

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
UFI : D7V0-107T-C009-DN6E
Product 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

Machine cleaner for the metal-working industry

Identified uses

Not applicable.

Uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

TROY CHEMICAL COMPANY BV
 Poortweg 4C
 2612PA Delft
 The Netherlands
 Phone: + 31 (0) 10 899 0142

e-mail address of person responsible for this SDS : sds-info@arxada.com

1.4 Emergency telephone number

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: Mürgistusteabekeskus: 16662 Hädaabinumber: 112	Finland: Myrkytystietokeskus 0800 147 111 tai 09 471 977
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, Nagyvárad tér 2. +36-80-201199 (ingyenes, éjjel-nappal) +36-1-4766464	Ireland: NPIC (8am to 10 pm daily): Phone 01-8092166	Italy: Ospedale Niguarda Cà Granda, Milan 0266101029	Lithuania: Poison centre: 236 20 52
Netherlands: NVIC (medical personnel, 24/7): Tel: 088 755 8000	Norway: Norwegian poison information center: 22 59 13 00	Poland: 112 (ogólny telefon alarmowy), 998 (straż 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: Slovensko: Národné toxikologické informačné centrum Limbova 5 833 05 Bratislava Tel. 02/5477 4166, 02/5477 4605 http://www.ntic.sk/ntic_en.php?adr=safetydata	Slovenia: Center za obveščanje 112	Portugal: Centro de Informação Antivenenos: +351 800 250 250
Sweden: 112	Switzerland: Schweizerisches Toxikologisches Informationszentrum: +41 - 1-145	Turkey: Not available.	United Kingdom (UK): NPIS 0870 600 6266	Spain: INSTITUTO NACIONAL DE TOXICOLOGÍA 91 562 04 20	Greece: Children's hospital "P. Kyriakou", Thivon & Levadias 1, GR 11527, Goudi, Athens Tel. +30 210 7793 777

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Latvia: Valsts ugunsdzēsības un glābšanas dienests: 112, Toksikoloģijas un sepses klīnikas Saindēšanās un zāļu informācijas centrs, Hipokrāta 2, Rīga, Latvija, LV-1038; strādā 24 h diennaktī. 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
Luxembourg: Centre Antipoisons / Giftinformationszentrum, Tel.: (+352) 8002 5500)	Cyprus: 1401	Malta: Medicines and Poisons Information Service at Mater Dei Hospital (MDH) +356 2545 6508 Emergency number: 112			

Supplier

Emergency telephone number (24/7) : +44 20 3885 0382 [CCN864796] (24/7)

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
STOT RE 2, H373

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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 : Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
Harmful if inhaled.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

General : Not applicable.

Prevention : Wear protective gloves. Wear eye or face protection. Do not breathe vapor. Wash thoroughly after handling.

Response : Get medical advice or attention if you feel unwell. IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

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
Poly(oxy-1,2-ethanediyl), α-(carboxymethyl)-ω-(octyloxy)-2-aminoethanol

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SECTION 2: Hazards identification

Supplemental label elements : Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : 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

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	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	7.6	Acute Tox. 4, H302 Acute Tox. 2, H330 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT RE 1, H372 (respiratory system) (inhalation)	ATE [Oral] = 500 mg/kg ATE [Inhalation (dusts and mists)] = 0.37 mg/l Skin Sens. 1, H317: C ≥ 0.1%	[1]
2,2',2''-nitritotriethanol	REACH #: 01-2119486482-31 EC: 203-049-8 CAS: 102-71-6	≤3	Not classified.	-	[2]
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]
Poly(oxy-1,2-ethanediyl), α-(carboxymethyl)-ω-(octyloxy)-	CAS: 53563-70-5	≤3	Eye Dam. 1, H318	-	[1]
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	ATE [Oral] = 1089 mg/kg ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l STOT SE 3, H335:	[1] [2]

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: March 08, 2023.

