario: Covered by (ERC6d, ERC8a, ERC8c, ERC8f)

Environmental release categories	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article) - 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 leading to inclusion into/onto article (outdoor) (ERC6d, ERC8a, ERC8c, ERC8f)
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Amount used, frequency and duration of use (or from service life)

Release type: Continuous release

Emission days: 360 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 %

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

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system. Ensure operation is undertaken outdoors.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system. Ensure operation is undertaken outdoors.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	

Technical and organisational conditions and measures

Technical and organisational measures

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

2.2. CS5: Worker Contributing Scenario: General use from professional operators (PROC4, PROC8b, PROC9)

Process Categories	Chemical production where opportunity for exposure arises - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC4, PROC8b, PROC9)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

2.2. 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)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 4 hours per day.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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, vapour pressure > 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 Handle substance within a closed system. Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 4 hours per day.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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, vapour pressure > 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 Ensure operation is undertaken outdoors. Avoid carrying out activities involving exposure for more than 4 hours per day. Limit the substance content in the product to 25 %. Avoid carrying out activities involving exposure for more than 1 hour per day.	
Conditions and measures related to personal protection, hygiene and health evaluation	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166. Wear a respirator conforming to EN140.	
2.2. CS9: 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 > 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**

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

2.2. CS10: 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 > 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**

Handle substance within a closed system.
Ensure operation is undertaken outdoors.
Avoid carrying out activities involving exposure for more than 1 hour per day.
Limit the substance content in the product to 25 %.

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

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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)
inhalative, systemic, long-term	0.01 ppm	EASY TRA v2.0	2E-05
dermal, systemic, long-term	0.34 mg/kg bw/day	EASY TRA v2.0	0.002

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)
inhalative, systemic, long-term	50 ppm	EASY TRA v2.0	0.1
dermal, systemic, long-term	1.37 mg/kg bw/day	EASY TRA v2.0	0.01

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)
inhalative, systemic, long-term	100 ppm	EASY TRA v2.0	0.2
dermal, systemic, long-term	0.34 mg/kg bw/day	EASY TRA v2.0	0.002

2.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC4, PROC8b, PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	6.86 mg/kg bw/day	EASY TRA v2.0	0.04

2.3. 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	350 ppm	EASY TRA v2.0	0.7
dermal, systemic, long-term	13.71 mg/kg bw/day	EASY TRA v2.0	0.07
inhalative, systemic, long-term	300 ppm	EASY TRA v2.0	0.6
dermal, systemic, long-term	1.37 mg/kg bw/day	EASY TRA v2.0	0.007

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)
dermal, systemic, long-term	1.37 mg/kg bw/day	EASY TRA v2.0	0.007

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)
dermal, systemic, long-term	2.14 mg/kg bw/day	EASY TRA v2.0	0.01
inhalative, systemic, long-term	200 ppm	EASY TRA v2.0	0.4
dermal, systemic, long-term	64.28 mg/kg bw/day	EASY TRA v2.0	0.35
inhalative, systemic, long-term	252 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	107.14 mg/kg bw/day	EASY TRA v2.0	0.58

2.3. CS9: 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	250 ppm	EASY TRA v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	EASY TRA v2.0	0.07

2.3. CS10: 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	300 ppm	EASY TRA v2.0	0.6
dermal, systemic, long-term	16.97 mg/kg bw/day	EASY TRA v2.0	0.09

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, PC1, PC4, PC15)

3.1 TITLE SECTION

Exposure Scenario name	Consumer application of coatings
Date - Version	28/08/2019 - 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) - Adhesives, sealants (PC1) - Anti-freeze and de-icing products (PC4) - Non-metal surface treatment products (PC15) - Lubricants, greases, release products (PC24)

Environment Contributing Scenario

CS1 Covered by	ERC8a - ERC8c - ERC8d - ERC8f
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Consumer Contributing Scenario

