Safety Data Sheet
ROLIN U.P. TECH PROTETTIVO RADIATORI CONCENTRATO BLU

Safety Data Sheet dated 20/1/2026, version 14

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

1.1. Product identifier

Mixture identification:

Trade name: ROLIN U.P. TECH PROTETTIVO RADIATORI CONCENTRATO BLU

Trade code: 8036

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

Recommended use:

Liquid for cooling circuits

Uses advised against:

Strictly adhere to the recommended uses.

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: emergency number 112

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):

Warning, Acute Tox. 4, Harmful if swallowed.

Warning, STOT RE 2, May cause damage to organs (kidneys) through prolonged or repeated exposure if swallowed.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Hazard pictograms:

Warning

Hazard statements:

H302 Harmful if swallowed.

H373 (kidneys) (Oral) May cause damage to organs (kidneys) through prolonged or repeated exposure if swallowed.

Precautionary statements:

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

P102 Keep out of reach of children.

P103 Read carefully and follow all instructions.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P501 Dispose of contents/container in accordance with applicable regulations.

Special Provisions:

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

Contains

ethanediol; ethylene glycol

sodium nitrite

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

None

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

SECTION 3: Composition/information on ingredients

3.1. Substances
N.A.
3.2. Mixtures
Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Number	Classification
>= 90%	ethanediol; ethylene glycol	Index number: 603-027-00-1 CAS: 107-21-1 EC: 203-473-3 REACH No.: 01-2119456816-28	3.1/4/Oral Acute Tox. 4 H302 3.9/2 STOT RE 2 H373 (kidneys) (Oral)
>= 2% - < 3%	SODIUM BENZOATE	CAS: 532-32-1 EC: 208-534-8 REACH No.: 01-2119460683-35	3.3/2 Eye Irrit. 2 H319
>= 1% - < 2%	TETRABORATO DI POTASSIO TETRAIDRATO	CAS: 12045-78-2 EC: 215-575-5 REACH No.: 01-2119970730-37	3.7/2 Repr. 2 H361d
>= 0,25% - < 0,5%	sodium nitrite	Index number: 007-010-00-4 CAS: 7632-00-0 EC: 231-555-9 REACH No.: 01-2119471836-27	2.14/3 Ox. Sol. 3 H272 3.3/2 Eye Irrit. 2 H319 3.1/3/Oral Acute Tox. 3 H301 4.1/A1 Aquatic Acute 1 H400
>= 0,1% - < 0,25%	Methyl-1H-benzotriazole	CAS: 29385-43-1 EC: 249-596-6 REACH No.: 01-2119979081-35	3.1/4/Oral Acute Tox. 4 H302 4.1/C2 Aquatic Chronic 2 H411 3.7/2 Repr. 2 H361
>= 0,001% - < 0,005%	methanol	CAS: 67-56-1 EC: 200-659-6 REACH No.: 01-2119433307-44	2.6/2 Flam. Liq. 2 H225 3.1/3/Oral Acute Tox. 3 H301 3.1/3/Dermal Acute Tox. 3 H311 3.1/3/Inhal Acute Tox. 3 H331 3.8/1 STOT SE 1 H370

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:
In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
In case of Ingestion:
Give nothing to eat or drink.
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:
Symptomatic treatment. In case of exposure or discomfort, consult a doctor.

SECTION 5: Firefighting measures

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

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

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

Keep containers cool with water spray.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
For non emergency personnel:
See protective measures under point 7 and 8.
Provide adequate ventilation.
For emergency responders:
See protective measures under point 7 and 8.
Fist-gloves.
Remove all sources of ignition.
Remove persons to safety.

6.2. Environmental precautions
Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up
For cleaning up:
Avoid flame and/or spark near leak and produced waste. Do not smoke. In case of large spills dike, absorb and shovel up into suitable containers for disposal. Contain small spills with absorbent material.
Put dirty material in suitable container. Dispose of dirty material in accordance with local or national regulations.

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

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Avoid contact with skin and eyes, inhalation of vapours and mists.
Don't use empty container before they have been cleaned.
Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
See also section 8 for recommended protective equipment.
Advice on general occupational hygiene:
Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities
Only store in the original container.
Keep away from food, drink and feed.
None in particular.
Instructions as regards storage premises:
Adequately ventilated premises.