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SECTION 3: Composition/information on ingredients

pyridine-2-thiol 1-oxide, sodium salt	REACH #: Biocide EC: 223-296-5 CAS: 3811-73-2 Index: 613-344-00-7	0.08	Acute Tox. 4, H302 Acute Tox. 3, H311 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1, H317 STOT RE 1, H372 (nervous system) Aquatic Acute 1, H400 Aquatic Chronic 2, H411 EUH070 See Section 16 for the full text of the H statements declared above.	C ≥ 5% ATE [Oral] = 500 mg/kg ATE [Dermal] = 790 mg/kg ATE [Inhalation (dusts and mists)] = 0.5 mg/l M [Acute] = 100	[1]
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

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. 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.

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SECTION 4: First aid measures

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

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

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. Warehousing: All materials except Oxidizers can be extinguished by replacing the available air with CO2 when a stationary CO2 installation is installed.

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.

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

5.3 Advice for firefighters

Special protective actions 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).

6.3 Methods and materials for containment and cleaning up

- 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).

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. 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 between the following temperatures: 5 to 35°C (41 to 95°F). 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.

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SECTION 7: Handling and storage

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. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
2-(2-Butoxyethoxy)ethanol.	EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values STEL: 101.2 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
2-aminoethanol	EU OEL (Europe, 10/2019). Absorbed through skin. Notes: list of indicative occupational exposure limit values STEL: 7.6 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.

Occupational exposure limits

Product/ingredient name	Exposure limit values
Europe 2-(2-Butoxyethoxy)ethanol.	EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values STEL: 101.2 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
2-aminoethanol	EU OEL (Europe, 10/2019). Absorbed through skin. Notes: list of indicative occupational exposure limit values STEL: 7.6 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
Austria 2-(2-Butoxyethoxy)ethanol.	Regulation on Limit Values - MAC (Austria, 4/2021). PEAK: 101.2 mg/m ³ , 4 times per shift, 15 minutes. PEAK: 15 ppm, 4 times per shift, 15 minutes. TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
2,2',2''-nitrilotriethanol	Regulation on Limit Values - MAC (Austria, 4/2021). Sensitization potential. TWA: 5 mg/m ³ 8 hours. Form: inhalable fraction PEAK: 10 mg/m ³ , 4 times per shift, 15 minutes. Form: inhalable fraction TWA: 0.8 ppm 8 hours. PEAK: 1.6 ppm, 4 times per shift, 15 minutes.
2-aminoethanol	Regulation on Limit Values - MAC (Austria, 4/2021). Skin sensitizer. PEAK: 7.6 mg/m ³ , 4 times per shift, 15 minutes.

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SECTION 8: Exposure controls/personal protection

<p>pyridine-2-thiol 1-oxide, sodium salt</p>	<p>PEAK: 3 ppm, 4 times per shift, 15 minutes. TWA: 2.5 mg/m³ 8 hours. TWA: 1 ppm 8 hours. Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin. TWA: 1 mg/m³ 8 hours. PEAK: 4 mg/m³, 4 times per shift, 15 minutes.</p>
<p>Belgium 2-(2-Butoxyethoxy)ethanol.</p>	<p>Limit values (Belgium, 5/2021). STEL: 15 ppm 15 minutes. TWA: 10 ppm 8 hours. TWA: 67.5 mg/m³ 8 hours. STEL: 101.2 mg/m³ 15 minutes.</p>
<p>2,2',2''-nitrilotriethanol 2-aminoethanol</p>	<p>Limit values (Belgium, 5/2021). TWA: 5 mg/m³ 8 hours. Limit values (Belgium, 5/2021). Absorbed through skin. STEL: 7.6 mg/m³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m³ 8 hours. TWA: 1 ppm 8 hours.</p>
<p>Bulgaria 2-(2-Butoxyethoxy)ethanol.</p>	<p>Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). Limit value 8 hours: 67.5 mg/m³ 8 hours. Limit value 15 min: 101.2 mg/m³ 15 minutes. Limit value 15 min: 15 ppm 15 minutes. Limit value 8 hours: 10 ppm 8 hours.</p>
<p>2-aminoethanol</p>	<p>Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). Absorbed through skin. Limit value 8 hours: 2.5 mg/m³ 8 hours. Limit value 15 min: 7.6 mg/m³ 15 minutes. Limit value 8 hours: 1 ppm 8 hours. Limit value 15 min: 3 ppm 15 minutes.</p>
<p>Croatia 2-(2-Butoxyethoxy)ethanol.</p>	<p>Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). STELV: 101.2 mg/m³ 15 minutes. STELV: 15 ppm 15 minutes. ELV: 67.5 mg/m³ 8 hours. ELV: 10 ppm 8 hours.</p>
<p>2-aminoethanol</p>	<p>Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin. STELV: 7.6 mg/m³ 15 minutes. STELV: 3 ppm 15 minutes. ELV: 2.5 mg/m³ 8 hours. ELV: 1 ppm 8 hours.</p>
<p>Czech Republic 2-(2-Butoxyethoxy)ethanol.</p>	<p>Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 5/2021). STEL: 100 mg/m³ 15 minutes. STEL: 14.8 ppm 15 minutes. TWA: 70 mg/m³ 8 hours. TWA: 10.36 ppm 8 hours.</p>
<p>2,2',2''-nitrilotriethanol</p>	<p>Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 5/2021). Absorbed through skin. TWA: 5 mg/m³ 8 hours. TWA: 0.805 ppm 8 hours.</p>