CS2 Consumer	PC1
CS3 Consumer	PC1
CS4 Consumer	PC1
CS5 Consumer	PC4
CS6 Consumer	PC4
CS7 Consumer	PC4
CS8 Consumer	PC9a
CS9 Consumer	PC9a
CS10 Consumer	PC9a - PC15
CS11 Consumer	PC9a - PC15
CS12 Consumer	PC9b
CS13 Consumer	PC9b
CS14 Consumer	PC9b
CS15 Consumer	PC24
CS16 Consumer	PC31
CS17 Consumer	PC31

3.2 Conditions of use affecting exposure

3.2. CS1: Environment Contributing Scenario: Covered by (ERC8a, ERC8c, ERC8d, ERC8f)

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) (ERC8a, ERC8c, ERC8d, ERC8f)
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Amount used, frequency and duration of use (or from service life)

Release type: Continuous release

Emission days: 360 days per year

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

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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

Product Categories	Adhesives, sealants (PC1)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 30 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 9 g

Duration:

Exposure duration 4 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

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

Product Categories	Adhesives, sealants (PC1)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 30 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 6390 g

Duration:

Exposure duration 6 h

Frequency:

Covers exposure up to 1 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

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

Product Categories Adhesives, sealants (PC1)

Product (article) characteristics

Physical form of product:

Aerosol

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 30 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 85.05 g

Duration:

Exposure duration 4 h

Frequency:

Covers exposure up to 6 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

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

Vapour pressure:

240 hPa

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:

Exposure duration 0.02 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

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

3.2. CS6: Consumer Contributing Scenario: Consumer (PC4)

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

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

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:

Exposure duration 0.17 h

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in a one car garage (>34 m³) under typical ventilation.**3.2. CS7: Consumer Contributing Scenario: Consumer (PC4)****Product Categories**

Anti-freeze and de-icing products (PC4)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

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:

Exposure duration 0.25 h

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in a one car garage (>34 m³) under typical ventilation.**3.2. CS8: Consumer Contributing Scenario: Consumer (PC9a)****Product Categories**

Coatings and paints, thinners, paint removers (PC9a)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 1.5 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 2760 g

Duration:

Exposure duration 2.2 h

Frequency:

Covers exposure up to 4 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**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

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 27.5 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 744 g

Duration:

Exposure duration 2.2 h

Frequency:

Covers exposure up to 6 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**3.2. CS10: Consumer Contributing Scenario: Consumer (PC9a, PC15)****Product Categories**

Coatings and paints, thinners, paint removers - Non-metal surface treatment products (PC9a, PC15)

*Product (article) characteristics***Physical form of product:**

Aerosol

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

Duration:

Exposure duration 0.33 h

Frequency:

Covers exposure up to 2 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in a one car garage (>34 m³) under typical ventilation.

3.2. CS11: Consumer Contributing Scenario: Consumer (PC9a, PC15)

Product Categories	Coatings and paints, thinners, paint removers - Non-metal surface treatment products (PC9a, PC15)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 2 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 491 g

Duration:

Exposure duration 2 h

Frequency:

Covers exposure up to 3 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

3.2. CS12: Consumer Contributing Scenario: Consumer (PC9b)

Product Categories	Fillers, putties, plasters, modelling clay (PC9b)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 27.5 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 85 g

Duration:

Exposure duration 4 h

Frequency:

Covers exposure up to 12 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

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

Product Categories	Fillers, putties, plasters, modelling clay (PC9b)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 2 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 13800 g

Duration:

Exposure duration 2 h

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**3.2. CS14: Consumer Contributing Scenario: Consumer (PC9b)****Product Categories**

Fillers, putties, plasters, modelling clay (PC9b)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 1.35 g

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**3.2. CS15: Consumer Contributing Scenario: Consumer (PC24)****Product Categories**

Lubricants, greases, release products (PC24)

*Product (article) characteristics***Physical form of product:**

Aerosol

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 73 g

Duration:

