## SAFETY DATA SHEET



TEKNOSAFE FLAME PROTECT 2458-00 - BASE 1

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

1.1 Product identifier

Product name : TEKNOSAFE FLAME PROTECT 2458-00 - BASE 1

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

Product use : Paint.

1.3 Details of the supplier of the safety data sheet

Teknos Group Oy, Takkatie 3, FI-00370 HELSINKI, FINLAND. Tel. +358 9 506 091.

e-mail address of person responsible for this SDS

ress of person : Prod-safe@teknos.com

**National contact** 

Teknos Group Oy, Takkatie 3, FI-00370 HELSINKI, FINLAND. Tel. +358 9 506 091.

1.4 Emergency telephone number

**National advisory body/Poison Centre** 

Telephone number : In an emergency, call 112

#### **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]

Skin Sens. 1, H317

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 : Warning

**Hazard statements** : H317 - May cause an allergic skin reaction.

**Precautionary statements** 

Prevention : P280 - Wear protective gloves.

P261 - Avoid breathing vapour.

**Response** : P362 + P364 - Take off contaminated clothing and wash it before reuse.

P302 + P352 - IF ON SKIN: Wash with plenty of water.

P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.

Storage : Not applicable.

Disposal : P501 - Dispose of contents and container in accordance with all local, regional,

national and international regulations.

**Hazardous ingredients** : **♥**ontains: 1,2-benzisothiazol-3(2H)-one and reaction mass of: 5-chloro-2-methyl-

4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no.

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220-239-6] (3:1)

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### **SECTION 2: Hazards identification**

Supplemental label elements

: Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist. Contains biocidal products for in-can preservation: C(M)IT/MIT (3:1).

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

:

#### 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	Туре
Manium dioxide	REACH #: 01-2119489379-17 EC: 236-675-5 CAS: 13463-67-7	≥10 - ≤25	Carc. 2, H351 (inhalation)	-	[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]
Ammonia	REACH #: 01-2119488876-14 EC: 215-647-6 CAS: 1336-21-6 Index: 007-001-01-2	≤0.3	Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 1, H400	STOT SE 3, H335: C ≥ 5% M [Acute] = 1	[1] [2]
2-Butoxyethanol	REACH #: 01-2119475108-36 EC: 203-905-0 CAS: 111-76-2 Index: 603-014-00-0	≤0.3	Acute Tox. 4, H302 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319	ATE [Oral] = 1200 mg/kg ATE [Inhalation (vapours)] = 3 mg/l	[1] [2]
1,2-benzisothiazol-3(2H)- one	EC: 220-120-9 CAS: 2634-33-5 Index: 613-088-00-6	<0.05	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Acute 1, H400	ATE [Oral] = 1020 mg/kg Skin Sens. 1, H317: C ≥ 0.05% M [Acute] = 1	[1]
reaction mass of: 5-chloro- 2-methyl-4-isothiazolin- 3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol- 3-one [EC no. 220-239-6] (3:1)	CAS: 55965-84-9 Index: 613-167-00-5	<0.0025	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 EUH071	ATE [Oral] = 53 mg/kg ATE [Dermal] = 50 mg/kg ATE [Inhalation (vapours)] = 0.5 mg/l Skin Corr. 1C, H314: $C \ge 0.6\%$ Eye Dam. 1, H318: $C \ge 0.6\%$	[1]

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SECTION 3: Composition/information on ingredients							
	Eye Irrit. 2, H319: 0.06% ≤ C < 0.6% Skin Sens. 1, H317: C ≥ 0.0015% M [Acute] = 100 M [Chronic] = 100  See Section 16 for the full text of the H statements declared above.						

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
- [\*] The classification as a carcinogen by inhalation applies only to mixtures placed on the market in powder form containing 1% or more of titanium dioxide particles with aerodynamic diameter ≤ 10 µm not bound within a matrix.

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

#### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**Eye contact** 

: 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. Get medical attention if irritation occurs.

Inhalation

Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. Get medical attention if adverse health effects persist or are severe. 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

: 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. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: 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. Get medical attention if adverse health effects persist or are severe. 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. 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 aloves.

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

Over-exposure signs/symptoms

**Eye contact** : No specific data. Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:

irritation redness

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#### **SECTION 4: First aid measures**

Ingestion : No specific data.

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

: In case of inhalation of decomposition products in a fire, symptoms may be delayed. Notes to physician

The exposed person may need to be kept under medical surveillance for 48 hours.

