

# SAFETY DATA SHEET

TROYSHIELD SC1



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

### 1.1 Product identifier

**Product name** : TROYSHIELD SC1  
**Code** : 22796  
**Product description** : Not available.  
**Product type** : Liquid.  
**Other means of identification** : Not available.

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

#### Identified uses

Machine cleaner for the metal-working industry

### 1.3 Details of the supplier of the safety data sheet

**e-mail address of person responsible for this SDS** : B.J. Vernooij, SDS Specialist (vernooib@troycorp.com)

#### Supplier

TROY CHEMICAL COMPANY BV  
 Iuverlaan 12e  
 PO Box 132  
 3145 XN Maassluis  
 The Netherlands  
 Phone: + 31 (0) 10 592-7494  
 Fax: +31 (0) 10 592-8877

**Hours of operation** : Monday - Friday: 08.30 - 17.00 (CET)

### 1.4 Emergency telephone number

**Emergency telephone number** : +1 703-741-5970 (EN)

#### National advisory body/Poison Center

Austria: Vergiftungsinformationszentrale, 01/406 43 43	Belgium: Centre anti-poison/ Antigiftcentrum 070 245245	Czech Republic: 1.7 Nouzové telefonní číslo: Toxikologické informační středisko, Na Bojišti 1, 128 08 Praha 2: telefon (24 hodin/den) 224919293, 224915402, 224914575	Denmark: Giftinformation: +45 35 31 60 60	Estonia: Mürgistusteabekeeskus: 16662 Hädaabinumber: 112	Finland: Myrkytyskeskus 09-471977 or 09 4711
France: ORFILA (INRS): + 33 (0) 1 45 42 59 59	Germany: Giftnotrufzentrale Berlin: +49 030 - 192 40	Hungary: Egészségügyi Toxikológiai Tájékoztató Szolgálat (ETTSZ) 1096 Budapest, Nagyvárud tér 2. +36-80-201199 (ingyenes, éjjelel-nappal) +36-1-4766464	Ireland: NPIC:Phone 01-8092566; Fax: 01-8368476	Italy: Ospedale Niguarda Cà Granda, Milan 0266101029	Lithuania: Poison centre: 236 20 52
Netherlands: NVIC (medical personnel, 24/7): Tel: 030-2748888	Norway: Norwegian poison information center: 22 59 13 00	Poland: 112 (ogólny telefon alarmowy), 998 (straz pożarna), 999 (pogotowie medyczne); Ośrodki Informacji Toksykologicznej: +58 682 04 04 (Gdańsk), +12 411 99 99 (Kraków), +61 847 69 46 (Poznań), +48 607 218 174 (Warszawa)	Slovakia: Toxikologické informačné centrum Limbova 5 833 05 Bratislava Tel. 02/5477 4166, 02/5477 4605  Slovenskej Republiky: 24 - hodinová konzultáčna služba pri akútnych intoxikáciách: +421 2 5477 4166	Slovenia: Center za obveščanje 112	Portugal: Centro de Informação Antivenenos: +351 808 250 143 Fax +351 213 303 275 (24 h/ dia)
Sweden: 112	Switzerland: Schweizerisches Toxikologisches Informationszentrum: +41 - 1-145	Turkey: Not available.	United Kingdom (UK): NPIS 0870 600 6266	Spain: INSTITUTO NACIONAL DE TOXICOLOGIA 91 562 04 20	Greece: Children's hospital "P. Kyriakou", Thivon & Levadias 1, GR 11527, Goudi, Athens Tel. +30 210 7793 777
Latvia: Valsts ugunsdzēsības un glābšanas dienests, telefona numurs: 112. Toksikoloģijas un sepses klīnikas, Saindēšanās un zāļu informācijas centrs, Hipokrāta 2, Rīga, Latvija, LV-1038, tel.nr. +371 67042473	Croatia: Broj za izvanredna stanja: 112 Broj za medicinske informacije za Hrvatsku: 01 23 48 342 (Centar za kontrolu otrovanja)	Serbia: Broj telefona Nacionalnog centra za kontrola trovanja: ++381 11-662 381 (24 sata)	Bulgaria: Национален Токсикологичен Център (Токсикология Пирогов) - 02/9154409	Iceland: (+354) 543-2222	Romania: +40 21.318.36.06 (Disponibil in intervalul orar 8.00 - 16.00), Birou RSI si Informare Toxicologica din cadrul INSP, Str. D.Leonte Nr. 1-3, Bucuresti, Romania

**Date of issue/Date of revision** : April 29, 2019.

**Version** : 1.03

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

Luxembourg: Centre  
Antipoisons /  
Gif tinformati onszentrum, Tel.:  
(+352) 8002 5500)

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

**Product definition** : Mixture

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

Acute Tox. 4, H332

Skin Irrit. 2, H315

Eye Dam. 1, H318

Skin Sens. 1, H317

Aquatic Chronic 3, H412

**Ingredients of unknown toxicity** :  Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 2%

**Ingredients of unknown ecotoxicity** : Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 1,9%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

**2.2 Label elements**

**Hazard pictograms** :



**Signal word** : Danger

**Hazard statements** : Harmful if inhaled.  
Causes serious eye damage.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Harmful to aquatic life with long lasting effects.

**Precautionary statements**

**General** : Not applicable.

**Prevention** :  Wear protective gloves. Wear eye or face protection. Avoid release to the environment.

**Response** : IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Immediately call a POISON CENTER or physician.

**Storage** :  Not applicable.

**Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : 2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol  
Alkylether Carbonic acids, aminoneutralised

**Supplemental label elements** : Not applicable.

**Special packaging requirements**

**Containers to be fitted with child-resistant fastenings** : Not applicable.

**Tactile warning of danger** : Not applicable.

**2.3 Other hazards**

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**Version** : 1.03

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**SECTION 2: Hazards identification**

Other hazards which do not result in classification : None known.