Exposure duration 0.17 h

Frequency:

Covers exposure up to 6 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**3.2. CS16: Consumer Contributing Scenario: Consumer (PC31)****Product Categories**

Polishes and wax blends (PC31)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 142 g

Duration:

Exposure duration 1.23 h

Frequency:

Covers exposure up to 29 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**3.2. CS17: Consumer Contributing Scenario: Consumer (PC31)****Product Categories**

Polishes and wax blends (PC31)

*Product (article) characteristics***Physical form of product:**

Aerosol

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 35 g

Duration:

Exposure duration 0.33 h

Frequency:

Covers exposure up to 8 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.

3.3 Exposure estimation and reference to its source

N/A

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	Cleaning agent
Date - Version	28/08/2019 - 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
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Worker Contributing Scenario

CS2 Industrial	PROC1
CS3 Industrial	PROC2
CS4 Industrial	PROC3
CS5 Industrial	PROC4
CS6 Industrial	PROC5 - PROC8a
CS7 Industrial	PROC7
CS8 Industrial	PROC8b
CS9 Industrial	PROC9
CS10 Industrial	PROC10
CS11 Industrial	PROC13
CS12 Industrial	PROC19

4.2 Conditions of use affecting exposure

4.2. 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)
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Amount used, frequency and duration of use (or from service life)

Release type: Continuous release

Emission days: 360 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 %
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Conditions and measures related to treatment of waste (including article waste)

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system. Ensure operation is undertaken outdoors.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system. Ensure operation is undertaken outdoors.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	

Technical and organisational conditions and measures

Technical and organisational measures

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.2. 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 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.2. CS6: Worker Contributing Scenario: Industrial (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 > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

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

Process Categories

Industrial spraying (PROC7)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

- Handle substance within a closed system.
- Ensure operation is undertaken outdoors.
- Fill containers/cans at dedicated fill points supplied with local extract ventilation.
- Use of an integrated local exhaust ventilation is required.

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

Personal protection

- Wear suitable gloves tested to EN374.
- Use eye protection according to EN 166.
- Wear a respirator conforming to EN140.

4.2. CS8: 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 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

- Handle substance within a closed system.
- Ensure operation is undertaken outdoors.

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

Personal protection

- Wear suitable gloves tested to EN374.
- Use eye protection according to EN 166.

4.2. CS9: Worker Contributing Scenario: Industrial (PROC9)

Process Categories

Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC9)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.2. 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 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.2. 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 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.2. CS12: Worker Contributing Scenario: Industrial (PROC19)

Process Categories

Manual activities involving hand contact (PROC19)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.
Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.
Use eye protection according to EN 166.

4.3 Exposure estimation and reference to its source

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	0.01 ppm	ECETOC TRA worker v2.0	2E-05
dermal, systemic, long-term	0.34 mg/kg bw/day	ECETOC TRA worker v2.0	0.002

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	50 ppm	ECETOC TRA worker v2.0	0.1
dermal, systemic, long-term	1.37 mg/kg bw/day	ECETOC TRA worker v2.0	0.01

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	100 ppm	ECETOC TRA worker v2.0	0.2
dermal, systemic, long-term	0.34 mg/kg bw/day	ECETOC TRA worker v2.0	0.002

4.3. 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 ppm	ECETOC TRA worker v2.0	0.2

dermal, systemic, long-term	6.86 mg/kg bw/day	ECETOC TRA worker v2.0	0.04
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4.3. CS6: Worker Contributing Scenario: Industrial (PROC5, PROC8a)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	ECETOC TRA worker v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	ECETOC TRA worker v2.0	0.07

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	350 ppm	ECETOC TRA worker v2.0	0.7
dermal, systemic, long-term	2.14 mg/kg bw/day	ECETOC TRA worker v2.0	0.01