No specific treatment. Specific treatments

## 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.

**Hazardous combustion** products

Decomposition products may include the following materials:

carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides metal oxide/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 spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

If specialised 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 spilt 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 material 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.

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#### **SECTION 6: Accidental release measures**

#### Large spill

: Stop leak if without risk. Move containers from spill area. Approach the 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 spilt 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 ingest. Avoid breathing vapour or mist. 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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

#### 7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific : Not available.

solutions

## **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	Regulation on Limit Values - MAC (Austria, 4/2021).
· · · · · · · · · · · · · · · · · · ·	TWA: 10 ppm 8 hours.
	TWA: 67.5 mg/m <sup>3</sup> 8 hours.
	PEAK: 15 ppm, 4 times per shift, 15 minutes.
	PEAK: 101.2 mg/m³, 4 times per shift, 15 minutes.
Ammonia	Regulation on Limit Values - MAC (Austria, 4/2021). []
	TWA: 20 ppm 8 hours.
	TWA: 14 mg/m <sup>3</sup> 8 hours.
	PEAK: 50 ppm, 4 times per shift, 15 minutes.
	PEAK: 36 mg/m³, 4 times per shift, 15 minutes.
reaction mass of: 5-chloro-2-methyl-	Regulation on Limit Values - MAC (Austria, 4/2021). [] Skin

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4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no.

220-239-6] (3:1)

2-methyl-2H-isothiazol-3-one

2-(2-butoxyethoxy)ethanol

Ammonia

2-Butoxyethanol

2-(2-butoxyethoxy)ethanol

Ammonia

2-Butoxyethanol

2-(2-butoxyethoxy)ethanol

Ammonia

2-Butoxyethanol

sensitiser.

TWA: 0.05 ma/m<sup>3</sup> 8 hours.

Regulation on Limit Values - MAC (Austria, 4/2021). [] Skin

sensitiser.

TWA: 0.05 mg/m<sup>3</sup> 8 hours.

Limit values (Belgium, 5/2021).

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.

Limit values (Belgium, 5/2021). [ammonia]

TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m<sup>3</sup> 15 minutes.

Limit values (Belgium, 5/2021). Absorbed through skin.

TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m<sup>3</sup> 15 minutes.

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/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.

Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). [Ammonia]

Limit value 8 hours: 14 mg/m<sup>3</sup> 8 hours. Limit value 15 min: 36 mg/m³ 15 minutes. Limit value 15 min: 50 ppm 15 minutes. Limit value 8 hours: 20 ppm 8 hours.

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: 98 mg/m<sup>3</sup> 8 hours. Limit value 15 min: 246 mg/m<sup>3</sup> 15 minutes. Limit value 15 min: 50 ppm 15 minutes. Limit value 8 hours: 20 ppm 8 hours.

Ministry of Economy, Labour and Entrepreneurship ELV/

STELV (Croatia, 1/2021).

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.

Ministry of Economy, Labour and Entrepreneurship ELV/

STELV (Croatia, 1/2021). [ammonia] STELV: 36 mg/m3 15 minutes.

STELV: 50 ppm 15 minutes. ELV: 14 mg/m<sup>3</sup> 8 hours. ELV: 20 ppm 8 hours.

Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin.

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STELV: 246 mg/m<sup>3</sup> 15 minutes. STELV: 50 ppm 15 minutes. ELV: 98 mg/m3 8 hours. ELV: 20 ppm 8 hours.