**SECTION 3: Composition/information on ingredients**

Substance/mixture : Mixture

Product/ingredient name	Identifiers	%	Classification	
			Regulation (EC) No. 1272/2008 [CLP]	Type
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	REACH #: Biocide EC: 225-208-0 CAS: 4719-04-4 Index: 613-114-00-6	10	Acute Tox. 4, H302  Acute Tox. 2, H330 Eye Irrit. 2, H319 Skin Sens. 1, H317	[1]
Alkylether Carbonic acids, aminoneutralised	-	≤5	Skin Irrit. 2, H315  Eye Dam. 1, H318	[1]
2-(2-Butoxyethoxy) ethanol.	REACH #: 01-2119475104-44 EC: 203-961-6 CAS: 112-34-5 Index: 603-096-00-8	≤3	Eye Irrit. 2, H319	[1] [2]
2-aminoethanol	REACH #: 01-2119486455-28 EC: 205-483-3 CAS: 141-43-5 Index: 603-030-00-8	≤3	Acute Tox. 4, H302  Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Chronic 3, H412	[1] [2]
2,2',2''-nitrioltriethanol	REACH #: 01-2119486482-31 EC: 203-049-8 CAS: 102-71-6	≤3	Not classified.	[2]
pyridine-2-thiol 1-oxide, sodium salt	REACH #: Biocide EC: 223-296-5 CAS: 3811-73-2	0.08	Acute Tox. 4, H302  Acute Tox. 3, H311 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=10) <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

Other hazards which do not result in classification

**SECTION 4: First aid measures****4.1 Description of first aid measures**

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**4.2 Most important symptoms and effects, both acute and delayed****Potential acute health effects**

- Eye contact** : Causes serious eye damage.
- Inhalation** : Toxic if inhaled.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

- Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**SECTION 4: First aid measures**

**Ingestion** : Adverse symptoms may include the following:  
stomach pains

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

**Notes to physician** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

**Specific treatments** : No specific treatment.

**SECTION 5: Firefighting measures****5.1 Extinguishing media**

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media** : None known.

**5.2 Special hazards arising from the substance or mixture**

**Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

**Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides

**5.3 Advice for firefighters**

**Special precautions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**6.2 Environmental precautions**

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

**6.3 Methods and materials for containment and cleaning up**

## SECTION 6: Accidental release measures

- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s). (Applicable when exposure scenario is available.)

### 7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

- : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

- Recommendations** : Not available.
- Industrial sector specific solutions** : Not available.

## SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s). (Applicable when exposure scenario is available.)

### 8.1 Control parameters

#### Occupational exposure limits

**SECTION 8: Exposure controls/personal protection**

Product/ingredient name	Exposure limit values
<p><b>Europe</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2-aminoethanol</p>	<p><b>EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values</b></p> <p>STEL: 101.2 mg/m<sup>3</sup> 15 minutes.  STEL: 15 ppm 15 minutes.  TWA: 67.5 mg/m<sup>3</sup> 8 hours.  TWA: 10 ppm 8 hours.</p> <p><b>EU OEL (Europe, 12/2009). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b></p> <p>STEL: 7.6 mg/m<sup>3</sup> 15 minutes.  STEL: 3 ppm 15 minutes.  TWA: 2.5 mg/m<sup>3</sup> 8 hours.  TWA: 1 ppm 8 hours.</p>
<p><b>Austria</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2''-nitrilotriethanol</p> <p>2-aminoethanol</p> <p>pyridine-2-thiol 1-oxide, sodium salt</p>	<p><b>GKV_MAK (Austria, 12/2011).</b></p> <p>PEAK: 101.2 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.  PEAK: 15 ppm, 4 times per shift, 15 minutes.  TWA: 67.5 mg/m<sup>3</sup> 8 hours.  TWA: 10 ppm 8 hours.</p> <p><b>GKV_MAK (Austria, 9/2007). Skin sensitizer.</b></p> <p>STEL: 10 mg/m<sup>3</sup>, 4 times per shift, 15 minutes. Form: inhalable fraction  STEL: 1.6 ppm, 4 times per shift, 15 minutes. Form: inhalable fraction  TWA: 5 mg/m<sup>3</sup> 8 hours. Form: inhalable fraction  TWA: 0.8 ppm 8 hours. Form: inhalable fraction</p> <p><b>GKV_MAK (Austria, 12/2011). Absorbed through skin. Skin sensitizer.</b></p> <p>PEAK: 7.6 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.  PEAK: 3 ppm, 4 times per shift, 15 minutes.  TWA: 2.5 mg/m<sup>3</sup> 8 hours.  TWA: 1 ppm 8 hours.</p> <p><b>GKV_MAK (Austria, 9/2007). Absorbed through skin.</b></p> <p>TWA: 1 mg/m<sup>3</sup> 8 hours.  PEAK: 4 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.</p>
<p><b>Belgium</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2''-nitrilotriethanol</p> <p>2-aminoethanol</p>	<p><b>Lijst Grenswaarden / Valeurs Limites (Belgium, 4/2014).</b></p> <p>STEL: 15 ppm 15 minutes.  TWA: 10 ppm 8 hours.  TWA: 67.5 mg/m<sup>3</sup> 8 hours.  STEL: 101.2 mg/m<sup>3</sup> 15 minutes.</p> <p><b>Lijst Grenswaarden / Valeurs Limites (Belgium, 6/2009).</b></p> <p>TWA: 5 mg/m<sup>3</sup> 8 hours.</p> <p><b>Lijst Grenswaarden / Valeurs Limites (Belgium, 4/2014). Absorbed through skin.</b></p> <p>STEL: 7.6 mg/m<sup>3</sup> 15 minutes.  STEL: 3 ppm 15 minutes.  TWA: 2.5 mg/m<sup>3</sup> 8 hours.  TWA: 1 ppm 8 hours.</p>
<p><b>Bulgaria</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2-aminoethanol</p>	<p><b>България Министерство на труда и социалната политика и Министерството на здравеопазването (Bulgaria, 1/2012).</b></p> <p>Limit value 8 hours: 67.5 mg/m<sup>3</sup> 8 hours.  Limit value 15 min: 101.2 mg/m<sup>3</sup> 15 minutes.  Limit value 15 min: 15 ppm 15 minutes.  Limit value 8 hours: 10 ppm 8 hours.</p> <p><b>България Министерство на труда и социалната политика и Министерството на здравеопазването (Bulgaria, 1/2012).</b></p>



**SECTION 8: Exposure controls/personal protection****Croatia**

2-(2-Butoxyethoxy)ethanol.

2-aminoethanol

**Czech Republic**

2-(2-Butoxyethoxy)ethanol.

2,2',2''-nitrioltriethanol

2-aminoethanol

**Denmark**

2-(2-Butoxyethoxy)ethanol.

2,2',2''-nitrioltriethanol

2-aminoethanol

pyridine-2-thiol 1-oxide, sodium salt

**Estonia**

2-(2-Butoxyethoxy)ethanol.