4.3. CS8: Worker Contributing Scenario: Industrial (PROC8b)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	150 ppm	ECETOC TRA worker v2.0	0.3
dermal, systemic, long-term	6.86 mg/kg bw/day	ECETOC TRA worker v2.0	0.037

4.3. CS9: Worker Contributing Scenario: Industrial (PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	200 ppm	ECETOC TRA worker v2.0	0.4
dermal, systemic, long-term	6.86 mg/kg bw/day	ECETOC TRA worker v2.0	0.04

4.3. CS10: Worker Contributing Scenario: Industrial (PROC10)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	ECETOC TRA worker v2.0	0.5
dermal, systemic, long-term	27.43 mg/kg bw/day	ECETOC TRA worker v2.0	0.15

4.3. CS11: Worker Contributing Scenario: Industrial (PROC13)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
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inhalative, systemic, long-term	250 ppm	ECETOC TRA worker v2.0	0.5
dermal, systemic, long-term	13.71 mg/kg bw/day	ECETOC TRA worker v2.0	0.074

4.3. CS12: Worker Contributing Scenario: Industrial (PROC19)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	ECETOC TRA worker v2.0	0.5
dermal, systemic, long-term	28.29 mg/kg bw/day	ECETOC TRA worker v2.0	0.15

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	Cleaning agent
Date - Version	28/08/2019 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses

Environment Contributing Scenario

CS1 Covered by	ERC8d
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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 - PROC8b - PROC9
CS6 General use from professional operators	PROC5 - PROC8a
CS7 General use from professional operators	PROC10
CS8 General use from professional operators	PROC11
CS9 General use from professional operators	PROC19

5.2 Conditions of use affecting exposure

5.2. 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)
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Amount used, frequency and duration of use (or from service life)

Release type: Continuous release

Emission days: 360 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 %
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Conditions and measures related to treatment of waste (including article waste)

Waste treatment

External treatment and disposal of waste should comply with applicable local and/or national regulations.

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)
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Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 10 kPa at STP

Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	
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)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid, vapour pressure > 10 kPa at STP	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Duration: Covers daily exposures up to 8 hours	
<i>Technical and organisational conditions and measures</i>	
Technical and organisational measures Handle substance within a closed system.	
<i>Conditions and measures related to personal protection, hygiene and health evaluation</i>	
Personal protection Wear suitable gloves tested to EN374. Use eye protection according to EN 166.	

5.2. CS5: Worker Contributing Scenario: General use from professional operators (PROC4, PROC8b, PROC9)

Process Categories

Chemical production where opportunity for exposure arises - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) (PROC4, PROC8b, PROC9)

Product (article) characteristics

Physical form of product:

Liquid, vapour pressure > 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

Handle substance within a closed system.

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

Personal protection

Wear suitable gloves tested to EN374.

Use eye protection according to EN 166.

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 > 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

Avoid carrying out activities involving exposure for more than 4 hours per day.

Ensure operation is undertaken outdoors.

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

Personal protection

Wear suitable gloves tested to EN374.

Use eye protection according to EN 166.

5.2. 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, vapour pressure > 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**

- Handle substance within a closed system.
- Limit the substance content in the product to 25 %.
- Avoid carrying out activities involving exposure for more than 4 hours per day.

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

- Wear suitable gloves tested to EN374.
- Use eye protection according to EN 166.

5.2. CS8: Worker Contributing Scenario: General use from professional operators (PROC11)**Process Categories**

Non industrial spraying (PROC11)

Product (article) characteristics**Physical form of product:**

Liquid, vapour pressure > 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**

- Handle substance within a closed system.
- Avoid carrying out activities involving exposure for more than 1 hour per day.

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

- Wear suitable gloves tested to EN374.
- Use eye protection according to EN 166.
- Wear a respirator conforming to EN140.

5.2. CS9: 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 > 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**

- Handle substance within a closed system.
- Avoid carrying out activities involving exposure for more than 1 hour per day.
- Limit the substance content in the product to 25 %.

