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Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)

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

* **1.1. Product identifier**

Trade name/designation:

RAVENOL TTC Premix -40°C Protect C11

Article No.:

1410105

UFI:

H151-QUK9-EK1K-R92H

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

Use of the substance/mixture:

Antifreeze agent

* **1.3. Details of the supplier of the safety data sheet**

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Ravensberger Schmierstoffvertrieb GmbH

Produktsicherheit
Jöllenbecker Str. 2
33824 Werther
Germany

Telephone: +49 5203 9719 0

Telefax: +49 5203 9719 40

E-mail: kontakt@ravenol.de

Website: www.ravenol.de

E-mail (competent person): sdb@ravenol.de

* **1.4. Emergency telephone number**

24 hr. emergency phone number, 24h: +49 700 24 112 112 (Contract ID: RAV) / +1 872 5888271
(Contract ID: RAV)

SECTION 2: Hazards identification

* **2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure
Acute toxicity (oral) (<i>Acute Tox. 4</i>)	H302: Harmful if swallowed.	Calculation method.
STOT-repeated exposure (<i>STOT RE 2</i>)	H373: May cause damage to organs through prolonged or repeated exposure.	Calculation method.

* **2.2. Label elements**

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms:



GHS07

Exclamation mark



GHS08

Health hazard

Signal word: Warning



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Hazard components for labelling:

1,2-Ethanediol

Hazard statements for health hazards	
H302	Harmful if swallowed.
H373	May cause damage to kidneys through prolonged or repeated exposure if swallowed.

Supplemental hazard information: none

Precautionary statements	
P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.

Precautionary statements Prevention	
P260	Do not breathe vapours and spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

Precautionary statements Response	
P301 + P312	IF SWALLOWED: Call a POISON CENTER/doctor/Emergency telephone number/ if you feel unwell.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.

2.3. Other hazards

Other adverse effects:

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition/information on ingredients

*** 3.2. Mixtures**

Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 107-21-1 EC No.: 203-473-3 REACH No.: 01-2119456816-28-XXXX	1,2-Ethanediol Acute Tox. 4 (H302), STOT RE 2 (H373) Warning	30 - < 60 weight-%
CAS No.: 12045-78-2 EC No.: 215-575-5	Dipotassium tetraborate Repr. 2 (H361d) Warning Specific concentration limit (SCL) Repr. 2; H361d: C ≥ 6.8%	< 1 weight-%

Full text of H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information:

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious but breathing normally, place in recovery position and seek medical advice. Do not leave affected person unattended.

Following inhalation:

In case of respiratory tract irritation, consult a physician. Provide fresh air. Get immediate medical advice/attention.

In case of skin contact:

In case of skin irritation, consult a physician. After contact with skin, wash immediately with plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing.

Following ingestion:

If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain



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immediate medical attention. If unconscious but breathing normally, place in recovery position and seek medical advice. Harmful if swallowed. May cause damage to organs.(kidneys)

Self-protection of the first aider:

First aider: Pay attention to self-protection! Use personal protection equipment. No direct artificial respiration to be given by first aider.

4.2. Most important symptoms and effects, both acute and delayed

Reference to other sections:

SECTION 2: Hazards identification

SECTION 11: Toxicological information

4.3. Indication of any immediate medical attention and special treatment needed

Observe risk of aspiration if vomiting occurs. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

alcohol resistant foam

Carbon dioxide (CO₂)

Extinguishing powder

Use water spray jet to protect personnel and to cool endangered containers.

Unsuitable extinguishing media:

Full water jet

5.2. Special hazards arising from the substance or mixture

In case of fire may be liberated: Gases/vapours, toxic. The product itself does not burn.

Hazardous combustion products:

Nitrogen oxides (NO_x) Carbon monoxide Carbon dioxide (CO₂)

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

5.4. Additional information

Co-ordinate fire-fighting measures to the fire surroundings. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Personal precautions:

Use personal protection equipment. Special danger of slipping by leaking/spilling product. Do not breathe vapour.

Protective equipment:

Wear protective gloves/protective clothing/eye protection/face protection.

Emergency procedures:

Eliminate all ignition sources if safe to do so. Remove persons to safety. Provide adequate ventilation.

6.1.2. For emergency responders

Personal protection equipment:

Use appropriate respiratory protection.

6.2. Environmental precautions

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water. Immediately inform the responsible authorities in entry into waterways or sewage system.

6.3. Methods and material for containment and cleaning up

For containment:

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up:

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Other information:

Treat the recovered material as prescribed in the section on waste disposal.