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<p>2-aminoethanol</p>	<p>STEL: 10 mg/m³ 15 minutes. STEL: 1.61 ppm 15 minutes. Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 5/2021). Absorbed through skin. STEL: 7.5 mg/m³ 15 minutes. STEL: 2.955 ppm 15 minutes. TWA: 2.5 mg/m³ 8 hours. TWA: 0.985 ppm 8 hours.</p>
<p>Denmark</p>	
<p>2-(2-Butoxyethoxy)ethanol.</p>	<p>Working Environment Authority (Denmark, 11/2021). TWA: 68 mg/m³ 8 hours. TWA: 10 ppm 8 hours.</p>
<p>2,2',2''-nitrilotriethanol</p>	<p>Working Environment Authority (Denmark, 11/2021). TWA: 0.5 ppm 8 hours. TWA: 3.1 mg/m³ 8 hours.</p>
<p>2-aminoethanol</p>	<p>Working Environment Authority (Denmark, 11/2021). Absorbed through skin. TWA: 2.5 mg/m³ 8 hours. TWA: 1 ppm 8 hours.</p>
<p>pyridine-2-thiol 1-oxide, sodium salt</p>	<p>Working Environment Authority (Denmark, 11/2021). □ Absorbed through skin. TWA: 1 mg/m³ 8 hours.</p>
<p>Estonia</p>	
<p>2-(2-Butoxyethoxy)ethanol.</p>	<p>Occupational exposure limits, Regulation No. 293 (Estonia, 10/2019). TWA: 10 ppm 8 hours. TWA: 67.5 mg/m³ 8 hours.</p>
<p>2,2',2''-nitrilotriethanol</p>	<p>Occupational exposure limits, Regulation No. 293 (Estonia, 10/2019). Skin sensitizer. TWA: 5 mg/m³ 8 hours. STEL: 10 mg/m³ 15 minutes.</p>
<p>2-aminoethanol</p>	<p>Occupational exposure limits, Regulation No. 293 (Estonia, 10/2019). Absorbed through skin. STEL: 7.6 mg/m³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m³ 8 hours. TWA: 1 ppm 8 hours.</p>
<p>Finland</p>	
<p>2-(2-Butoxyethoxy)ethanol.</p>	<p>Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). TWA: 10 ppm 8 hours. TWA: 68 mg/m³ 8 hours.</p>
<p>2,2',2''-nitrilotriethanol</p>	<p>Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). TWA: 5 mg/m³ 8 hours.</p>
<p>2-aminoethanol</p>	<p>Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin. STEL: 7.6 mg/m³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m³ 8 hours. TWA: 1 ppm 8 hours.</p>
<p>France</p>	

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2-(2-Butoxyethoxy)ethanol.

Ministry of Labor (France, 5/2021). Notes: Indicative regulatory limit values (decree of 30-06-2004 modified)

STEL: 101.2 mg/m³ 15 minutes.

STEL: 15 ppm 15 minutes.

TWA: 67.5 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

2-aminoethanol

Ministry of Labor (France, 5/2021). Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)

TWA: 2.5 mg/m³ 8 hours.

TWA: 1 ppm 8 hours.

STEL: 7.6 mg/m³ 15 minutes.