2,2',2''-nitrioltriethanol

2-aminoethanol

**Absorbed through skin.**Limit value 8 hours: 2.5 mg/m<sup>3</sup> 8 hours.Limit value 15 min: 7.6 mg/m<sup>3</sup> 15 minutes.

Limit value 8 hours: 1 ppm 8 hours.

Limit value 15 min: 3 ppm 15 minutes.

**MinGoRP GVI/KGVI (Croatia, 6/2013).**STELV: 101.2 mg/m<sup>3</sup> 15 minutes.

STELV: 15 ppm 15 minutes.

ELV: 67.5 mg/m<sup>3</sup> 8 hours.

ELV: 10 ppm 8 hours.

**MinGoRP GVI/KGVI (Croatia, 6/2013). Absorbed through skin.**STELV: 7.6 mg/m<sup>3</sup> 15 minutes.

STELV: 3 ppm 15 minutes.

ELV: 2.5 mg/m<sup>3</sup> 8 hours.

ELV: 1 ppm 8 hours.

**NVCR PEL/NPK-P (Czech Republic, 1/2013).**STEL: 100 mg/m<sup>3</sup> 15 minutes.

STEL: 15.1 ppm 15 minutes.

TWA: 70 mg/m<sup>3</sup> 8 hours.

TWA: 10.57 ppm 8 hours.

**178/2001 (Czech Republic, 12/2007).**STEL: 10 mg/m<sup>3</sup> 15 minutes.

STEL: 1.64 ppm 15 minutes.

TWA: 5 mg/m<sup>3</sup> 8 hours.

TWA: 0.82 ppm 8 hours.

**NVCR PEL/NPK-P (Czech Republic, 1/2013). Absorbed through skin.**STEL: 7.5 mg/m<sup>3</sup> 15 minutes.

STEL: 3.0075 ppm 15 minutes.

TWA: 2.5 mg/m<sup>3</sup> 8 hours.

TWA: 1.0025 ppm 8 hours.

**Arbejdstilsynet (Denmark, 10/2012).**TWA: 68 mg/m<sup>3</sup> 8 hours.

TWA: 10 ppm 8 hours.

**Arbejdstilsynet (Denmark, 3/2008).**TWA: 3.1 mg/m<sup>3</sup> 8 hours.

TWA: 0.5 ppm 8 hours.

**Arbejdstilsynet (Denmark, 10/2012). Absorbed through skin.**TWA: 2.5 mg/m<sup>3</sup> 8 hours.

TWA: 1 ppm 8 hours.

**Arbejdstilsynet (Denmark, 3/2008). Absorbed through skin.**TWA: 1 mg/m<sup>3</sup> 8 hours.**Töökeskkonna keemiliste ohutegurite piirnormid määrus nr 293 (Estonia, 1/2008).**

TWA: 10 ppm 8 hours.

TWA: 67.5 mg/m<sup>3</sup> 8 hours.**Sotsiaalminister (Estonia, 10/2007). Skin sensitizer.**STEL: 10 mg/m<sup>3</sup> 15 minutes.TWA: 5 mg/m<sup>3</sup> 8 hours.**Töökeskkonna keemiliste ohutegurite piirnormid määrus nr 293 (Estonia, 1/2008). Absorbed through skin.**STEL: 7.6 mg/m<sup>3</sup> 15 minutes.

STEL: 3 ppm 15 minutes.

TWA: 2.5 mg/m<sup>3</sup> 8 hours.



**SECTION 8: Exposure controls/personal protection****Finland**

2-(2-Butoxyethoxy)ethanol.

TWA: 1 ppm 8 hours.

**Työterveyslaitos, Sosiaali- ja terveysministeriö (Finland, 3/2014).**

TWA: 10 ppm 8 hours.

TWA: 68 mg/m<sup>3</sup> 8 hours.

2,2',2"-nitrilotriethanol

**Työterveyslaitos, Sosiaali- ja terveysministeriö (Finland, 7/2009).**

TWA: 5 ppm 8 hours.

2-aminoethanol

**Työterveyslaitos, Sosiaali- ja terveysministeriö (Finland, 3/2014). Absorbed through skin.**STEL: 7.6 mg/m<sup>3</sup> 15 minutes.

STEL: 3 ppm 15 minutes.

TWA: 2.5 mg/m<sup>3</sup> 8 hours.

TWA: 1 ppm 8 hours.

**France**

2-(2-Butoxyethoxy)ethanol.

**Ministère du travail (France, 7/2012). Notes: Labour Act, Art. 4412-150 (Regulatory indicative exposure limits)**STEL: 101.2 mg/m<sup>3</sup> 15 minutes.

STEL: 15 ppm 15 minutes.

TWA: 67.5 mg/m<sup>3</sup> 8 hours.

TWA: 10 ppm 8 hours.

2-aminoethanol

**Ministère du travail (France, 7/2012). Absorbed through skin. Notes: Labour Act , Art 4412-149 (Regulatory binding exposure limits)**TWA: 2.5 mg/m<sup>3</sup> 8 hours.

TWA: 1 ppm 8 hours.

STEL: 7.6 mg/m<sup>3</sup> 15 minutes.

STEL: 3 ppm 15 minutes.

**Germany**

2-(2-Butoxyethoxy)ethanol.

**TRGS900 AGW (Germany, 3/2015).**PEAK: 100.5 mg/m<sup>3</sup> 15 minutes.TWA: 67 mg/m<sup>3</sup> 8 hours.

TWA: 10 ppm 8 hours.

PEAK: 15 ppm 15 minutes.

2-aminoethanol

**TRGS900 AGW (Germany, 3/2015). Absorbed through skin. Skin sensitizer.**PEAK: 10.2 mg/m<sup>3</sup> 15 minutes.

PEAK: 4 ppm 15 minutes.

TWA: 5.1 mg/m<sup>3</sup> 8 hours.

TWA: 2 ppm 8 hours.

pyridine-2-thiol 1-oxide, sodium salt

**TRGS900 AGW (Germany, 8/2010). Absorbed through skin.**TWA: 1 mg/m<sup>3</sup> 8 hours.PEAK: 2 mg/m<sup>3</sup> 15 minutes.**Greece**

2-(2-Butoxyethoxy)ethanol.

**EU OEL (Europe, 12/2009). Notes: list of indicative occupational exposure limit values**STEL: 101.2 mg/m<sup>3</sup> 15 minutes.

STEL: 15 ppm 15 minutes.