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6.4. Reference to other sections

SECTION 7: Handling and storage
 SECTION 8: Exposure controls/personal protection
 SECTION 13: Disposal considerations

6.5. Additional information

Clear spills immediately.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Protective measures

Advices on safe handling:

Harmful if swallowed. Do not breathe gas/vapour. Keep out of reach of children. Wash hands before breaks and after work.

Fire prevent measures:

No special fire protection measures are necessary.

Measures to prevent aerosol and dust generation:

Provide adequate ventilation.

Environmental precautions:

See section 8.

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500. When using do not eat, drink, smoke, sniff. Remove contaminated, saturated clothing.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep locked up and out of reach of children.

Requirements for storage rooms and vessels:

Keep/Store only in original container. Shafts and sewers must be protected from entry of the product.

Hints on storage assembly:

Do not store together with: Food and feedingstuffs

Storage class (TRGS 510, Germany): 12 - non-combustible liquids that cannot be assigned to any of the above storage classes

Further information on storage conditions:

Keep container tightly closed in a cool, well-ventilated place.

7.3. Specific end use(s)

Recommendation:

Observe technical data sheet.
 Antifreeze / Coolant

SECTION 8: Exposure controls/personal protection

* **8.1. Control parameters**

8.1.1. Occupational exposure limit values

Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
CH from 1 Jan 2022	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ② 20 ppm (52 mg/m ³) ⑤ (Dampf und Aerosol; kann über die Haut aufgenommen werden) H SSC; Tox: OAW Auge
BE	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ③ 40 ppm (104 mg/m ³) ⑤ (Aérosol, peut être absorbé par la peau) D, M



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Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
CZ from 1 Mar 2020	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 19.4 ppm (50 mg/m ³) ② 38.8 ppm (100 mg/m ³) ⑤ (může pronikat pokožkou) D
PL	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 15 mg/m ³ ② 50 mg/m ³ ⑤ (może przenikać przez skórę do organizmu) skóra
NO from 1 Jul 2021	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (damp og Aerosol, kan absorberes gjennom huden) HE5S
TRGS 900 (DE)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ② 20 ppm (52 mg/m ³) ⑤ (Aerosol und Dampf, kann über die Haut aufgenommen werden) DFG, EU, H, Y, 11
IE from 17 Jan 2020	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (may be absorbed through the skin) Sk, IOELV
MY from 1 Jan 2000	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 39.4 ppm (100 mg/m ³)
HTP (FI)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (50 mg/m ³) ② 40 ppm (100 mg/m ³) ⑤ (voivat imeytyä ihon läpi) iho
LT from 15 Oct 2007	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (25 mg/m ³) ② 20 ppm (50 mg/m ³) ⑤ (garų ir Aerosolis) (tikėtinas įsisavinimas per odą) Šis RD taikomas bendrai garų ir aerosolio koncentracijai. O
SE from 1 Jun 2016	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (25 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (kan absorberas genom huden)
NPEL (SK) from 23 Nov 2011	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (rátajte so vstrebávaním cez pokožku) K
MAK (AT)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ⑤ (kann über die Haut aufgenommen werden) H
DK	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m ³ ② 20 mg/m ³ ⑤ (forstøvet)
DK from 28 Jun 2022	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (kan optages gennem huden) EH
MAK (AT)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	② 20 ppm (52 mg/m ³) ⑤ (max. 8x5 min./Schicht, Momentanwert, kann über die Haut aufgenommen werden) H
BG from 6 Jan 2012	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (трябва да се очаква абсорбиране през кожата)



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Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
HR	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (mora se uzeti u obzir prodiranje kroz kožu) koža
ES	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (puede ser absorbido a través dérmica) vía dérmica, VLI
RO from 21 Aug 2018	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (e de asteptat asimilarea prin piele) P
EE from 17 Jan 2020	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (naha kaudu kergesti absorbeeruvad ained, aur ja Aerosool) A, 18
LV	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (var absorbēt caur adu) Āda
Alberta (CA)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 100 mg/m ³ ⑤ 3
BC (CA) from 1 Mar 2022	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m ³ ② 20 mg/m ³ ③ 100 mg/m ³ ⑤ (Aerosol)
BC (CA) from 1 Mar 2022	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm ⑤ (vapor)
IOELV (EU)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (may be absorbed through the skin)
VRI (FR)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (peut être absorbé par la peau)
WEL (GB)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (vapour, may be absorbed through the skin)
SI	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (računati je treba z možnostjo prodiranja skozi kožo) K, Y, EU1
TW	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m ³ ⑤ (##)
TW	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm (127 mg/m ³) ⑤ (#)
WEL (GB)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m ³ ⑤ (may be absorbed through the skin)
KR	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 40 ppm (100 mg/m ³) ⑤ (## #(#) ##)