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

- Wear suitable gloves tested to EN374.
- Use eye protection according to EN 166.

Wear a respirator conforming to EN140.

5.3 Exposure estimation and reference to its source

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	0.01 ppm	ECETOC TRA worker v2.0	2E-05
dermal, systemic, long-term	0.34 mg/kg bw/day	ECETOC TRA worker v2.0	0.002

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	50 ppm	ECETOC TRA worker v2.0	0.1
dermal, systemic, long-term	1.37 mg/kg bw/day	ECETOC TRA worker v2.0	0.01

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	100 ppm	ECETOC TRA worker v2.0	0.2
dermal, systemic, long-term	0.34 mg/kg bw/day	ECETOC TRA worker v2.0	0.002

5.3. CS5: Worker Contributing Scenario: General use from professional operators (PROC4, PROC8b, PROC9)

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	250 ppm	ECETOC TRA worker v2.0	0.5
dermal, systemic, long-term	6.86 mg/kg bw/day	ECETOC TRA worker v2.0	0.04

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	100 ppm	ECETOC TRA worker v2.0	0.2
dermal, systemic, long-term	13.71 mg/kg bw/day	ECETOC TRA worker v2.0	0.07

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
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inhalative, systemic, long-term	100 ppm	ECETOC TRA worker v2.0	0.2
dermal, systemic, long-term	27.43 mg/kg bw/day	ECETOC TRA worker v2.0	0.15

5.3. 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	300 ppm	ECETOC TRA worker v2.0	0.6
dermal, systemic, long-term	107.14 mg/kg bw/day	ECETOC TRA worker v2.0	0.58

5.3. CS9: 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	300 ppm	ECETOC TRA worker v2.0	0.6
dermal, systemic, long-term	16.97 mg/kg bw/day	ECETOC TRA worker v2.0	0.09

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 Consumer use; Various products (PC9b, PC9a, PC3, PC4, PC24)

6.1 TITLE SECTION

Exposure Scenario name	Cleaning agent
Date - Version	28/08/2019 - 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) - Lubricants, greases, release products (PC24) - Polymer preparations and compounds (PC32) - Washing and cleaning products (PC35) - Welding and soldering products, flux products (PC38)

Environment Contributing Scenario

CS1 Covered by	ERC8d
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Consumer Contributing Scenario

CS2 Consumer	PC3
CS3 Consumer	PC3
CS4 Consumer	PC4
CS5 Consumer	PC4
CS6 Consumer	PC4
CS7 Consumer	PC9a
CS8 Consumer	PC9a
CS9 Consumer	PC9a
CS10 Consumer	PC9a
CS11 Consumer	PC9b
CS12 Consumer	PC9b
CS13 Consumer	PC9b
CS14 Consumer	PC9c
CS15 Consumer	PC24
CS16 Consumer	PC24
CS17 Consumer	PC24
CS18 Consumer	PC35
CS19 Consumer	PC35
CS20 Consumer	PC38

6.2 Conditions of use affecting exposure

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

Environmental release	Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
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categories	(ERC8d)
<i>Amount used, frequency and duration of use (or from service life)</i>	
Release type: Continuous release	
Emission days: 360 days per year	
<i>Conditions and measures related to treatment of waste (including article waste)</i>	
Waste treatment External treatment and disposal of waste should comply with applicable local and/or national regulations.	
6.2. CS2: Consumer Contributing Scenario: Consumer (PC3)	
Product Categories	Air care products (PC3)
<i>Product (article) characteristics</i>	
Physical form of product: Aerosol	
Concentration of substance in product: Covers concentrations up to 50 %	
<i>Amount used, frequency and duration of use/exposure</i>	
Amounts used: Amount per use 0.1 g	
Duration: Exposure duration 0.25 h	
Frequency: Covers exposure up to 365 days per year	
<i>Other conditions affecting consumers exposure</i>	
Room size: Covers use in room size of 20 m ³	
Temperature: Covers use at ambient temperatures.	
Ventilation rate: Covers use under typical household ventilation.	
Additional conditions human health Covers skin contact area up to 6600 cm ²	
6.2. CS3: Consumer Contributing Scenario: Consumer (PC3)	
Product Categories	Air care products (PC3)
<i>Product (article) characteristics</i>	
Physical form of product: Liquid	
Vapour pressure: 240 hPa	
Concentration of substance in product: Covers percentage substance in the product up to 1 %.	
<i>Amount used, frequency and duration of use/exposure</i>	
Amounts used: Amount per use 0.48 g	
Duration: Exposure duration 8 h	
Frequency: Covers exposure up to 365 days per year	