STEL: 3 ppm 15 minutes.

Germany

2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol

DFG MAC-values list (Germany, 10/2021). Skin sensitizer.

DFG MAC-values list (Germany, 10/2021).

PEAK: 100.5 mg/m³, 4 times per shift, 15 minutes.

TWA: 67 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

PEAK: 15 ppm, 4 times per shift, 15 minutes.

TRGS 900 OEL (Germany, 7/2021).

PEAK: 100.5 mg/m³ 15 minutes.

TWA: 67 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

PEAK: 15 ppm 15 minutes.

2-(2-Butoxyethoxy)ethanol.

2,2',2''-nitrilotriethanol

DFG MAC-values list (Germany, 10/2021).

TWA: 1 mg/m³ 8 hours. Form: inhalable fraction

PEAK: 1 mg/m³, 4 times per shift, 15 minutes. Form: inhalable fraction

TRGS 900 OEL (Germany, 7/2021).

PEAK: 1 mg/m³ 15 minutes. Form: inhalable fraction

TWA: 1 mg/m³ 8 hours. Form: inhalable fraction

2-aminoethanol

DFG MAC-values list (Germany, 10/2021). Skin sensitizer.

PEAK: 0.51 mg/m³, 4 times per shift, 15 minutes.

PEAK: 0.2 ppm, 4 times per shift, 15 minutes.

TWA: 0.51 mg/m³ 8 hours.

TWA: 0.2 ppm 8 hours.

TRGS 900 OEL (Germany, 7/2021). Absorbed through skin.

Skin sensitizer.

PEAK: 0.5 mg/m³ 15 minutes.

PEAK: 0.2 ppm 15 minutes.

TWA: 0.5 mg/m³ 8 hours.

TWA: 0.2 ppm 8 hours.

TRGS 907 (Germany, 12/2011). Skin sensitizer.

pyridine-2-thiol 1-oxide, sodium salt

DFG MAC-values list (Germany, 10/2021). [Sodium pyrithione] Absorbed through skin.

TWA: 0.2 mg/m³ 8 hours. Form: inhalable fraction

PEAK: 0.4 mg/m³, 4 times per shift, 15 minutes. Form: inhalable fraction

TRGS 900 OEL (Germany, 7/2021). [] Absorbed through skin.

TWA: 0.2 mg/m³ 8 hours. Form: inhalable fraction

PEAK: 0.4 mg/m³ 15 minutes. Form: inhalable fraction

Greece

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2-(2-Butoxyethoxy)ethanol.	Ministry of Labour and Social Affairs (Greece, 9/2021). STEL: 101.2 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
2-aminoethanol	Ministry of Labour and Social Affairs (Greece, 9/2021). Absorbed through skin. STEL: 7.6 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
Hungary	
2-(2-Butoxyethoxy)ethanol.	5/2020. (II. 6.) ITM Decree (Hungary, 2/2020). TWA: 67.5 mg/m ³ 8 hours. PEAK: 101.2 mg/m ³ 15 minutes.
2-aminoethanol	5/2020. (II. 6.) ITM Decree (Hungary, 2/2020). Absorbed through skin. TWA: 2.5 mg/m ³ 8 hours. PEAK: 7.6 mg/m ³ 15 minutes.
Ireland	
2-(2-Butoxyethoxy)ethanol.	NAOSH (Ireland, 5/2021). Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 10 ppm 8 hours. OELV-15min: 101.2 mg/m ³ 15 minutes. OELV-8hr: 67.5 mg/m ³ 8 hours. OELV-15min: 15 ppm 15 minutes.
2,2',2''-nitrilotriethanol	NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs) OELV-8hr: 5 mg/m ³ 8 hours.
2-aminoethanol	NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-15min: 7.6 mg/m ³ 15 minutes. OELV-15min: 3 ppm 15 minutes. OELV-8hr: 2.5 mg/m ³ 8 hours. OELV-8hr: 1 ppm 8 hours.
Italy	
2-(2-Butoxyethoxy)ethanol.	Ministry of Labour and Social Policy (Italy, 6/2020). 8 hours: 10 ppm 8 hours. 8 hours: 67.5 mg/m ³ 8 hours. Short Term: 15 ppm 15 minutes. Short Term: 101.2 mg/m ³ 15 minutes.
2-aminoethanol	Ministry of Labour and Social Policy (Italy, 6/2020). Absorbed through skin. 8 hours: 1 ppm 8 hours. 8 hours: 2.5 mg/m ³ 8 hours. Short Term: 3 ppm 15 minutes. Short Term: 7.6 mg/m ³ 15 minutes.
Latvia	
2-(2-Butoxyethoxy)ethanol.	Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). STEL: 101.2 mg/m ³ 15 minutes. TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m ³ 8 hours.
2-aminoethanol	Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). Absorbed through skin. TWA: 0.5 mg/m ³ 8 hours. TWA: 0.2 ppm 8 hours. STEL: 3 ppm 15 minutes.