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Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
IS	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (efnið getur auðveldlega borist inn í líkamann gegnum húð) H
IS	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 ppm (26 mg/m ³) ⑤ (úðaefni, efnið getur auðveldlega borist inn í líkamann gegnum húð)
CN from 1 Jan 2007	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 mg/m ³ ② 40 mg/m ³
HU	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 52 mg/m ³ ② 104 mg/m ³ ⑤ (felvehető a bőrön keresztül) b, i, N
RU	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 5 mg/m ³ ③ 10 mg/m ³
GR from 1 Oct 2016	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 50 ppm (125 mg/m ³) ② 50 ppm (125 mg/m ³)
NL from 20 Jan 2021	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 52 mg/m ³ ② 104 mg/m ³ ⑤ (damp, kan door de huid in het lichaam worden opgenomen) H
ACGIH (US) from 1 Jan 2017	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	② 10 mg/m ³ ⑤ (inhalable fraction Aerosol)
NL	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 10 mg/m ³ ⑤ (deeltjes)
TR	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 20 ppm (52 mg/m ³) ② 40 ppm (104 mg/m ³) ⑤ (cilt yoluyla alınabilir) Deri
ACGIH (US) from 1 Jan 2017	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	① 25 ppm ② 50 ppm ⑤ (vapor)
Québec (CA)	1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	③ 50 ppm (127 mg/m ³)
LT	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 10 mg/m ³ ⑤ (pavojingas reprodukcijai) R
CH from 1 Jan 2022	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 1.8 mg/m ³ ② 1.8 mg/m ³ ⑤ (einatembare Fraktion) R1BD R1BF SSB; Tox: OAW; Messmeth: NIOSH
BE	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ② 6 mg/m ³
ACGIH (US)	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ② 6 mg/m ³ ⑤ (inhalable fraction)
LV	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 10 mg/m ³



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Limit value type (country of origin)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
BC (CA)	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ② 6 mg/m ³
ES	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ② 6 mg/m ³ ⑤ (puede ser absorbido a través dérmica) TR1B, s, r
IE from 21 Aug 2018	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ⑤ Repr.1B
RU	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	③ 10 mg/m ³
SI from 11 May 2021	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 0.5 mg/m ³ ② 1 mg/m ³ ⑤ (frakcija ki jo je mogoče vdihniti) Y
Québec (CA) from 1 Apr 2022	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 2 mg/m ³ ② 6 mg/m ³ ⑤ (inhalable fraction)
TRGS 900 (DE)	Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	① 0.5 mg/m ³ ② 1 mg/m ³ ⑤ (einatembare Fraktion) AGS, Y, 10

8.1.2. Biological limit values

No data available

8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type ② Exposure route
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	35 mg/m ³	① DNEL worker ② Long-term - inhalation, local effects
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	106 mg/kg bw/day	① DNEL worker ② Long-term - dermal, systemic effects
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	7.8 mg/m ³	① DNEL worker ② Long-term - inhalation, systemic effects
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	3.9 mg/m ³	① DNEL Consumer ② Long-term - inhalation, systemic effects
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	367.7 mg/kg	① DNEL worker ② Long-term - dermal, systemic effects
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	185.6 mg/kg	① DNEL Consumer ② Long-term - dermal, systemic effects
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	0.92 mg/kg bw/day	① DNEL Consumer ② Long-term - oral, systemic effects
Substance name	PNEC Value	① PNEC type
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	10 mg/L	① PNEC aquatic, freshwater
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	1 mg/L	① PNEC aquatic, marine water



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Substance name	PNEC Value	① PNEC type
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	37 mg/kg	① PNEC sediment, freshwater
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	3.7 mg/kg	① PNEC sediment, marine water
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	1.53 mg/kg	① PNEC soil
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	10 mg/L	① PNEC aquatic, intermittent release
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	2.9 mg/L	① PNEC aquatic, freshwater
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	2.9 mg/L	① PNEC aquatic, marine water
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5	10 mg/L	① PNEC sewage treatment plant

8.2. Exposure controls

8.2.1. Appropriate engineering controls

See section 7. No additional measures necessary.

8.2.2. Personal protection equipment



Eye/face protection:

During transfer: Eye glasses with side protection
 DIN-/EN-Norms EN 166

Skin protection:

Hand protection

Suitable material: NBR (Nitrile rubber), PVC (polyvinyl chloride), CR (polychloroprene, chloroprene rubber)

Thickness of the glove material: $\geq 0,3$ mm

Breakthrough time: 480 min

Breakthrough times and swelling properties of the material must be taken into consideration.