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 35.7 cm²

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

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

Physical form of product:

Liquid

Vapour pressure:

240 hPa

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:

Exposure duration 0.02 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

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

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

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

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 10 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 2400 g

Duration:

Exposure duration 0.17 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

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

Additional conditions human health

Covers skin contact area up to 428 cm²

6.2. CS6: Consumer Contributing Scenario: Consumer (PC4)

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

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

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:

Exposure duration 0.25 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

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

Additional conditions human health

Covers skin contact area up to 214.4 cm²

6.2. CS7: Consumer Contributing Scenario: Consumer (PC9a)

Product Categories Coatings and paints, thinners, paint removers (PC9a)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 1.5 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 2760 g

Duration:

Exposure duration 2.2 h

Frequency:

Covers exposure up to 4 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 428.75 cm²

6.2. CS8: Consumer Contributing Scenario: Consumer (PC9a)

Product Categories	Coatings and paints, thinners, paint removers (PC9a)
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Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 27.5 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 744 g

Duration:

Exposure duration 2.2 h

Frequency:

Covers exposure up to 6 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 428.75 cm²

6.2. CS9: Consumer Contributing Scenario: Consumer (PC9a)

Product Categories	Coatings and paints, thinners, paint removers (PC9a)
---------------------------	--

Product (article) characteristics

Physical form of product:

Aerosol

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

Duration:

Exposure duration 0.33 min

Frequency:

Covers exposure up to 2 days per year

Other conditions affecting consumers exposure

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

Additional conditions human health

Covers skin contact area up to 6600 cm²

6.2. CS10: Consumer Contributing Scenario: Consumer (PC9a)

Product Categories	Coatings and paints, thinners, paint removers (PC9a)
---------------------------	--

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 491 g

Duration:

Exposure duration 2 h

Frequency:

Covers exposure up to 3 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**Additional conditions human health**Covers skin contact area up to 857.5 cm²**6.2. CS11: Consumer Contributing Scenario: Consumer (PC9b)****Product Categories**

Fillers, putties, plasters, modelling clay (PC9b)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 2 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 85 g

Duration:

Exposure duration 4 h

Frequency:

Covers exposure up to 12 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**Additional conditions human health**Covers skin contact area up to 35.73 cm²**6.2. CS12: Consumer Contributing Scenario: Consumer (PC9b)****Product Categories**

Fillers, putties, plasters, modelling clay (PC9b)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 2 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 13800 g

Duration:

Exposure duration 2 h

Frequency:

Covers exposure up to 12 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**Additional conditions human health**Covers skin contact area up to 857.5 cm²**6.2. CS13: Consumer Contributing Scenario: Consumer (PC9b)****Product Categories**

Fillers, putties, plasters, modelling clay (PC9b)

*Product (article) characteristics***Physical form of product:**

Solid in solution

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 1 g

Duration:

Exposure duration 8 h

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**Additional conditions human health**Covers skin contact area up to 254.4 cm²**6.2. CS14: Consumer Contributing Scenario: Consumer****Product (Sub-)Categories**

Finger paints (PC9c)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 50 %

*Amount used, frequency and duration of use/exposure***Amounts used:**

Amount per use 1.35 g

Duration:

Exposure duration 8 h

Frequency:

Covers exposure up to 365 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in room size of 20 m³**Temperature:** Covers use at ambient temperatures.**Ventilation rate:** Covers use under typical household ventilation.**Additional conditions human health**Covers skin contact area up to 254.4 cm²

Avoid using at a product concentration greater than 5 %

6.2. CS15: Consumer Contributing Scenario: Consumer (PC24)**Product Categories**

Lubricants, greases, release products (PC24)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

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 2200 g

Duration:

Exposure duration 0.17 h

Frequency:

Covers exposure up to 4 days per year

*Other conditions affecting consumers exposure***Room size:** Covers use in a one car garage (>34 m³) under typical ventilation.**Additional conditions human health**Covers skin contact area up to 468 cm²**6.2. CS16: Consumer Contributing Scenario: Consumer (PC24)****Product Categories**

Lubricants, greases, release products (PC24)

*Product (article) characteristics***Physical form of product:**

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 20 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 34 g

Duration:

Exposure duration 8 h

Frequency:

Covers exposure up to 10 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 468 cm²

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

Product Categories

Lubricants, greases, release products (PC24)

Product (article) characteristics

Physical form of product:

Aerosol

Concentration of substance in product:

Covers concentrations up to 50 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 73 g

Duration:

Exposure duration 0.17 h

Frequency:

Covers exposure up to 6 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 428.75 cm²

6.2. CS18: Consumer Contributing Scenario: Consumer (PC35)

Product Categories

Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

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

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 857.5 cm²

6.2. CS19: Consumer Contributing Scenario: Consumer (PC35)

Product Categories

Washing and cleaning products (PC35)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

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 27 g

Duration:

Exposure duration 0.33 h

Frequency:

Covers exposure up to 128 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 857.5 cm²

6.2. CS20: Consumer Contributing Scenario: Consumer (PC38)

Product Categories

Welding and soldering products, flux products (PC38)

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

240 hPa

Concentration of substance in product:

Covers concentrations up to 20 %

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 12 g

Duration:

Exposure duration 1 h

Frequency:

Covers exposure up to 365 days per year

Other conditions affecting consumers exposure

Room size: Covers use in room size of 20 m³

Temperature: Covers use at ambient temperatures.

Ventilation rate: Covers use under typical household ventilation.

Additional conditions human health

Covers skin contact area up to 6600 cm²

6.3 Exposure estimation and reference to its source

N/A

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.

Exposure Scenario, 03/09/2019

Substance identity	
Chemical name	Propano
CAS No.	74-98-6
EINECS No.	200-827-9

Table of contents

1. **ES 1** Use at industrial site

1. ES 1 Use at industrial site

1.1 TITLE SECTION

Exposure Scenario name	Use as a propellant
Date - Version	03/09/2019 - 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
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Worker Contributing Scenario

CS2 Propellant	PROC1 - PROC2 - PROC3 - PROC8b - PROC9 - PROC12
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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)
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1.2. CS2: Worker Contributing Scenario: Propellant (PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12)

Process Categories	Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions - Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions - Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition - Transfer of substance or mixture (charging and discharging) at dedicated facilities - Transfer of substance or mixture into small containers (dedicated filling line, including weighing) - Use of blowing agents in manufacture of foam (PROC1, PROC2, PROC3, PROC8b, PROC9, PROC12)
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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

- Keep drains in watertight containers while awaiting dismantling or subsequent recycling
- Use in contained systems
- Ensure operatives are trained to minimise exposures.
- Ensure that direct skin contact is avoided.
- Clear transfer lines prior to de-coupling.
- Provide a good standard of controlled ventilation (10 to 15 air changes per hour).
- Drain down and flush system prior to equipment break-in or maintenance.

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

Personal protection

Wear suitable respiratory protection.

Other conditions affecting worker exposure

Temperature: Assumes use at not more than 20 °C above ambient temperature.

1.3 Exposure estimation and reference to its source

N/A

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.