7.3. Specific end use(s)
None in particular

SECTION 8: Exposure controls/personal protection

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

NIOSH - Notes: Metodo raccomandato per il monitoraggio: NIOSH 5523
SODIUM BENZOATE - CAS: 532-32-1
ACGIH - TWA(8h): 2.5 mg/m3 - Notes: (I),Skin, A5 - Kidney changes
TETRABORATO DI POTASSIO TETRAIDRATO - CAS: 12045-78-2
ACGIH - TWA: 2 mg/m3
methanol - CAS: 67-56-1
EU - TWA(8h): 260 mg/m3, 200 ppm - Notes: Skin
ACGIH - TWA(8h): 200 ppm - STEL: 250 ppm - Notes: Skin, BEI - Headache, eye dam, dizziness, nausea

DNEL Exposure Limit Values
ethanediol; ethylene glycol - CAS: 107-21-1
Worker Professional: 35 mg/m3 - Consumer: 7 mg/m3 - Exposure: Human Inhalation
Worker Professional: 106 mg/kg - Consumer: 53 mg/kg - Exposure: Human Dermal
SODIUM BENZOATE - CAS: 532-32-1
Worker Professional: 62.5 mg/kg - Consumer: 31.25 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects
Worker Professional: 0.1 mg/m3 - Consumer: 0.06 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, local effects
Worker Professional: 3 mg/m3 - Consumer: 1.5 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects
Consumer: 16.6 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects
TETRABORATO DI POTASSIO TETRAIDRATO - CAS: 12045-78-2
Worker Professional: 10.25 mg/m3 - Consumer: 3.9 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects
Worker Professional: 480.6 mg/kg - Consumer: 185.6 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects
Consumer: 1.2 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects
Consumer: 1.2 mg/kg - Exposure: Human Oral - Frequency: Short Term, systemic effects
Methyl-1H-benzotriazole - CAS: 29385-43-1
Consumer: 0.25 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects
Worker Professional: 0.5 mg/kg - Consumer: 0.25 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects
Worker Professional: 8.8 mg/m3 - Consumer: 4.4 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects
Consumer: 0.25 mg/kg - Exposure: Human Oral - Frequency: Short Term, systemic effects
methanol - CAS: 67-56-1
Worker Professional: 260 mg/m3 - Consumer: 50 mg/m3 - Exposure: Human Inhalation - Frequency: Long Term, systemic effects
Worker Professional: 40 mg/kg - Consumer: 8 mg/kg - Exposure: Human Dermal - Frequency: Long Term, systemic effects
Consumer: 8 mg/kg - Exposure: Human Oral - Frequency: Long Term, systemic effects

PNEC Exposure Limit Values
ethanediol; ethylene glycol - CAS: 107-21-1
Target: Fresh Water - Value: 10 mg/l
Target: Marine water - Value: 1 mg/l
Target: Freshwater sediments - Value: 37 mg/kg
Target: Soil (agricultural) - Value: 1.53 mg/kg
SODIUM BENZOATE - CAS: 532-32-1
Target: Fresh Water - Value: 0.13 mg/l
Target: Marine water - Value: 0.013 mg/l
Target: Freshwater sediments - Value: 1.76 mg/kg
Target: Marine water sediments - Value: 0.176 mg/kg
Target: 09 - Value: 10 mg/l
TETRABORATO DI POTASSIO TETRAIDRATO - CAS: 12045-78-2
Target: Fresh Water - Value: 2.02 mg/l
Target: Marine water - Value: 2.02 mg/l
Target: Soil (agricultural) - Value: 5.4 mg/kg
Target: 08 - Value: 13.7 mg/l
Target: 09 - Value: 10 mg/l
sodium nitrite - CAS: 7632-00-0
Target: Fresh Water - Value: 0.0054 mg/l
Target: Marine water - Value: 0.00616 mg/l
Target: Marine water sediments - Value: 0.0223 mg/kg
Target: Freshwater sediments - Value: 0.0195 mg/kg
Target: 09 - Value: 21 mg/l
Methyl-1H-benzotriazole - CAS: 29385-43-1
Target: Fresh Water - Value: 0.008 mg/l
Target: 09 - Value: 39.4 mg/l
Target: Marine water - Value: 0.008 mg/l
Target: Freshwater sediments - Value: 0.0025 mg/kg
Target: Marine water sediments - Value: 0.0025 mg/kg
methanol - CAS: 67-56-1
Target: Fresh Water - Value: 20.8 mg/l

Target: Marine water - Value: 2.08 mg/l
Target: Freshwater sediments - Value: 77 mg/kg
Target: Marine water sediments - Value: 7.7 mg/kg
Target: 09 - Value: 100 mg/l

8.2. Exposure controls

Eye protection:
Eye glasses with side protection.
Compliant with EN 166

Protection for skin:
Chemical protection clothing.
Safety shoes.