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2-(2-butoxyethoxy)ethanol EU OEL (Europe, 10/2019). Notes: list of indicative occupational exposure limit values 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. EU OEL (Europe, 10/2019). [ammonia, anhydrous] Notes: list Ammonia of indicative occupational exposure limit values TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m³ 15 minutes. Government regulation of Czech Republic PEL/NPK-P (Czech 2-(2-butoxyethoxy)ethanol Republic, 10/2022). TWA: 70 mg/m<sup>3</sup> 8 hours. TWA: 10.36 ppm 8 hours. STEL: 100 mg/m<sup>3</sup> 15 minutes. STEL: 14.8 ppm 15 minutes. Government regulation of Czech Republic PEL/NPK-P (Czech Ammonia Republic, 10/2022). [ammonia] TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 36 mg/m³ 15 minutes. TWA: 19.768 ppm 8 hours. STEL: 50.832 ppm 15 minutes. Government regulation of Czech Republic PEL/NPK-P (Czech 2-Butoxyethanol Republic, 10/2022). Absorbed through skin. TWA: 100 mg/m<sup>3</sup> 8 hours. TWA: 20.4 ppm 8 hours. STEL: 200 mg/m<sup>3</sup> 15 minutes. STEL: 40.8 ppm 15 minutes. 2-(2-butoxyethoxy)ethanol Working Environment Authority (Denmark, 6/2022). TWA: 68 mg/m<sup>3</sup> 8 hours. TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes. STEL: 101 mg/m<sup>3</sup> 15 minutes. Working Environment Authority (Denmark, 6/2022). [ammonia] Ammonia TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 36 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes. 2-Butoxyethanol Working Environment Authority (Denmark, 6/2022). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 246 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes. 2-(2-butoxyethoxy)ethanol Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). TWA: 10 ppm 8 hours. TWA: 67.5 mg/m<sup>3</sup> 8 hours. Occupational exposure limits, Regulation No. 293 (Estonia, Ammonia 12/2022). [ammonia] TWA: 14 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours. STEL: 36 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes. 2-Butoxyethanol Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). Absorbed through skin. Skin sensitiser. TWA: 98 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours. STEL: 246 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes.

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2-(2-butoxyethoxy)ethanol EU OEL (Europe, 1/2022). Notes: list of indicative occupational exposure limit values 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. Ammonia EU OEL (Europe, 1/2022). [ammonia, anhydrous] Notes: list of indicative occupational exposure limit values TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m³ 15 minutes. 2-Butoxyethanol EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m<sup>3</sup> 15 minutes. 2-(2-butoxyethoxy)ethanol Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). TWA: 10 ppm 8 hours. TWA: 68 mg/m<sup>3</sup> 8 hours. Ammonia Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). TWA: 20 ppm 8 hours. Form: solution TWA: 14 mg/m<sup>3</sup> 8 hours. Form: solution STEL: 50 ppm 15 minutes. Form: solution STEL: 36 mg/m<sup>3</sup> 15 minutes. Form: solution 2-Butoxyethanol Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 250 mg/m<sup>3</sup> 15 minutes. Ministry of Labor (France, 5/2021). Notes: Indicative 2-(2-butoxyethoxy)ethanol 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/m<sup>3</sup> 8 hours. TWA: 10 ppm 8 hours. Ministry of Labor (France, 5/2021). [] Notes: Binding Ammonia regulatory limit values (article R. 4412-149 of the Labor Code) TWA: 10 ppm 8 hours. TWA: 7 mg/m<sup>3</sup> 8 hours. STEL: 20 ppm 15 minutes. STEL: 14 mg/m<sup>3</sup> 15 minutes. 2-(2-butoxyethoxy)ethanol TRGS 900 OEL (Germany, 7/2021). TWA: 67 mg/m<sup>3</sup> 8 hours. PEAK: 100.5 mg/m<sup>3</sup> 15 minutes. TWA: 10 ppm 8 hours. PEAK: 15 ppm 15 minutes. DFG MAC-values list (Germany, 10/2021). TWA: 67 mg/m<sup>3</sup> 8 hours. PEAK: 100.5 mg/m³, 4 times per shift, 15 minutes. TWA: 10 ppm 8 hours. PEAK: 15 ppm, 4 times per shift, 15 minutes. Ammonia TRGS 900 OEL (Germany, 7/2021). [] TWA: 14 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours. PEAK: 28 mg/m<sup>3</sup> 15 minutes. PEAK: 40 ppm 15 minutes. DFG MAC-values list (Germany, 10/2021). [Ammonia] TWA: 20 ppm 8 hours. PEAK: 40 ppm, 4 times per shift, 15 minutes.

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1,2-benzisothiazol-3(2H)-one 2-methyl-2H-isothiazol-3-one **2**-(2-butoxyethoxy)ethanol

Ammonia

TWA: 14 mg/m<sup>3</sup> 8 hours.

PEAK: 28 mg/m³, 4 times per shift, 15 minutes.

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

Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).

STEL: 101.2 mg/m³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m³ 8 hours. TWA: 10 ppm 8 hours.

Presidential Decree 307/1986: Occupational exposure limit

values (Greece, 9/2021). [ammonia]

TWA: 50 ppm 8 hours. TWA: 35 mg/m³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 35 mg/m³ 15 minutes.

2-Butoxyethanol Presidential Decree 307/1986: Occupational exposure limit

values (Greece, 9/2021). Absorbed through skin.

TWA: 25 ppm 8 hours. TWA: 120 mg/m³ 8 hours.