TWA: 67.5 mg/m<sup>3</sup> 8 hours.

TWA: 10 ppm 8 hours.

2-aminoethanol

**Υπουργείο Εργασίας και Κοινωνικών Υποθέσεων (Greece, 2/2012). Absorbed through skin.**STEL: 15 mg/m<sup>3</sup> 15 minutes.

STEL: 6 ppm 15 minutes.

TWA: 8 mg/m<sup>3</sup> 8 hours.

TWA: 3 ppm 8 hours.

**Hungary**

**SECTION 8: Exposure controls/personal protection**

2-(2-Butoxyethoxy)ethanol.	<b>25/2000. (IX. 30.) EüM-SzCsM együttes rendelet (Hungary, 12/2011).</b> TWA: 67.5 mg/m <sup>3</sup> 8 hours. PEAK: 101.2 mg/m <sup>3</sup> 15 minutes.
2-aminoethanol	<b>25/2000. (IX. 30.) EüM-SzCsM együttes rendelet (Hungary, 12/2011). Absorbed through skin.</b> TWA: 2.5 mg/m <sup>3</sup> 8 hours. PEAK: 7.6 mg/m <sup>3</sup> 15 minutes.
<b>Ireland</b>	
2-(2-Butoxyethoxy)ethanol.	<b>NAOSH (Ireland, 12/2011).</b> OELV-8hr: 10 ppm 8 hours. OELV-15min: 101.2 mg/m <sup>3</sup> 15 minutes. OELV-8hr: 67.5 mg/m <sup>3</sup> 8 hours. OELV-15min: 15 ppm 15 minutes.
2,2',2"-nitrilotriethanol	<b>NAOSH (Ireland, 8/2007).</b> OELV-8hr: 5 mg/m <sup>3</sup> 8 hours.
2-aminoethanol	<b>NAOSH (Ireland, 12/2011). Absorbed through skin.</b> OELV-15min: 7.6 mg/m <sup>3</sup> 15 minutes. OELV-15min: 3 ppm 15 minutes. OELV-8hr: 2.5 mg/m <sup>3</sup> 8 hours. OELV-8hr: 1 ppm 8 hours.
<b>Italy</b>	
2-(2-Butoxyethoxy)ethanol.	<b>Ministry of Labour and Social Policy (Italy, 10/2013).</b> 8 hours: 10 ppm 8 hours. 8 hours: 67.5 mg/m <sup>3</sup> 8 hours. Short Term: 15 ppm 15 minutes. Short Term: 101.2 mg/m <sup>3</sup> 15 minutes.
2-aminoethanol	<b>Ministry of Labour and Social Policy (Italy, 10/2013). Absorbed through skin.</b> 8 hours: 1 ppm 8 hours. 8 hours: 2.5 mg/m <sup>3</sup> 8 hours. Short Term: 3 ppm 15 minutes. Short Term: 7.6 mg/m <sup>3</sup> 15 minutes.
<b>Latvia</b>	
2-(2-Butoxyethoxy)ethanol.	<b>Ministru kabineta noteikumi Nr.325 - AER (Latvia, 6/2015).</b> STEL: 101.2 mg/m <sup>3</sup> 15 minutes. TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m <sup>3</sup> 8 hours.
2-aminoethanol	<b>Ministru kabineta noteikumi Nr.325 - AER (Latvia, 6/2015). Absorbed through skin.</b> TWA: 0.5 mg/m <sup>3</sup> 8 hours. TWA: 0.2 ppm 8 hours. STEL: 3 ppm 15 minutes. STEL: 7.6 mg/m <sup>3</sup> 15 minutes.
<b>Lithuania</b>	
2-(2-Butoxyethoxy)ethanol.	<b>Lietuvos Higienos Normos HN 23 (Lithuania, 10/2007).</b> STEL: 200 mg/m <sup>3</sup> 15 minutes. STEL: 30 ppm 15 minutes. TWA: 100 mg/m <sup>3</sup> 8 hours. TWA: 15 ppm 8 hours.
2,2',2"-nitrilotriethanol	<b>Del Lietuvos Higienos Normos (Lithuania, 10/2007). Skin sensitizer.</b> STEL: 10 mg/m <sup>3</sup> 15 minutes. TWA: 5 mg/m <sup>3</sup> 8 hours.
2-aminoethanol	<b>Lietuvos Higienos Normos HN 23 (Lithuania, 10/2007). Absorbed through skin.</b> STEL: 15 mg/m <sup>3</sup> 15 minutes. STEL: 6 ppm 15 minutes.

**SECTION 8: Exposure controls/personal protection****Netherlands**

2-(2-Butoxyethoxy)ethanol.

TWA: 8 mg/m<sup>3</sup> 8 hours.

TWA: 3 ppm 8 hours.

**MinSZW Wettelijke Grenswaarden (Netherlands, 12/2014).****Absorbed through skin. Notes: Legal indicates a statutory value, Administrative indicates an administrative value that is not legally binding (see background).**OEL, 8-h TWA: 50 mg/m<sup>3</sup> 8 hours.**MinSZW Wettelijke Grenswaarden (Netherlands, 12/2014).****Absorbed through skin.**STEL, 15-min: 100 mg/m<sup>3</sup> 15 minutes.**MinSZW Wettelijke Grenswaarden (Netherlands, 12/2014).****Absorbed through skin. Notes: Administrative**STEL, 15-min: 7.6 mg/m<sup>3</sup> 15 minutes.OEL, 8-h TWA: 2.5 mg/m<sup>3</sup> 8 hours.

2-aminoethanol

**Norway**

2-(2-Butoxyethoxy)ethanol.

**FOR-2011-12-06-1358 (Norway, 6/2015).**

TWA: 10 ppm 8 hours.

TWA: 68 mg/m<sup>3</sup> 8 hours.

2,2',2"-nitrilotriethanol

**Arbeidstilsynet (Norway, 3/2009).**TWA: 5 mg/m<sup>3</sup> 8 hours.

2-aminoethanol

**FOR-2011-12-06-1358 (Norway, 6/2015). Absorbed through skin.**TWA: 2.5 mg/m<sup>3</sup> 8 hours.

TWA: 1 ppm 8 hours.

**Poland**

2-(2-Butoxyethoxy)ethanol.

**Rozporządzenie Ministra Pracy i Polityki Społecznej (Dz.U. 2014 poz. 817) (Poland, 6/2014).**TWA: 67 mg/m<sup>3</sup> 8 hours.STEL: 100 mg/m<sup>3</sup> 15 minutes.