Protection for hands:
Nitrile or Viton gloves.
Compliant with EN 374.
Thickness: Cuff 0.10 mm; Palm 0.12 mm; Fingers 0.145 mm
Gloves must be selected according to the specific type of use and the permeation time of the material. The permeation time depends on the type of glove, its thickness and the type of chemical. Consult the gloves' supplier to determine the appropriate permeation time. Replace the gloves immediately if signs of wear or contamination are observed.

Respiratory protection:
Filter for organic vapours. Type A. (EN14387)

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:	Greenish blue	--	--
Odour:	tipico	--	--
Melting point/freezing point:	N.A.	--	--
Boiling point or initial boiling point and boiling range:	180°C	ASTM D 1120	--
Flammability:	N.A.	--	--
Lower and upper explosion limit:	N.A.	--	--
Flash point:	N.A.	--	--
Auto-ignition temperature:	N.A.	--	--
Decomposition temperature:	N.A.	--	--
pH:	8.5	ASTM D1287	--
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:	1.133 g/cm3	ASTM D 4052-96	--
Relative vapour density:	N.A.	--	--

Particle characteristics:

Particle size:	N.A.	--	--

9.2. Other information
No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions
10.2. Chemical stability
Stable at normal ambient temperatures and when used as recommended.
10.3. Possibility of hazardous reactions
None
10.4. Conditions to avoid
Stable under normal conditions.
10.5. Incompatible materials
None in particular.
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:
Rolin Blu UP 20 L
a) acute toxicity
The product is classified: Acute Tox. 4 H302
b) skin corrosion/irritation
Not classified
Based on available data, the classification criteria are not met
c) serious eye damage/irritation
Not classified
Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation
Not classified
Based on available data, the classification criteria are not met
e) germ cell mutagenicity
Not classified
Based on available data, the classification criteria are not met
f) carcinogenicity
Not classified
Based on available data, the classification criteria are not met
g) reproductive toxicity
Not classified
Based on available data, the classification criteria are not met
h) STOT-single exposure
Not classified
Based on available data, the classification criteria are not met
i) STOT-repeated exposure
The product is classified: STOT RE 2 H373 (kidneys) (Oral)
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:
ethanediol; ethylene glycol - CAS: 107-21-1
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat 7712 mg/kg
Test: LC50 - Route: Inhalation - Species: Rat 2.5 mg/l - Duration: 6h
Test: LD50 - Route: Skin - Species: Mouse 3500 mg/kg
SODIUM BENZOATE - CAS: 532-32-1
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat > 2000 mg/kg
Test: LC50 - Route: Inhalation - Species: Rat > 12.2 mg/l - Duration: 4h
Test: LD50 - Route: Skin - Species: Rabbit > 2000 mg/kg
b) skin corrosion/irritation:
Test: Skin Irritant - Species: Rabbit Negative
d) respiratory or skin sensitisation:
Test: Skin Sensitization - Species: CAVIA Negative
TETRABORATO DI POTASSIO TETRAIDRATO - CAS: 12045-78-2

a) acute toxicity:
Test: OECD TG 403 - Route: Inhalation - Species: Rat 2.12 mg/l
Test: LD50 - Route: Skin - Species: Rabbit > 2000 mg/kg
Test: OECD TG 401 - Route: Oral - Species: Rat 3960 mg/kg
sodium nitrite - CAS: 7632-00-0
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat 180 mg/kg
Methyl-1H-benzotriazole - CAS: 29385-43-1
a) acute toxicity:
Test: LD50 - Route: Oral - Species: Rat = 720 mg/kg
Test: LC0 - Route: Inhalation - Species: Rat > 1.7 mg/l - Duration: 1h
Test: LD50 - Route: Skin - Species: Rabbit > 5000 mg/kg
b) skin corrosion/irritation:
Test: Skin Sensitization - Species: IND Negative
e) germ cell mutagenicity:
Test: oecd - Species: vitro Negative
methanol - CAS: 67-56-1
a) acute toxicity:
Test: STA - Route: Oral 100 mg/kg
Test: STA - Route: Skin 300 mg/kg
Test: LC50 - Route: Inhalation Vapour - Species: Rat 3 mg/l
Test: STA - Route: Inhalation Vapour - Species: Rat 3 mg/l
Test: LD50 - Route: Skin - Species: Rabbit > 15800 mg/kg
e) germ cell mutagenicity:
Test: Genotoxicity - Species: vivo Negative
f) carcinogenicity:
Test: NOAEL - Route: Oral - Species: Rat 466 mg/kg
h) STOT-single exposure:
Test: oecd 11 1
i) STOT-repeated exposure:
Test: LOAEL - Route: Oral - Species: mam 2340 mg/kg
Test: NOAEL - Route: Inhalation - Species: Rat 1.06 mg/l - Duration: 90gg