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SECTION 8: Exposure controls/personal protection

Lithuania

2-(2-Butoxyethoxy)ethanol.

STEL: 7.6 mg/m³ 15 minutes.

Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2021).

STEL: 101.2 mg/m³ 15 minutes.

STEL: 15 ppm 15 minutes.

TWA: 67.5 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

2,2',2''-nitritotriethanol

Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2021). Skin sensitizer.

TWA: 5 mg/m³ 8 hours.

STEL: 10 mg/m³ 15 minutes.

2-aminoethanol

Lithuanian Hygiene Standard HN 23 (Lithuania, 1/2021).

Absorbed through skin.

STEL: 7.6 mg/m³ 15 minutes.

STEL: 3 ppm 15 minutes.

TWA: 2.5 mg/m³ 8 hours.

TWA: 1 ppm 8 hours.

Netherlands

2-(2-Butoxyethoxy)ethanol.

Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 7/2021). 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/m³ 8 hours.

Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 7/2021). Absorbed through skin.

STEL,15-min: 100 mg/m³ 15 minutes.

2-aminoethanol

Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 7/2021). Absorbed through skin. Notes: Administrative

STEL,15-min: 7.6 mg/m³ 15 minutes.

OEL, 8-h TWA: 2.5 mg/m³ 8 hours.

Norway

2-(2-Butoxyethoxy)ethanol.

FOR-2011-12-06-1358 (Norway, 6/2021). Notes: indicative limit value

TWA: 10 ppm 8 hours.

TWA: 68 mg/m³ 8 hours.

2,2',2''-nitritotriethanol

FOR-2011-12-06-1358 (Norway, 6/2021).

TWA: 5 mg/m³ 8 hours.

2-aminoethanol

FOR-2011-12-06-1358 (Norway, 6/2021). Absorbed through skin. Notes: indicative limit value

TWA: 2.5 mg/m³ 8 hours.

TWA: 1 ppm 8 hours.

Poland

2-(2-Butoxyethoxy)ethanol.

Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021).

TWA: 67 mg/m³ 8 hours.

STEL: 100 mg/m³ 15 minutes.

2-aminoethanol

Regulation of the Minister of Family, Labor and Social Policy of 18 February 2021, regarding the highest permissible concentrations and values of agents harmful to health in the work environment (Journal of Laws 2021, item 325) (Poland, 2/2021). Absorbed through skin.

STEL: 7.5 mg/m³ 15 minutes.

TWA: 2.5 mg/m³ 8 hours.

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SECTION 8: Exposure controls/personal protection

Portugal

2-(2-Butoxyethoxy)ethanol.

Portuguese Institute of Quality (Portugal, 11/2014).

TWA: 10 ppm 8 hours. Form: Inhalable fraction and vapor

2,2',2''-nitrilotriethanol

Portuguese Institute of Quality (Portugal, 11/2014).

TWA: 5 mg/m³ 8 hours.

2-aminoethanol

Portuguese Institute of Quality (Portugal, 11/2014).

STEL: 6 ppm 15 minutes.

TWA: 3 ppm 8 hours.

Romania

2-(2-Butoxyethoxy)ethanol.

HG 1218/2006 with subsequent modifications and additions (Romania, 3/2021).

VLA: 67.5 mg/m³ 8 hours.

Short term: 101.2 mg/m³ 15 minutes.

Short term: 15 ppm 15 minutes.

VLA: 10 ppm 8 hours.