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Tested protective gloves must be worn: EN ISO 374

Suitable protective clothing: Protective clothing

Respiratory protection:

Usually no personal respirative protection necessary.

Thermal hazards:

No data available.

Other protection measures:

Wash hands before breaks and after work.

8.2.3. Environmental exposure controls

See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state: Liquid

Colour: light yellow

Odour: not determined



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Safety relevant basis data

Parameter	Value	at °C	① Method ② Remark
pH	7.8	20 °C	
Melting point	<i>not determined</i>		
Freezing point	-40 °C		
Initial boiling point and boiling range	<i>not determined</i>		
Decomposition temperature	<i>not applicable</i>		
Flash point	<i>not determined</i>		
Evaporation rate	<i>not determined</i>		
Auto-ignition temperature	<i>not determined</i>		
Upper/lower flammability or explosive limits	<i>not applicable</i>		
Vapour pressure	<i>not determined</i>		
Vapour density	<i>not applicable</i>		
Density	1,080 kg/m ³	20 °C	
Relative density	<i>not applicable</i>		
Bulk density	<i>not applicable</i>		
Water solubility	completely miscible		
Partition coefficient: n-octanol/water	<i>not applicable</i>		
Dynamic viscosity	<i>not determined</i>		
Kinematic viscosity	<i>not determined</i>	40 °C	

9.2. Other information

Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

No known hazardous reactions. hygroscopic.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4. Conditions to avoid

To avoid thermal decomposition do not overheat.

10.5. Incompatible materials

No information available.

10.6. Hazardous decomposition products

The product is stable under storage at normal ambient temperatures.

SECTION 11: Toxicological information

* **11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008**

1,2-Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3
ATE (oral): ≥536 mg/kg
LD₅₀ oral: ≥7,712 mg/kg (Rat)
LD₅₀ dermal: ≥3,500 mg/kg (Mouse)
LC₅₀ Acute inhalation toxicity (vapour): >2.5 mg/L 6 h (Rat)
LC₅₀ Acute inhalation toxicity (dust/mist): ≥2.5 mg/L 6 h (Rat)
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5
LD₅₀ oral: 3,690 mg/kg (Rat)
LD₅₀ dermal: 2,000 - 5,000 mg/kg (Rabbit)

Acute oral toxicity:

Harmful if swallowed. May cause damage to organs through prolonged or repeated exposure.



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Acute dermal toxicity:

Based on available data, the classification criteria are not met.

Acute inhalation toxicity:

Based on available data, the classification criteria are not met.

Skin corrosion/irritation:

No irritant effect.

Serious eye damage/irritation:

No irritant effect.

Respiratory or skin sensitisation:

No sensitizing effects known.

Germ cell mutagenicity:

No indications of human germ cell mutagenicity exist.

Carcinogenicity:

No indication of human carcinogenicity.

Reproductive toxicity:

No indications of human reproductive toxicity exist.

STOT-single exposure:

Based on available data, the classification criteria are not met.

STOT-repeated exposure:

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard:

Based on available data, the classification criteria are not met.

* **11.2. Information on other hazards**

Endocrine disrupting properties:

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

* **12.1. Toxicity**

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
LC ₅₀ : ≥72,860 mg/L 4 d (fish)
LC ₅₀ : 72,860 mg/L 4 d (Pimephales promelas)
EC ₅₀ : ≥100 mg/L 2 d (crustaceans)
EC ₅₀ : ≥3,536 - ≤13,000 mg/L 4 d (Algae/water plant)
EC ₅₀ : >1,995 mg/L
NOEC: ≥15,380 - ≤32,000 mg/L 12 d (fish)
NOEC: ≥7,500 - ≤15,000 mg/L 21 d (crustaceans)
NOEC: ≥100 mg/L 3 d (Algae/water plant)
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5
LC ₅₀ : 80 - 627 mg/L
EC ₅₀ : 133 mg/L (crustaceans, Daphnia magna (Big water flea))

Assessment/classification:

Based on available data, the classification criteria are not met.

Additional ecotoxicological information:

Do not allow uncontrolled discharge of product into the environment.

* **12.2. Persistence and degradability**

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Biodegradation: Yes, rapidly

Biodegradation:

The single components are biodegradable.

* **12.3. Bioaccumulative potential**

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Log K_{OW}: = -1.36



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Partition coefficient: n-octanol/water:
 not applicable

Accumulation / Evaluation:
 The product has not been tested.

* **12.4. Mobility in soil**
 The product has not been tested.