11.2. Information on other hazards
Endocrine disrupting properties:
No endocrine disruptor substances present in concentration >= 0.1%

SECTION 12: Ecological information

12.1. Toxicity
Adopt good working practices, so that the product is not released into the environment.
ethanediol; ethylene glycol - CAS: 107-21-1
a) Aquatic acute toxicity:
Endpoint: LC50 - Species: Fish 49-72.86 GL - Duration h: 96
Endpoint: EC50 - Species: Daphnia 100 mg/l - Duration h: 48
Endpoint: LC50 - Species: Daphnia 74.448 GL - Duration h: 242
Endpoint: EC0 - Species: Daphnia 100 mg/l - Duration h: 48
Endpoint: CE4 - Species: Algae 10.94 GL - Duration h: 96
b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Fish 49 mg/l - Duration h: 504
Endpoint: LC50 - Species: Fish 1.5 GL - Duration h: 504
Endpoint: NOEC - Species: Daphnia 8.59-24 mg/l - Duration h: 168
Endpoint: NOEC - Species: Algae 1000 mg/l - Duration h: 72
SODIUM BENZOATE - CAS: 532-32-1
a) Aquatic acute toxicity:
Endpoint: LC50 - Species: Fish 484 mg/l - Duration h: 96
Endpoint: EC50 - Species: Daphnia > 100 mg/l - Duration h: 96
b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Fish 10 mg/l - Duration h: 144
Endpoint: EC50 - Species: Algae > 30.5 mg/l - Duration h: 72
Endpoint: CE5 - Species: Algae 6.5 mg/l - Duration h: 72
TETRABORATO DI POTASSIO TETRAIDRATO - CAS: 12045-78-2
a) Aquatic acute toxicity:
Endpoint: EC50 - Species: Algae 52.4 mg/l
Endpoint: EC50 - Species: Daphnia 91 mg/l
Endpoint: LC50 - Species: Fish 79.7 mg/l
b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Algae 17.5 mg/l
Endpoint: NOEC - Species: Daphnia 14.2 mg/l
Endpoint: NOEC - Species: Fish 6.4 mg/l
sodium nitrite - CAS: 7632-00-0
a) Aquatic acute toxicity:

Endpoint: LC50 - Species: Fish 0.54-26.3 mg/l - Duration h: 96
Endpoint: LC50 - Species: Daphnia 4.93 mg/l - Duration h: 96
Endpoint: EC50 - Species: Daphnia 15.4 mg/l - Duration h: 48 - Notes: OECD 202
Endpoint: EC50 - Species: Algae > 100 mg/l - Duration h: 72 - Notes: OECD 201
Endpoint: EC50 - Species: fanghi 421 mg/l - Duration h: 48
Endpoint: CE5 - Species: fanghi 210 mg/l - Duration h: 3 - Notes: OECD 209

b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Fish 6.16 mg/l - Duration h: 240
Endpoint: NOEC - Species: Daphnia 9.86 mg/l - Duration h: 744