2-aminoethanol

HG 1218/2006 with subsequent modifications and additions (Romania, 3/2021). Absorbed through skin.

VLA: 2.5 mg/m³ 8 hours.

VLA: 1 ppm 8 hours.

Short term: 7.6 mg/m³ 15 minutes.

Short term: 3 ppm 15 minutes.

Slovakia

2-(2-Butoxyethoxy)ethanol.

Government regulation SR c. 355/2006 (Slovakia, 9/2020).

STEL: 101.2 mg/m³ 15 minutes.

TWA: 67.5 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

STEL: 15 ppm 15 minutes.

2-aminoethanol

Government regulation SR c. 355/2006 (Slovakia, 9/2020). Absorbed through skin.

STEL: 7.6 mg/m³ 15 minutes.

TWA: 2.5 mg/m³ 8 hours.

TWA: 1 ppm 8 hours.

STEL: 3 ppm 15 minutes.

Slovenia

2-(2-Butoxyethoxy)ethanol.

Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021).

TWA: 67.5 mg/m³ 8 hours.

TWA: 10 ppm 8 hours.

KTV: 101.2 mg/m³, 4 times per shift, 15 minutes.

KTV: 15 ppm, 4 times per shift, 15 minutes.

2-aminoethanol

Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). Absorbed through skin.

TWA: 2.5 mg/m³ 8 hours.

TWA: 1 ppm 8 hours.

KTV: 7.6 mg/m³, 4 times per shift, 15 minutes.

KTV: 3 ppm, 4 times per shift, 15 minutes.

pyridine-2-thiol 1-oxide, sodium salt

Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). □ Absorbed through skin.

TWA: 1 mg/m³ 8 hours. Form: inhalable fraction

KTV: 2 mg/m³, 4 times per shift, 15 minutes. Form: inhalable fraction

fraction

Spain

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SECTION 8: Exposure controls/personal protection

2-(2-Butoxyethoxy)ethanol.	National institute of occupational safety and health (Spain, 4/2021). TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. STEL: 101.2 mg/m ³ 15 minutes.
2,2',2''-nitrilotriethanol	National institute of occupational safety and health (Spain, 4/2021). TWA: 5 mg/m ³ 8 hours.
2-aminoethanol	National institute of occupational safety and health (Spain, 4/2021). Absorbed through skin. STEL: 7.5 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
Sweden	
2-(2-Butoxyethoxy)ethanol.	Work environment authority Regulation 2018:1 (Sweden, 9/2021). STEL: 101 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 68 mg/m ³ 8 hours. TWA: 10 ppm 8 hours.
2,2',2''-nitrilotriethanol	Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin. TWA: 5 mg/m ³ 8 hours. STEL: 10 mg/m ³ 15 minutes. STEL: 1.6 ppm 15 minutes. TWA: 0.8 ppm 8 hours.
2-aminoethanol	Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin. STEL: 7.5 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
Switzerland	
2-(2-Butoxyethoxy)ethanol.	SUVA (Switzerland, 1/2021). Notes: not temporary STEL: 101 mg/m ³ 15 minutes. Form: vapour and aerosols TWA: 67 mg/m ³ 8 hours. Form: vapour and aerosols SUVA (Switzerland, 1/2021). STEL: 15 ppm 15 minutes. Form: vapour and aerosols TWA: 10 ppm 8 hours. Form: vapour and aerosols
2,2',2''-nitrilotriethanol	SUVA (Switzerland, 1/2021). STEL: 5 mg/m ³ 15 minutes. Form: Inhalable fraction TWA: 5 mg/m ³ 8 hours. Form: Inhalable fraction
2-aminoethanol	SUVA (Switzerland, 1/2021). Skin sensitizer. Notes: not temporary STEL: 10 mg/m ³ 15 minutes. Form: vapour and aerosols STEL: 4 ppm 15 minutes. Form: vapour and aerosols TWA: 5 mg/m ³ 8 hours. Form: vapour and aerosols TWA: 2 ppm 8 hours. Form: vapour and aerosols
pyridine-2-thiol 1-oxide, sodium salt	SUVA (Switzerland, 1/2021). □ Absorbed through skin. TWA: 0.2 mg/m ³ 8 hours. Form: Inhalable fraction STEL: 0.4 mg/m ³ 15 minutes. Form: Inhalable fraction
Turkey	