* **12.5. Results of PBT and vPvB assessment**

1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.
Dipotassium tetraborate CAS No.: 12045-78-2 EC No.: 215-575-5
Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII.

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

* **12.6. Endocrine disrupting properties**
 This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

* **12.7. Other adverse effects**
 No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
 Dispose of waste according to applicable legislation.

13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV Directive 2008/98/EC (Waste Framework Directive)

HP 5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP 6	Acute Toxicity

Waste treatment options

Appropriate disposal / Product:
 Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

Appropriate disposal / Package:
 Non-contaminated packages may be recycled.

13.2. Additional information
 The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1. UN number or ID number			
No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.
14.2. UN proper shipping name			
No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.	No dangerous good in sense of these transport regulations.
14.3. Transport hazard class(es)			
not relevant	not relevant	not relevant	not relevant
14.4. Packing group			
not relevant	not relevant	not relevant	not relevant
14.5. Environmental hazards			
not relevant	not relevant	not relevant	not relevant
14.6. Special precautions for user			
not relevant	not relevant	not relevant	not relevant



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14.7. Maritime transport in bulk according to IMO instruments

No transport as bulk according to IBC Code.

SECTION 15: Regulatory information

* 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU legislation

Other regulations (EU):

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive]: This product is not assigned to a hazard category.
Use restriction according to REACH annex XVII, no.: 3 (ethanediol)

15.1.2. National regulations

[DE] National regulations

Restrictions of occupation

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Störfallverordnung (12. BImSchV)

for substances contained in the product:

This product is not assigned to a hazard category.

Technische Anleitung zur Reinhaltung der Luft (TA-Luft)

Remark:

Annex 4: ingredient(s) not named.

To follow: 5.2.5

Water hazard class

WGK:

1 - slightly hazardous to water

Source:

Self-classification (mixture; calculation rule).

Technische Regeln für Gefahrstoffe

TRGS 500

TRGS 510

TRGS 900

Berufsgenossenschaftliche Vorschriften (DGUV-Vorschriften)

Berufsgenossenschaftliche Informationen (DGUV-Informationen) 868

Berufsgenossenschaftliche Regeln (DGUV-Regeln) 189, 190, 192, 195

15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

15.3. Additional information

Tactile warning according to EN/ISO 11683.

SECTION 16: Other information

* 16.1. Indication of changes

1.1.	Product identifier
1.3.	Details of the supplier of the safety data sheet
1.4.	Emergency telephone number
2.1.	Classification of the substance or mixture
2.2.	Label elements
3.2.	Mixtures
8.1.	Control parameters
11.1.	Information on hazard classes as defined in Regulation (EC) No 1272/2008
11.2.	Information on other hazards
12.1.	Toxicity
12.2.	Persistence and degradability
12.3.	Bioaccumulative potential



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12.4.	Mobility in soil
12.5.	Results of PBT and vPvB assessment
12.6.	Endocrine disrupting properties
12.7.	Other adverse effects
15.1.	Safety, health and environmental regulations/legislation specific for the substance or mixture
16.1.	Indication of changes
16.4.	Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]
16.5.	Relevant R-, H- and EUH-phrases (Number and full text)

16.2. Abbreviations and acronyms

See overview table at www.euphrac.eu

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

16.3. Key literature references and sources for data

EC 1907/2006 - REACH Regulation

1272/2008 EC - Regulation on classification, labeling and packaging of substances and mixtures, and amending Directives 67/548/EEC and 1999/45/EC and Regulation (EC) No 1907/2006

Regulation (EC) No 1907/2006 (REACH), Annex II

European Chemicals Agency (ECHA), C & L classification and labeling inventory

European Chemicals Agency (ECHA), ECHA CHEM Registered substances

OECD The Global Portal to Information on Chemical Substances (ChemPortal)

Institute for Occupational Safety and Health of the German Social Accident Insurance (IFA): GESTIS substance database and International limit values for chemical substances

Federal Environment Agency, Section IV 2.4: Documentation and Information Centre substances hazardous to water Rigoletto (catalog substances hazardous to water)

Substance name	Type	source of supply
1,2-Ethanediol CAS No.: 107-21-1 EC No.: 203-473-3	Classification of the substance or mixture	Source: European Chemicals Agency, http://echa.europa.eu/

* 16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure
Acute toxicity (oral) (<i>Acute Tox. 4</i>)	H302: Harmful if swallowed.	Calculation method.
STOT-repeated exposure (<i>STOT RE 2</i>)	H373: May cause damage to organs through prolonged or repeated exposure.	Calculation method.

* 16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H302	Harmful if swallowed.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

16.6. Training advice

No data available

16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

* Data changed compared with the previous version.