2-(2-butoxyethoxy)ethanol 5/2020. (II. 6.) ITM Decree (Hungary, 12/2022).

TWA: 67.5 mg/m³ 8 hours. PEAK: 101.2 mg/m³ 15 minutes. PEAK: 15 ppm 15 minutes. TWA: 10 ppm 8 hours.

Ammonia 5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). [ammonia]

TWA: 14 mg/m³ 8 hours. PEAK: 36 mg/m³ 15 minutes. PEAK: 50 ppm 15 minutes. TWA: 20 ppm 8 hours.

2-Butoxyethanol 5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.

TWA: 98 mg/m³ 8 hours. PEAK: 246 mg/m³ 15 minutes. PEAK: 50 ppm 15 minutes. TWA: 20 ppm 8 hours.

2-(2-butoxyethoxy)ethanol Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021).

STEL: 101.2 mg/m³ 15 minutes. STEL: 15 ppm 15 minutes. TWA: 67.5 mg/m³ 8 hours. TWA: 10 ppm 8 hours.

Ammonia Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021).

[ammonia] Absorbed through skin.

STEL: 36 mg/m³ 5 minutes. STEL: 50 ppm 5 minutes. TWA: 14 mg/m³ 8 hours. TWA: 20 ppm 8 hours.

2-Butoxyethanol Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021).

Absorbed through skin.
STEL: 246 mg/m³ 15 minutes.
STEL: 50 ppm 15 minutes.
TWA: 100 mg/m³ 8 hours.
TWA: 20 ppm 8 hours.

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/m³ 15 minutes.

OELV-13min. 101.2 mg/m² 13 minutes. OELV-8hr: 67.5 mg/m³ 8 hours. OELV-15min: 15 ppm 15 minutes.

Ammonia NAOSH (Ireland, 5/2021). [ammonia, anhydrous] Notes: EU

OELV-8hr: 20 ppm 8 hours.

derived Occupational Exposure Limit Values

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OELV-8hr: 14 mg/m³ 8 hours.
OELV-15min: 50 ppm 15 minutes.

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OELV-15min: 36 mg/m3 15 minutes. 2-Butoxyethanol NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values OELV-8hr: 20 ppm 8 hours. OELV-8hr: 98 mg/m<sup>3</sup> 8 hours. OELV-15min: 50 ppm 15 minutes. OELV-15min: 246 mg/m<sup>3</sup> 15 minutes. 2-(2-butoxyethoxy)ethanol Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). 8 hours: 10 ppm 8 hours. 8 hours: 67.5 ma/m<sup>3</sup> 8 hours. Short Term: 15 ppm 15 minutes. Short Term: 101.2 mg/m3 15 minutes. Ammonia Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). [ammonia] 8 hours: 20 ppm 8 hours. 8 hours: 14 mg/m<sup>3</sup> 8 hours. Short Term: 50 ppm 15 minutes. Short Term: 36 mg/m³ 15 minutes. 2-Butoxyethanol Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). Absorbed through skin. 8 hours: 20 ppm 8 hours. 8 hours: 98 mg/m<sup>3</sup> 8 hours. Short Term: 50 ppm 15 minutes. Short Term: 246 mg/m3 15 minutes. 2-(2-butoxyethoxy)ethanol Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). 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. Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). [] Ammonia TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m<sup>3</sup> 15 minutes. TWA: 20 ppm 8 hours. 2-(2-butoxyethoxy)ethanol Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). 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. Ammonia Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). [ammonia] TWA: 14 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours. STEL: 36 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes. 2-Butoxyethanol Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin.

TWA: 50 mg/m<sup>3</sup> 8 hours. TWA: 10 ppm 8 hours. STEL: 100 mg/m<sup>3</sup> 15 minutes. STEL: 20 ppm 15 minutes.

2-(2-butoxyethoxy)ethanol Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021). Absorbed through skin.

STEL: 15 ppm 15 minutes. STEL: 101.2 mg/m<sup>3</sup> 15 minutes. TWA: 10 ppm 8 hours.

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

Ammonia Grand-Duchy Regulation 2016. Chemical agents. Annex I

(Luxembourg, 3/2021). [ammonia]

TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours.

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STEL: 50 ppm 15 minutes. STEL: 36 mg/m<sup>3</sup> 15 minutes.

2-Butoxyethanol Grand-Duchy Regulation 2016. Chemical agents. Annex I

(Luxembourg, 3/2021). Absorbed through skin.

TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m<sup>3</sup> 15 minutes.