Methyl-1H-benzotriazole - CAS: 29385-43-1

a) Aquatic acute toxicity:
Endpoint: LC50 - Species: Fish = 55 mg/l - Duration h: 96
Endpoint: EC50 - Species: Daphnia = 55 mg/l - Duration h: 48
Endpoint: EC50 - Species: Daphnia 8.58 mg/l - Duration h: 48
Endpoint: CE6 - Species: Algae = 62 mg/l - Duration h: 72

b) Aquatic chronic toxicity:
Endpoint: NOEC - Species: Algae = 30 mg/l - Duration h: 72
Endpoint: NOEC - Species: Daphnia = 18.4 mg/l - Duration h: 504
Endpoint: CE5 - Species: Daphnia 0.4 mg/l - Duration h: 504

methanol - CAS: 67-56-1

a) Aquatic acute toxicity:
Endpoint: LC50 - Species: Fish = 15400 mg/l - Duration h: 96
Endpoint: NOEC - Species: Fish = 15800 mg/l - Duration h: 200
Endpoint: EC50 - Species: Daphnia > 10000 mg/l - Duration h: 48
Endpoint: EC50 - Species: Daphnia = 22000-23400 mg/l - Duration h: 96
Endpoint: EC50 - Species: Algae 22000 mg/l - Duration h: 96
Endpoint: NOEC - Species: Algae 9.96 mg/l - Duration h: 96
Endpoint: LC50 - Species: batteri 20000 mg/l - Duration h: 15
Endpoint: LC50 - Species: batteri > 1000 mg/l - Duration h: 3

12.2. Persistence and degradability

None

ethanediol; ethylene glycol - CAS: 107-21-1
Biodegradability: Readily biodegradable - Test: OECD TG 301 A - Duration: .10gg - %: 90-10

SODIUM BENZOATE - CAS: 532-32-1
Biodegradability: Readily biodegradable

Methyl-1H-benzotriazole - CAS: 29385-43-1
Biodegradability: Non-readily biodegradable

methanol - CAS: 67-56-1
Biodegradability: Persistence - Duration: 20dd - %: 95
Duration: 5gg - %: 71.5

12.3. Bioaccumulative potential

ethanediol; ethylene glycol - CAS: 107-21-1
Bioaccumulation: Not bioaccumulative

sodium nitrite - CAS: 7632-00-0
Bioaccumulation: Not bioaccumulative

Methyl-1H-benzotriazole - CAS: 29385-43-1
Test: log Pow 1.08
Test: BCF - Bioconcentrantion factor 2.4

methanol - CAS: 67-56-1
Bioaccumulation: Not bioaccumulative - Test: BCF - Bioconcentrantion factor

12.4. Mobility in soil

ethanediol; ethylene glycol - CAS: 107-21-1
Mobility in soil: Mobile

methanol - CAS: 67-56-1
Notes: Solubile in acqua.

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

12.6. Endocrine disrupting properties

No endocrine disruptor substances present in concentration >= 0.1%

12.7. Other adverse effects

None

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

Additional disposal information:

The leftover product is to be considered special waste to be classified in accordance with Directive No. 2008/98/EC on waste and related matters. Recover if possible. Send to authorised disposal facilities or incineration under controlled conditions.Packaging can be taken to separate collection if emptied of its contents, checking the regulations of your municipality. Otherwise, it is always necessary to take it to an authorised centre or recycling point in your municipality.

SECTION 14: Transport information

14.1. UN number or ID number
Not classified as dangerous in the meaning of transport regulations.
14.2. UN proper shipping name
N.A.
14.3. Transport hazard class(es)
N.A.
14.4. Packing group
N.A.
14.5. Environmental hazards
ADR-Enviromental Pollutant: No
IMDG-Marine pollutant: No
14.6. Special precautions for user
N.A.
14.7. Maritime transport in bulk according to IMO instruments
N.A.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)
Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 2020/878
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)
Regulation (EU) n. 2015/1221 (ATP 7 CLP)
Regulation (EU) n. 2016/918 (ATP 8 CLP)
Regulation (EU) n. 2016/1179 (ATP 9 CLP)
Regulation (EU) n. 2017/776 (ATP 10 CLP)
Regulation (EU) n. 2018/669 (ATP 11 CLP)
Regulation (EU) n. 2018/1480 (ATP 13 CLP)
Regulation (EU) n. 2019/521 (ATP 12 CLP)
Regulation (EU) n. 2020/217 (ATP 14 CLP)
Regulation (EU) n. 2020/1182 (ATP 15 CLP)
Regulation (EU) n. 2021/643 (ATP 16 CLP)
Regulation (EU) n. 2021/849 (ATP 17 CLP)
Regulation (EU) n. 2022/692 (ATP 18 CLP)
Regulation (EU) n. 2023/707
Regulation (EU) n. 2023/1434 (ATP 19 CLP)
Regulation (EU) n. 2023/1435 (ATP 20 CLP)
Regulation (EU) n. 2024/197 (ATP 21 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
Restrictions related to the substances contained:
Restriction 40
Restriction 69
Restriction 75