2-aminoethanol

**Rozporządzenie Ministra Pracy i Polityki Społecznej (Dz.U. 2014 poz. 817) (Poland, 6/2014).**STEL: 7.5 mg/m<sup>3</sup> 15 minutes.TWA: 2.5 mg/m<sup>3</sup> 8 hours.**Portugal**

2-(2-Butoxyethoxy)ethanol.

**Instituto Português da Qualidade (Portugal, 11/2014).**

TWA: 10 ppm 8 hours. Form: inhalable vapour and aerosols

2,2',2"-nitrilotriethanol

**Instituto Português da Qualidade (Portugal, 3/2007).**TWA: 5 mg/m<sup>3</sup> 8 hours.

2-aminoethanol

**Instituto Português da Qualidade (Portugal, 11/2014).**

STEL: 6 ppm 15 minutes.

TWA: 3 ppm 8 hours.

**Romania**

2-(2-Butoxyethoxy)ethanol.

**HG 1218/2006 cu modificările și completările ulterioare (Romania, 1/2012).**VLA: 150 mg/m<sup>3</sup> 8 hours.Short term: 250 mg/m<sup>3</sup> 15 minutes.

2-aminoethanol

**HG 1218/2006 cu modificările și completările ulterioare (Romania, 1/2012). Absorbed through skin.**VLA: 2.5 mg/m<sup>3</sup> 8 hours.

VLA: 1 ppm 8 hours.

Short term: 7.6 mg/m<sup>3</sup> 15 minutes.

Short term: 3 ppm 15 minutes.

**Slovakia**

**SECTION 8: Exposure controls/personal protection**

<p>2-(2-Butoxyethoxy)ethanol.</p> <p>2-aminoethanol</p>	<p><b>Nariadenie vlády SR c. 355/2006 (Slovakia, 12/2011).</b>          STEL: 101.2 mg/m<sup>3</sup> 15 minutes.          TWA: 67.5 mg/m<sup>3</sup> 8 hours.          TWA: 10 ppm 8 hours.          STEL: 15 ppm 15 minutes.</p> <p><b>Nariadenie vlády SR c. 355/2006 (Slovakia, 12/2011).</b>  <b>Absorbed through skin.</b>          STEL: 7.6 mg/m<sup>3</sup> 15 minutes.          TWA: 2.5 mg/m<sup>3</sup> 8 hours.          TWA: 1 ppm 8 hours.          STEL: 3 ppm 15 minutes.</p>
<p><b>Slovenia</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2''-nitrilotriethanol</p> <p>2-aminoethanol</p>	<p><b>Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu (Slovenia, 6/2015).</b>          TWA: 67.5 mg/m<sup>3</sup> 8 hours.          TWA: 10 ppm 8 hours.          KTV: 101.25 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.          KTV: 15 ppm, 4 times per shift, 15 minutes.</p> <p><b>Uradni list Republike Slovenije (Slovenia, 6/2007).</b>          TWA: 5 mg/m<sup>3</sup> 8 hours. Form: inhalable fraction</p> <p><b>Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu (Slovenia, 6/2015). Absorbed through skin.</b>          TWA: 2.5 mg/m<sup>3</sup> 8 hours.          TWA: 1 ppm 8 hours.          KTV: 7.5 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.          KTV: 3 ppm, 4 times per shift, 15 minutes.</p> <p><b>Uradni list Republike Slovenije (Slovenia, 6/2007). Absorbed through skin.</b>          TWA: 1 mg/m<sup>3</sup> 8 hours.          KTV: 4 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.</p>
<p><b>Spain</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2''-nitrilotriethanol</p> <p>2-aminoethanol</p>	<p><b>INSHT (Spain, 1/2015).</b>          TWA: 67.5 mg/m<sup>3</sup> 8 hours.          TWA: 10 ppm 8 hours.          STEL: 15 ppm 15 minutes.          STEL: 101.2 mg/m<sup>3</sup> 15 minutes.</p> <p><b>INSHT (Spain, 2/2009).</b>          TWA: 5 mg/m<sup>3</sup> 8 hours.</p> <p><b>INSHT (Spain, 1/2015). Absorbed through skin.</b>          STEL: 7.5 mg/m<sup>3</sup> 15 minutes.          STEL: 3 ppm 15 minutes.          TWA: 2.5 mg/m<sup>3</sup> 8 hours.          TWA: 1 ppm 8 hours.</p>
<p><b>Sweden</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2''-nitrilotriethanol</p> <p>2-aminoethanol</p>	<p><b>AFS 2011:18 (Sweden, 12/2011).</b>          STEL: 200 mg/m<sup>3</sup> 15 minutes.          STEL: 30 ppm 15 minutes.          TWA: 100 mg/m<sup>3</sup> 8 hours.          TWA: 15 ppm 8 hours.</p> <p><b>AFS 2005:17 (Sweden, 6/2007).</b>          STEL: 10 mg/m<sup>3</sup> 15 minutes.          TWA: 5 mg/m<sup>3</sup> 8 hours.</p> <p><b>AFS 2011:18 (Sweden, 12/2011). Absorbed through skin.</b>          STEL: 15 mg/m<sup>3</sup> 15 minutes.          STEL: 6 ppm 15 minutes.          TWA: 8 mg/m<sup>3</sup> 8 hours.          TWA: 3 ppm 8 hours.</p>