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SECTION 8: Exposure controls/personal protection

2-(2-Butoxyethoxy)ethanol.	TR ISGGM OEL (Turkey, 12/2013). TWA: 67.5 mg/m ³ 8 hours. TWA: 10 ppm 8 hours. STEL: 101.2 mg/m ³ 15 minutes. STEL: 15 ppm 15 minutes.
2,2',2''-nitriлотriethanol	ACGIH TLV (United States, 1/2022). TWA: 5 mg/m ³ 8 hours.
2-aminoethanol	TR ISGGM OEL (Turkey, 12/2013). Absorbed through skin. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours. STEL: 7.6 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes.
United Kingdom (UK)	
2-(2-Butoxyethoxy)ethanol.	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m ³ 8 hours. STEL: 101.2 mg/m ³ 15 minutes.
2-aminoethanol	EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin. STEL: 7.6 mg/m ³ 15 minutes. STEL: 3 ppm 15 minutes. TWA: 2.5 mg/m ³ 8 hours. TWA: 1 ppm 8 hours.
pyridine-2-thiol 1-oxide, sodium salt	EH40/2005 WELs (United Kingdom (UK)). TWA: 0.35 mg/m ³

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.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol 2-(2-Butoxyethoxy)ethanol.	DNEL	Long term Inhalation	0.2 mg/m ³	Workers	Local
	DNEL	Long term Oral	5 mg/kg bw/day	General population [Consumers]	Systemic
	DNEL	Short term Dermal	89 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	50 mg/kg bw/day	General population [Consumers]	Systemic
	DNEL	Long term Dermal	83 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	40.5 mg/m ³	General population [Consumers]	Systemic
	DNEL	Long term Inhalation	67.5 mg/m ³	Workers	Systemic
	DNEL	Short term	101.2 mg/	Workers	Local

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SECTION 8: Exposure controls/personal protection

2-aminoethanol	DNEL	Inhalation Short term Inhalation	m ³ 60.7 mg/m ³	General population [Consumers]	Local
	DNEL	Long term Inhalation	60.7 mg/m ³	General population [Consumers]	Local
	DNEL	Long term Inhalation	67.5 mg/m ³	Workers	Local
	DNEL	Long term Dermal	1 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	3.3 mg/m ³	Workers	Local
	DNEL	Long term Oral	3.75 mg/kg bw/day	General population [Consumers]	Local
	DNEL	Long term Dermal	0.24 mg/kg bw/day	General population [Consumers]	Systemic
	DNEL	Long term Inhalation	2 mg/m ³	General population [Consumers]	Local

PNECs

Product/ingredient name	Compartment Detail	Value	Method Detail
2-(2-Butoxyethoxy)ethanol. 2-aminoethanol	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	-
	Secondary Poisoning	56 mg/kg	-
	Fresh water	0.085 mg/l	-
	Marine	0.0085 mg/l	-
	Secondary Poisoning	0.025 mg/l	-
	Fresh water sediment	0.425 mg/kg wwt	-
	Marine water sediment	0.0425 mg/kg wwt	-
	Soil	0.035 mg/kg wwt	-
	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

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. (EN166) 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

SECTION 8: Exposure controls/personal 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. Wear suitable gloves tested to EN374. 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).
- 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. (EN343)
- 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

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid.
- Color** : Colorless to light yellow.
- Odor** : Characteristic.
- Odor threshold** : Not available.
- Melting point/freezing point** : Not available.
- Initial boiling point and boiling range** : 100°C (212°F)
- Flammability** : Not available.

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SECTION 9: Physical and chemical properties

Lower and upper explosion limit : Not available.

Flash point : Closed cup: >100°C (>212°F)

Auto-ignition temperature :

Ingredient name	°C	°F	Method
2-(2-Butoxyethoxy)ethanol.	210	410	
2,2',2''-nitrioltriethanol	324	615.2	
2-aminoethanol	385 to 410	725 to 770	

Decomposition temperature : Not available.

pH : 9.6 to 10.3 [Conc. (% w/w): 2%]

Viscosity : Not available.