Volatile Organic compounds - VOCs = 92.66 %
Volatile Organic compounds - VOCs = 926.61 g/Kg
Volatile Organic compounds - VOCs = 1049.85 g/l
Where applicable, refer to the following regulatory provisions :
Directive 2012/18/EU (Seveso III)
Regulation (EC) nr 648/2004 (detergents).
Dir. 2004/42/EC (VOC directive)

Provisions related to directive EU 2012/18 (Seveso III):
Seveso III category according to Annex 1, part 1
None

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:

ethanediol; ethylene glycol
sodium nitrite

SECTION 16: Other information

Text of phrases referred to under heading 3:

H302 Harmful if swallowed.
H373 (kidneys) (Oral) May cause damage to organs (kidneys) through prolonged or repeated exposure if swallowed.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.
H272 May intensify fire; oxidiser.
H301 Toxic if swallowed.
H400 Very toxic to aquatic life.
H411 Toxic to aquatic life with long lasting effects.
H361 Suspected of damaging fertility or the unborn child.
H225 Highly flammable liquid and vapour.
H311 Toxic in contact with skin.
H331 Toxic if inhaled.
H370 Causes damage to organs.

Hazard class and hazard category	Code	Description
Ox. Sol. 3	2.14/3	Oxidising solid, Category 3
Flam. Liq. 2	2.6/2	Flammable liquid, Category 2
Acute Tox. 3	3.1/3/Dermal	Acute toxicity (dermal), Category 3
Acute Tox. 3	3.1/3/Inhal	Acute toxicity (inhalation), Category 3
Acute Tox. 3	3.1/3/Oral	Acute toxicity (oral), Category 3
Acute Tox. 4	3.1/4/Oral	Acute toxicity (oral), Category 4
Eye Irrit. 2	3.3/2	Eye irritation, Category 2
Repr. 2	3.7/2	Reproductive toxicity, Category 2
STOT SE 1	3.8/1	Specific target organ toxicity - single exposure, Category 1
STOT RE 2	3.9/2	Specific target organ toxicity - repeated exposure, Category 2
Aquatic Acute 1	4.1/A1	Acute aquatic hazard, category 1
Aquatic Chronic 2	4.1/C2	Chronic (long term) aquatic hazard, category 2

Paragraphs modified from the previous revision:

SECTION 3: Composition/information on ingredients
SECTION 6: Accidental release measures
SECTION 8: Exposure controls/personal protection
SECTION 9: Physical and chemical properties
SECTION 11: Toxicological information
SECTION 12: Ecological information
SECTION 15: Regulatory information
SECTION 16: Other 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
Acute Tox. 4, H302	Calculation method
STOT RE 2, H373 (kidneys) (Oral)	Calculation method

This document was prepared by a competent person who has received appropriate training.
Main bibliographic sources:
ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.

ADR:	European Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE:	Acute Toxicity Estimate
ATEmix:	Acute toxicity Estimate (Mixtures)
CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
NA:	Not applicable
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWA:	Time-weighted average
WGK:	German Water Hazard Class.

Continued on next page - This SDS has been integrated with one or more Exposure scenarios.The exposure scenarios that follow must be considered as part of the SDS.

Exposure Scenario, 19/07/2019

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

Table of contents

1. ES 1 Use at industrial site

1.1 TITLE SECTION

Exposure Scenario name	Use in cleaning agents
Date - Version	18/07/2019 - 1.0
Life Cycle Stage	Use at industrial site
Main user group	Industrial uses
Sector(s) of use	Industrial uses (SU3)

Environment Contributing Scenario	
CS1 Covered by	ERC4

Worker Contributing Scenario	
CS2 Industrial	PROC1
CS3 Industrial	PROC2
CS4 Industrial	PROC3
CS5 Industrial	PROC4
CS6 Industrial	PROC8b
CS7 Industrial	PROC7
CS8 Industrial	PROC8a
CS9 Industrial	PROC10
CS10 Industrial	PROC13

1.2 Conditions of use affecting exposure

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

Environmental release categories	Use of non-reactive processing aid at industrial site (no inclusion into or onto article) (ERC4)