**SECTION 8: Exposure controls/personal protection**

<p><b>Switzerland</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2-aminoethanol</p> <p>pyridine-2-thiol 1-oxide, sodium salt</p>	<p><b>SUVA (Switzerland, 1/2015). Notes: not temporary</b>            STEL: 101 mg/m<sup>3</sup> 15 minutes.            TWA: 67 mg/m<sup>3</sup> 8 hours.</p> <p><b>SUVA (Switzerland, 1/2015).</b>            STEL: 15 ppm 15 minutes.            TWA: 10 ppm 8 hours.</p> <p><b>SUVA (Switzerland, 1/2015). Skin sensitizer. Notes: not temporary</b>            STEL: 10 mg/m<sup>3</sup> 15 minutes.            STEL: 4 ppm 15 minutes.            TWA: 5 mg/m<sup>3</sup> 8 hours.            TWA: 2 ppm 8 hours.</p> <p><b>SUVA (Switzerland, 1/2009). Absorbed through skin.</b>            TWA: 1 mg/m<sup>3</sup> 8 hours. Form: inhalable fraction            STEL: 2 mg/m<sup>3</sup> 15 minutes. Form: inhalable fraction</p>
<p><b>Turkey</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2,2',2"-nitrilotriethanol</p> <p>2-aminoethanol</p>	<p><b>TR ISGGM OEL (Turkey, 12/2013).</b>            TWA: 67.5 mg/m<sup>3</sup> 8 hours.            TWA: 10 ppm 8 hours.            STEL: 101.2 mg/m<sup>3</sup> 15 minutes.            STEL: 15 ppm 15 minutes.</p> <p><b>ACGIH TLV (United States, 1/2009).</b>            TWA: 5 mg/m<sup>3</sup> 8 hours.</p> <p><b>TR ISGGM OEL (Turkey, 12/2013). Absorbed through skin.</b>            TWA: 2.5 mg/m<sup>3</sup> 8 hours.            TWA: 1 ppm 8 hours.            STEL: 7.6 mg/m<sup>3</sup> 15 minutes.            STEL: 3 ppm 15 minutes.</p>
<p><b>United Kingdom (UK)</b></p> <p>2-(2-Butoxyethoxy)ethanol.</p> <p>2-aminoethanol</p> <p>pyridine-2-thiol 1-oxide, sodium salt</p>	<p><b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b>            TWA: 10 ppm 8 hours.            STEL: 15 ppm 15 minutes.            TWA: 67.5 mg/m<sup>3</sup> 8 hours.            STEL: 101.2 mg/m<sup>3</sup> 15 minutes.</p> <p><b>EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin.</b>            STEL: 7.6 mg/m<sup>3</sup> 15 minutes.            STEL: 3 ppm 15 minutes.            TWA: 2.5 mg/m<sup>3</sup> 8 hours.            TWA: 1 ppm 8 hours.</p> <p><b>EH40/2005 WELs (United Kingdom (UK)).</b>            TWA: 0.35 mg/m<sup>3</sup></p>

**Recommended monitoring procedures**

: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**Derived effect levels**

**SECTION 8: Exposure controls/personal protection**

Product/ingredient name	Type	Exposure	Value	Population	Effects	
2-(2-Butoxyethoxy)ethanol.	DNEL	Long term Oral	5 mg/kg bw/day	Consumers	Systemic	
	DNEL	Short term Dermal	89 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Dermal	50 mg/kg bw/day	Consumers	Systemic	
	DNEL	Long term Dermal	83 mg/kg bw/day	Workers	Systemic	
	DNEL	Long term Inhalation	40.5 mg/m <sup>3</sup>	Consumers	Systemic	
	DNEL	Long term Inhalation	67.5 mg/m <sup>3</sup>	Workers	Systemic	
	DNEL	Short term Inhalation	101.2 mg/m <sup>3</sup>	Workers	Local	
	DNEL	Short term Inhalation	60.7 mg/m <sup>3</sup>	Consumers	Local	
	DNEL	Long term Inhalation	60.7 mg/m <sup>3</sup>	Consumers	Local	
	DNEL	Long term Inhalation	67.5 mg/m <sup>3</sup>	Workers	Local	
	2-aminoethanol	DNEL	Long term Dermal	1 mg/kg bw/day	Workers	Systemic
		DNEL	Long term Inhalation	3.3 mg/m <sup>3</sup>	Workers	Local
		DNEL	Long term Oral	3.75 mg/kg bw/day	Consumers	Local
		DNEL	Long term Dermal	0.24 mg/kg bw/day	Consumers	Systemic
DNEL		Long term Inhalation	2 mg/m <sup>3</sup>	Consumers	Local	

Predicted effect concentrations

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
2-(2-Butoxyethoxy)ethanol.	-	Fresh water	1.1 mg/l	-
	-	Fresh water sediment	4.4 mg/kg	-
	-	Marine water	0.11 mg/l	-
	-	Marine water sediment	0.44 mg/kg	-
	-	Sewage Treatment Plant	200 mg/l	-
	-	Soil	0.32 mg/kg	-
2-aminoethanol	-	Secondary Poisoning	56 mg/kg	-
	PNEC	Fresh water	0.085 mg/l	-
	PNEC	Marine	0.0085 mg/l	-
	PNEC	Secondary Poisoning	0.025 mg/l	-
	PNEC	Fresh water sediment	0.425 mg/kg wwt	-
	PNEC	Marine water sediment	0.0425 mg/kg wwt	-
	PNEC	Soil	0.035 mg/kg wwt	-
PNEC	Sewage Treatment Plant	100 mg/l	-	

**8.2 Exposure controls**

**Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

**SECTION 8: Exposure controls/personal protection**

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- for example KCL (Material: article number (thickness in mm)):  
 Naturlatex I: 0395 (1.0)  
 Naturlatex II: 0706 (0.6), 0708 (0.5)  
 Neoprene Nitril II: 0717 (-)  
 neoprene (Polychloropene): 0720 (0.65)  
 Nitrile I: 0730 (0.4), 0733 (0.5)  
 Nitrile II: 0740 (0.11)  
 Nitrile III: 0743 (-)  
 Viton: 0890 (0.7)  
 Butyl: 0898 (0.7)  
 Butyl II: 0897 (-)  
 The above mentioned breakthrough times are based on KCL laboratory test results according to EN374 and are only applicable for these KCL gloves.
- This recommendation is only for the product delivered by us and for its intended purpose. Should the worker be exposed to mixtures of the product with other ingredients or to other products, safety advice on gloves can be obtained with the supplier of CE-approved gloves (i.e. KCL GmbH, D-36124 Eichenzell, Tel. ++49 (0) 6659 87300, Fax: ++49 (0) 6659 87155, e-mail [vertrieb@kcl.de](mailto:vertrieb@kcl.de)).
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.



**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****Appearance**

<b>Physical state</b>	: Liquid.
<b>Color</b>	: Colorless.
<b>Odor</b>	: Characteristic.
<b>Odor threshold</b>	: Not available.
<b>pH</b>	: 9.6 to 10.3 [Conc. (% w/w): 2%]
<b>Melting point/freezing point</b>	: Not available.
<b>Initial boiling point and boiling range</b>	: 100°C
<b>Flash point</b>	: Closed cup: >100°C
<b>Evaporation rate</b>	: Not available.
<b>Flammability (solid, gas)</b>	: Not available.
<b>Burning time</b>	: Not applicable.
<b>Burning rate</b>	: Not applicable.
<b>Upper/lower flammability or explosive limits</b>	: Not available.
<b>Vapor pressure</b>	: <1 kPa [room temperature]
<b>Vapor density</b>	: Not available.
<b>Relative density</b>	: 1.015 to 1.045
<b>Solubility(ies)</b>	: Soluble in the following materials: cold water and hot water.
<b>Dispersibility properties</b>	: Not available.
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Not available.
<b>Explosive properties</b>	: Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.
<b>Oxidizing properties</b>	: Not available.