Solubility(ies) :

Media	Result
cold water	Soluble
hot water	Soluble

Solubility in water : Not available.

Miscible with water : Yes.

Partition coefficient: n-octanol/ water : Not applicable.

Vapor pressure : <1 kPa (<7.5 mm Hg)

Relative density : 1.015 to 1.045 kg/L

Density : 1.015 to 1.045 g/cm³ [20°C (68°F)]

Vapor density : Not available.

Explosive properties : 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.

Oxidizing properties : Not available.

Particle characteristics

Median particle size : Not applicable.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : No specific data.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

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SECTION 11: Toxicological information

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

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	LC50 Inhalation Dusts and mists	Rat	0.37 mg/l	4 hours
	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

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
TROYSHIELD SC1	2500	N/A	N/A	N/A	1.5
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol	500	N/A	N/A	N/A	0.37
2-(2-Butoxyethoxy)ethanol.	3384	2700	N/A	N/A	N/A
2-aminoethanol	1089	1100	N/A	11	N/A
pyridine-2-thiol 1-oxide, sodium salt	500	790	N/A	N/A	0.5

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.

Sensitization

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

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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	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
2,2',2''-(hexahydro-1,3,5-triazine-1,3,5-triyl)triethanol pyridine-2-thiol 1-oxide, sodium salt	Category 1	inhalation	respiratory system
	Category 1	-	nervous system

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

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

Symptoms related to the physical, chemical and toxicological characteristics

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

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

Short term exposure

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SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : May cause damage to organs through prolonged or repeated exposure. 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.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 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	Fish - Cyprinodon variegatus	96 hours
	EC50 >100 mg/l	Algae - Scenedesmus subspicatus	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
	Acute EC50 2.8 mg/l	Crustaceans - Pseudikirchneriella subcapitata	72 hours
pyridine-2-thiol 1-oxide, sodium salt	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.

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SECTION 12: Ecological information

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 ₂ Evolution Test	90 to 100 % - Readily - 8 days	-	-
	301C Ready Biodegradability - Modified MITI Test (I)	89 to 93 % - Readily - 28 days	-	-
2-aminoethanol	-	>90 % - Readily - 21 days	-	-

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

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	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_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not available.

12.7 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

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SECTION 13: Disposal considerations

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

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
14.1 UN number or ID number	Not regulated	Not regulated	Not regulated
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

14.6 Special precautions for user : **Transport within user's premises:** 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.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

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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

Annex XIV

None of the components are listed.

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

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

Biocidal products regulation

Product type : Liquid.

Avoid exposure. After accidental exposure, seek immediate medical attention. Do not induce vomiting.

Product waste and emptied containers should be disposed of in accordance with local waste regulations. Do not reuse container.

Expiry date : Not available.

Do not allow to enter drains or watercourses.

Denmark

MAL-code : 5-6

Germany

Storage class (TRGS 510) : 12

Hazard class for water : 1 AwSV Anlage 1, Nummer 5.2

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

List name	Ingredient name	Status
Schedule III	Triethanolamine	Listed

Montreal Protocol

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SECTION 15: Regulatory information

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: At least one component is not listed.
Canada	: At least one component is not listed in DSL but all such components are listed in NDSL.
China	: All components are listed or exempted.
Eurasian Economic Union	: Russian Federation inventory : Not determined.
Japan	: Japan inventory (CSCL) : At least one component is not listed. Japan inventory (ISHL) : Not determined.
New Zealand	: At least one component is not listed.
Philippines	: At least one component is not listed.
Republic of Korea	: At least one component is not listed.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: At least one component is not listed.
Viet Nam	: Not determined.

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] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number SGG = Segregation Group vPvB = Very Persistent and Very Bioaccumulative
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Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT RE 2, H373	Calculation method Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements

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SECTION 16: Other information

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.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH070	Toxic by eye contact.

[Full text of classifications \[CLP/GHS\]](#)

Acute Tox. 2	ACUTE TOXICITY - Category 2
Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 2	AQUATIC HAZARD (LONG-TERM) - Category 2
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Skin Corr. 1B	SKIN CORROSION/IRRITATION - Category 1B
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITIZATION - Category 1
STOT RE 1	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3

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