Product (article) characteristics

Physical form of product:
Liquid

Vapour pressure:
0.123 hPa

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

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

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours

Frequency:
Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

1.2. CS3: Worker Contributing Scenario: Industrial (PROC2)

Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

1.2. CS4: Worker Contributing Scenario: Industrial (PROC3)

Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Industrial spraying (PROC7)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Amounts used:

Amount per use 1 L/min

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 5 days per week

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use

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

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

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

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use
Ventilation rate: > 90 %

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

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use

1.3 Exposure estimation and reference to its source

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

Exposure route, Health effect, Exposure indicator	Exposure level	Calculation method	Risk Characterization Ratio (RCR)
inhalative, systemic, long-term	N/A	EASY TRA v2.0	0.001
inhalative, local, long-term	N/A	EASY TRA v2.0	0.001
dermal, systemic, long-term	N/A	EASY TRA v2.0	0.003
combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.004

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

combined routes, systemic, long-term	N/A	EASY TRA v2.0	0.75

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

Guidance to check compliance with the exposure scenario:

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

2. ES 2 Widespread use by professional workers

2.1 TITLE SECTION

Exposure Scenario name	Use in cleaning agents
Date - Version	19/07/2019 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)

Environment Contributing Scenario

CS1 Covered by	ERC8a - ERC8d

Worker Contributing Scenario

CS2 General use from professional operators	PROC1
CS3 General use from professional operators	PROC2
CS4 General use from professional operators	PROC3
CS5 General use from professional operators	PROC4
CS6 General use from professional operators	PROC8b
CS7 General use from professional operators	PROC8a
CS8 General use from professional operators	PROC10
CS9 General use from professional operators	PROC11
CS10 General use from professional operators	PROC13

2.2 Conditions of use affecting exposure

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

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

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

0.123 hPa

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics

Physical form of product:
Liquid

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition (PROC3)

Product (article) characteristics

Physical form of product:
Liquid

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency 240 days per year

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

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

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

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

Process Categories	Roller application or brushing (PROC10)

Product (article) characteristics

Physical form of product:
Liquid

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Use frequency 240 days per year

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

Physical form of product:
Liquid

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

Amount used, frequency and duration of use/exposure

Amounts used:
Amount per use 0.05 L/min

Duration:
Exposure duration 180 min
Frequency:

Use frequency < 5 days per week

Technical and organisational conditions and measures

Technical and organisational measures

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

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use

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

Ventilation rate: 80 %

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Use frequency < 240 days per year

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use

2.3 Exposure estimation and reference to its source

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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

3. ES 3 Widespread use by professional workers

3.1 TITLE SECTION

Exposure Scenario name	Use in antifreeze products
Date - Version	19/07/2019 - 1.0
Life Cycle Stage	Widespread use by professional workers
Main user group	Professional uses
Sector(s) of use	Professional uses (SU22)

Environment Contributing Scenario

CS1 Covered by	ERC8d

Worker Contributing Scenario

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

3.2 Conditions of use affecting exposure

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

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

Product (article) characteristics

Physical form of product:

Liquid

Vapour pressure:

0.123 hPa

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

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

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

Amount used, frequency and duration of use/exposure

Duration:

Covers daily exposures up to 8 hours

Frequency:

Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures

Use in contained systems

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

Personal protection

Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions (PROC2)

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

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

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours
Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection

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

Other conditions affecting worker exposure

Indoor use
Ventilation rate: 80 %

3.2. CS5: Worker Contributing Scenario: General use from professional operators (PROC8b)

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

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Covers daily exposures up to 8 hours

Frequency:
Covers exposure up to 240 days per year

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection
Wear suitable gloves tested to EN374.

Other conditions affecting worker exposure

Indoor use

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

Process Categories	Non industrial spraying (PROC11)

Product (article) characteristics

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

Amount used, frequency and duration of use/exposure

Duration:
Exposure duration 180 min

Frequency:
Covers exposure up to 5 days per week

Technical and organisational conditions and measures

Technical and organisational measures
Use in contained systems

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

Personal protection

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

Other conditions affecting worker exposure

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

3.3 Exposure estimation and reference to its source

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

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

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

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

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

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

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

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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