**9.2 Other information**

No additional information.

**SECTION 10: Stability and reactivity**

<b>10.1 Reactivity</b>	: No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: No specific data.
<b>10.5 Incompatible materials</b>	: No specific data.
<b>10.6 Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**SECTION 11: Toxicological information**

**11.1 Information on toxicological effects**

**Acute toxicity**

Product/ingredient name	Result	Species	Dose	Exposure
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	500 to 2000 mg/kg	-
2-(2-Butoxyethoxy)ethanol.	LC50 Inhalation Gas.	Rat	>29 ppm	2 hours
	LD50 Dermal	Rabbit	2700 mg/kg	-
	LD50 Oral	Rat	3384 mg/kg	-
2-aminoethanol	LC50 Inhalation Vapor	Rat	>1.3 mg/l	6 hours
	LD50 Dermal	Rabbit	2504 mg/kg	-
	LD50 Oral	Rat	1089 mg/kg	-
pyridine-2-thiol 1-oxide, sodium salt	LC50 Inhalation Dusts and mists	Rat	1.08 mg/l	4 hours
	LC50 Inhalation Dusts and mists	Rat	2.7 mg/l	4 hours
	LD50 Dermal	Rabbit	700 mg/kg	-
	LD50 Dermal	Rabbit	1800 mg/kg	-
	LD50 Oral	Rat	750 mg/kg	-
	LD50 Oral	Rat	1500 mg/kg	-
	LD50 Oral	Rat	1208 mg/kg	-

**Conclusion/Summary** : Not available.

**Acute toxicity estimates**

Route	ATE value
Oral	4678.7 mg/kg
Dermal	73484.3 mg/kg
Inhalation (vapors)	734.8 mg/l
Inhalation (dusts and mists)	0.5 mg/l

**Irritation/Corrosion**

Product/ingredient name	Result	Species	Score	Exposure	Observation
2-(2-Butoxyethoxy)ethanol. pyridine-2-thiol 1-oxide, sodium salt	Eyes - Mild irritant	Rabbit	-	-	-
	Skin - Irritant	Rabbit	-	-	-
	Eyes - Irritant	Rabbit	-	24 hours	-

**Conclusion/Summary** : Not available.

**Sensitizer**

Product/ingredient name	Route of exposure	Species	Result
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	skin	Guinea pig	Sensitizing
2-(2-Butoxyethoxy)ethanol.	skin	Guinea pig	Not sensitizing
2-aminoethanol	skin	Guinea pig	Not sensitizing
pyridine-2-thiol 1-oxide, sodium salt	skin	Guinea pig	Not sensitizing

**Conclusion/Summary** : Not available.

**Mutagenicity**

**SECTION 11: Toxicological information**

Product/ingredient name	Test	Experiment	Result
pyridine-2-thiol 1-oxide, sodium salt	471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Negative
	474 Mammalian Erythrocyte Micronucleus Test	Experiment: In vivo Subject: Mammalian-Animal	Negative

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Specific target organ toxicity (single exposure)**

Product/ingredient name	Category	Route of exposure	Target organs
2-aminoethanol	Category 3	Not applicable.	Respiratory tract irritation

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure** : Not available.

**Potential acute health effects**

**Inhalation** : Toxic if inhaled.

**Ingestion** : No known significant effects or critical hazards.

**Skin contact** : Causes skin irritation. May cause an allergic skin reaction.

**Eye contact** : Causes serious eye damage.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Inhalation** : No specific data.

**Ingestion** : Adverse symptoms may include the following:  
stomach pains

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness

**Delayed and immediate effects and also chronic effects from short and long term exposure****Short term exposure**

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

**Long term exposure**

**Potential immediate effects** : Not available.

**SECTION 11: Toxicological information**

**Potential delayed effects** : Not available.

**Potential chronic health effects**

Not available.

**Conclusion/Summary** : Not available.

**General** : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

**Carcinogenicity** : No known significant effects or critical hazards.

**Mutagenicity** : No known significant effects or critical hazards.

**Teratogenicity** : No known significant effects or critical hazards.

**Developmental effects** : No known significant effects or critical hazards.

**Fertility effects** : No known significant effects or critical hazards.

**Other information** : Not available.

**SECTION 12: Ecological information****12.1 Toxicity**

Product/ingredient name	Result	Species	Exposure
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	Acute EC50 26.1 ppm Fresh water	Daphnia - Daphnia magna	48 hours
2-(2-Butoxyethoxy)ethanol.	Acute LC50 >118 ppm Marine water EC50 >100 mg/l	Fish - Cyprinodon variegatus Algae - Scenedesmus subspicatus	96 hours 96 hours
2-aminoethanol	Acute EC10 1170 mg/l	Micro-organism	18 hours
	Acute EC50 >100 mg/l	Aquatic plants	96 hours
	Acute EC50 >100 mg/l	Daphnia	48 hours
	Acute EC50 >1000 mg/l	Daphnia	48 hours
	Acute LC50 2700 mg/l	Fish	96 hours
	Acute LC50 1300000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	EC10 >1000 mg/l	Micro-organism	30 minutes
pyridine-2-thiol 1-oxide, sodium salt	Acute EC50 2.8 mg/l	Crustaceans - Pseudikirchneriella subcapitata	72 hours
	Acute EC50 65 mg/l	Daphnia	48 hours
	Acute LC50 349 mg/l	Fish - Cyprinus carpio	96 hours
	Chronic NOEC 0.85 mg/l	Daphnia - Daphnia magna	21 days
	Chronic NOEC 1.24 mg/l	Fish - Oryzias latipes	30 days
Acute EC50 0.46 mg/l	Algae - green algae	72 hours	
	Acute EC50 0.022 mg/l	Daphnia	48 hours
	Acute LC50 0.0092 mg/l	Daphnia	48 hours
	Acute LC50 0.0073 mg/l	Fish	96 hours
Acute NOEC 0.46 mg/l	Algae - green algae	72 hours	