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

4.1 TITLE SECTION

Exposure Scenario name	Consumer goods
Date - Version	19/07/2019 - 1.0
Life Cycle Stage	Consumer use
Main user group	Consumer uses
Product Categories	Coatings and paints, thinners, paint removers (PC9a) - Adhesives, sealants (PC1) - Anti-freeze and de-icing products (PC4) - Biocidal products (PC8) - Non-metal surface treatment products (PC15) - Heat transfer fluids (PC16) - Hydraulic fluids (PC17) - Ink and toners (PC18) - Leather treatment products (PC23) - Polishes and wax blends (PC31) - Polymer preparations and compounds (PC32) - Textile dyes and impregnating products (PC34) - Washing and cleaning products (PC35)

Environment Contributing Scenario

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

Consumer Contributing Scenario

CS2 Consumer	PC1
CS3 Consumer	PC4 - PC16 - PC17 - PC4_1
CS4 Consumer	PC4 - PC4_2
CS5 Consumer	PC9a - PC15 - PC9a_2, PC15_2
CS6 Consumer	PC8
CS7 Consumer	PC18
CS8 Consumer	PC31
CS9 Consumer	PC32
CS10 Consumer	PC35 - PC8_2, PC35_2
CS11 Consumer	PC35 - PC8_3, PC35_3
CS12 Consumer	PC15 - PC23 - PC34 - PC9a_1, PC15_1

4.2 Conditions of use affecting exposure

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

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

Product (article) characteristics

Physical form of product:

Liquid

Concentration of substance in product:

Covers percentage substance in the product up to 100 %.

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

Product Categories	Adhesives, sealants (PC1)

Product (article) characteristics	
Concentration of substance in product: Covers concentrations up to 0.75 %	
4.2. CS3: Consumer Contributing Scenario: Consumer (PC4, PC16, PC17)	
Product Categories	Anti-freeze and de-icing products - Heat transfer fluids - Hydraulic fluids (PC4, PC16, PC17)
Product (Sub-)Categories	Washing car window (PC4_1)
Product (article) characteristics	
Concentration of substance in product: Covers concentrations up to 45 %	
Amount used, frequency and duration of use/exposure	
Duration: Exposure duration < 15 min	
4.2. CS4: Consumer Contributing Scenario: Consumer (PC4)	
Product Categories	Anti-freeze and de-icing products (PC4)
Product (Sub-)Categories	Pouring into radiator (PC4_2)
Product (article) characteristics	
Concentration of substance in product: Covers percentage substance in the product up to 100 %.	
4.2. CS5: Consumer Contributing Scenario: Consumer (PC9a, PC15)	
Product Categories	Coatings and paints, thinners, paint removers - Non-metal surface treatment products (PC9a, PC15)
Product (Sub-)Categories	Solvent rich, high solid, water borne paint (PC9a_2, PC15_2)
Product (article) characteristics	
Concentration of substance in product: Covers concentrations up to 10 %	
4.2. CS6: Consumer Contributing Scenario: Consumer (PC8)	
Product Categories	Biocidal products (PC8)
4.2. CS7: Consumer Contributing Scenario: Consumer (PC18)	
Product Categories	Ink and toners (PC18)
Product (article) characteristics	
Concentration of substance in product: Covers percentage substance in the product up to 5 %.	
4.2. CS8: Consumer Contributing Scenario: Consumer (PC31)	
Product Categories	Polishes and wax blends (PC31)
Product (article) characteristics	
Concentration of substance in product: Covers concentrations up to 10 %	
4.2. CS9: Consumer Contributing Scenario: Consumer (PC32)	
Product Categories	Polymer preparations and compounds (PC32)
Product (article) characteristics	
Concentration of substance in product: Covers percentage substance in the product up to 5 %.	
4.2. CS10: Consumer Contributing Scenario: Consumer (PC35)	

Product Categories	Washing and cleaning products (PC35)
Product (Sub-)Categories	Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners) (PC8_2, PC35_2)

Product (article) characteristics

Concentration of substance in product:

Covers concentrations up to 20 %

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

Product Categories	Washing and cleaning products (PC35)
Product (Sub-)Categories	Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners) (PC8_3, PC35_3)

Product (article) characteristics

Concentration of substance in product:

Covers percentage substance in the product up to 5 %.

4.2. CS12: Consumer Contributing Scenario: Consumer (PC15, PC23, PC34)

Product Categories	Non-metal surface treatment products - Leather treatment products - Textile dyes and impregnating products (PC15, PC23, PC34)
Product (Sub-)Categories	Waterborne latex wall paint (PC9a_1, PC15_1)

4.3 Exposure estimation and reference to its source

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Guidance to check compliance with the exposure scenario:

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