**Conclusion/Summary** : Not available.

**12.2 Persistence and degradability**

Product/ingredient name	Test	Result	Dose	Inoculum
2-(2-Butoxyethoxy)ethanol.	301E Ready Biodegradability - Modified OECD Screening Test	90 to 100 % - Readily - 14 days	-	-
	301B Ready Biodegradability - CO <sub>2</sub> Evolution Test	90 to 100 % - Readily - 8 days	-	-

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2-aminoethanol	301C Ready Biodegradability - Modified MITI Test (I) -	89 to 93 % - Readily - 28 days  >90 % - Readily - 21 days	-	-
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**Conclusion/Summary** : Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
2-(2-Butoxyethoxy)ethanol.	-	-	Readily
2-aminoethanol	-	-	Readily
pyridine-2-thiol 1-oxide, sodium salt	-	-	Readily

Product/ingredient name	BOD <sub>5</sub>	COD	ThOD
2-(2-butoxyethoxy)ethanol	-	2.05 mg/kg	-
2-aminoethanol	0.8 gO <sub>2</sub> /g	-	-

**12.3 Bioaccumulative potential**

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
2-(2-Butoxyethoxy)ethanol.	<1	<100	low
2-aminoethanol	-1.91	-	low
pyridine-2-thiol 1-oxide, sodium salt	-2.64	50	low

**12.4 Mobility in soil**

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

**12.5 Results of PBT and vPvB assessment**

**PBT** : Not applicable.

**vPvB** : Not applicable.

**12.6 Other adverse effects** : No known significant effects or critical hazards.

**SECTION 13: Disposal considerations**

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

**13.1 Waste treatment methods****Product**

**Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

**Hazardous waste** : Yes.

**European waste catalogue (EWC)**

Waste code	Waste designation
16 03 05*	organic wastes containing hazardous substances
15 01 10*	packaging containing residues of or contaminated by hazardous substances

**Packaging**

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**SECTION 13: Disposal considerations**

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**SECTION 14: Transport information**

	ADR/RID	IMDG	IATA
<b>14.1 UN number</b>	Not regulated	Not regulated.	Not regulated.
<b>14.2 UN proper shipping name</b>	-	-	-
<b>14.3 Transport hazard class(es)</b>	-	-	-
<b>14.4 Packing group</b>	-	-	-
<b>14.5 Environmental hazards</b>	No.	No.	No.
<b>14.6 Special precautions for user</b>	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	<b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
<b>Additional information</b>	-	-	-

**14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not available.

**SECTION 15: Regulatory information**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**EU Regulation (EC) No. 1907/2006 (REACH)**

**Annex XIV - List of substances subject to authorization**

**Substances of very high concern**

None of the components are listed.


**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

**Other EU regulations**

**SECTION 15: Regulatory information****Black List Chemicals** : Not listed**Priority List Chemicals** : Not determined**Industrial emissions** : Not listed**(integrated pollution prevention and control) - Air****Industrial emissions** : Not listed**(integrated pollution prevention and control) - Water****National regulations**

**Product registration** : **Europe inventory:** All components are listed or exempted.  
**Australia inventory (AICS):** At least one component is not listed.  
**China inventory (IECSC):** All components are listed or exempted.  
**Japan inventory (ENCS):** At least one component is not listed.  
**Japan inventory (ISHL):** Not determined.  
**Korea inventory:** At least one component is not listed.  
**Malaysia Inventory (EHS Register):** Not determined.  
**New Zealand Inventory of Chemicals (NZIoC):** At least one component is not listed.  
**Philippines inventory (PICCS):** At least one component is not listed.  
**Taiwan Chemical Substances Inventory (TCSI):** All components are listed or exempted.  
**Turkey inventory:** Not determined.  
**United States inventory (TSCA 8b):** At least one component is not listed.  
**Canada inventory:** At least one component is not listed in DSL but all such components are listed in NDSL.

**Denmark****MAL-code** : 5-6**Germany****Hazard class for water** : 1 AwSV Anlage 1, Nummer 5.2**Chemical Weapons** : Not listed**Convention List Schedule I Chemicals****Chemical Weapons** : Not listed**Convention List Schedule II Chemicals****Chemical Weapons** : Listed**Convention List Schedule III Chemicals****15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments are still required.**SECTION 16: Other information**

 Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number  
 PBT = Persistent, Bioaccumulative and Toxic  
 vPvB = Very Persistent and Very Bioaccumulative  
 LD50 = Median lethal dose  
 LC50 = Median lethal concentration

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**SECTION 16: Other information**

EC50 = Half maximal effective concentration  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 IMDG = International Maritime Dangerous Goods  
 IATA = International Air Transport Association

**Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Classification	Justification
Acute Tox. 4, H332	Calculation method
Skin Irrit. 2, H315	Calculation method
Eye Dam. 1, H318	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 3, H412	Calculation method

**Full text of abbreviated H statements** :

H302 Harmful if swallowed.  
 H311 Toxic in contact with skin.  
 H312 Harmful in contact with skin.  
 H314 Causes severe skin burns and eye damage.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H319 Causes serious eye irritation.  
 H330 Fatal if inhaled.  
 H331 Toxic if inhaled.  
 H332 Harmful if inhaled.  
 H335 May cause respiratory irritation.  
 H400 Very toxic to aquatic life.  
 H410 Very toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects.

**Full text of classifications [CLP/GHS]** :

Acute Tox. 2, H330 ACUTE TOXICITY (inhalation) - Category 2  
 Acute Tox. 3, H311 ACUTE TOXICITY (dermal) - Category 3  
 Acute Tox. 3, H331 ACUTE TOXICITY (inhalation) - Category 3  
 Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4  
 Acute Tox. 4, H312 ACUTE TOXICITY (dermal) - Category 4  
 Acute Tox. 4, H332 ACUTE TOXICITY (inhalation) - Category 4  
 Aquatic Acute 1, H400 AQUATIC HAZARD (ACUTE) - Category 1  
 Aquatic Chronic 1, H410 AQUATIC HAZARD (LONG-TERM) - Category 1  
 Aquatic Chronic 3, H412 AQUATIC HAZARD (LONG-TERM) - Category 3  
 Eye Dam. 1, H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2  
 Skin Corr. 1B, H314 SKIN CORROSION/IRRITATION - Category 1B  
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2  
 Skin Sens. 1, H317 SKIN SENSITIZATION - Category 1  
 STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

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**Notice to reader**

## SECTION 16: Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.