2-(2-butoxyethoxy)ethanol EU OEL (Europe, 1/2022). Notes: list of indicative

occupational exposure limit values

TWA: 67.5 mg/m<sup>3</sup> 8 hours. TWA: 10 ppm 8 hours. STEL: 101.2 mg/m3 15 minutes. STEL: 15 ppm 15 minutes.

Ammonia EU OEL (Europe, 1/2022). [ammonia, anhydrous] Notes: list of

indicative occupational exposure limit values

TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m<sup>3</sup> 15 minutes.

2-Butoxyethanol EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list

of indicative occupational exposure limit values

TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m<sup>3</sup> 15 minutes.

2-(2-butoxyethoxy)ethanol Ministry of Social Affairs and Employment, Legal limit values

(Netherlands, 12/2022). Absorbed through skin.

OEL, 8-h TWA: 50 mg/m3 8 hours. STEL,15-min: 100 mg/m<sup>3</sup> 15 minutes. OEL, 8-h TWA: 7.4 ppm 8 hours. STEL,15-min: 14.8 ppm 15 minutes.

Ammonia Ministry of Social Affairs and Employment, Legal limit values

> (Netherlands, 12/2022). [ammonia] OEL, 8-h TWA: 14 mg/m3 8 hours. STEL,15-min: 36 mg/m3 15 minutes. STEL,15-min: 50 ppm 15 minutes. OEL, 8-h TWA: 20 ppm 8 hours.

2-Butoxyethanol Ministry of Social Affairs and Employment, Legal limit values

(Netherlands, 12/2022). Absorbed through skin.

OEL, 8-h TWA: 100 mg/m3 8 hours. STEL,15-min: 246 mg/m3 15 minutes. OEL, 8-h TWA: 20.4 ppm 8 hours. STEL,15-min: 50 ppm 15 minutes.

2-(2-butoxyethoxy)ethanol FOR-2011-12-06-1358 (Norway, 6/2021). Notes: indicative limit

value

TWA: 10 ppm 8 hours. TWA: 68 mg/m<sup>3</sup> 8 hours.

FOR-2011-12-06-1358 (Norway, 6/2021). [] Notes: indicative Ammonia

limit value

TWA: 15 ppm 8 hours. TWA: 11 mg/m<sup>3</sup> 8 hours.

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

STEL: 50 ppm 15 minutes. STEL: 36 mg/m3 15 minutes.

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/m<sup>3</sup> 8 hours. STEL: 100 mg/m<sup>3</sup> 15 minutes.

Ammonia Regulation of the Minister of Family, Labor and Social Policy

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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). [ammonia]

TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 28 mg/m<sup>3</sup> 15 minutes.

2-(2-butoxyethoxy)ethanol

Portuguese Institute of Quality (Portugal, 11/2014). TWA: 10 ppm 8 hours. Form: Inhalable fraction and vapor Portuguese Institute of Quality (Portugal, 11/2014). [] Ammonia

> TWA: 25 ppm 8 hours. STEL: 35 ppm 15 minutes.

2-(2-butoxyethoxy)ethanol

HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021).

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

Short term: 101.2 mg/m<sup>3</sup> 15 minutes. Short term: 15 ppm 15 minutes.

VLA: 10 ppm 8 hours.

HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). []

VLA: 14 mg/m<sup>3</sup> 8 hours. VLA: 20 ppm 8 hours.

Short term: 36 mg/m<sup>3</sup> 15 minutes. Short term: 50 ppm 15 minutes.

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

TWA: 67.5 mg/m<sup>3</sup> 8 hours. STEL: 101.2 mg/m<sup>3</sup> 15 minutes.

TWA: 10 ppm 8 hours. STEL: 15 ppm 15 minutes.

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

[ammonia]

TWA: 14 mg/m³, (ammonia) 8 hours. TWA: 20 ppm, (ammonia) 8 hours. STEL: 36 mg/m³, (ammonia) 15 minutes. STEL: 50 ppm, (ammonia) 15 minutes.

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

Absorbed through skin.

TWA: 98 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours. STEL: 246 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes.

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/m<sup>3</sup> 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.

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

TWA: 14 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours.

KTV: 36 mg/m³, 4 times per shift, 15 minutes. KTV: 50 ppm, 4 times per shift, 15 minutes.

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

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TWA: 98 mg/m<sup>3</sup> 8 hours. TWA: 20 ppm 8 hours.

KTV: 246 mg/m³, 4 times per shift, 15 minutes. KTV: 50 ppm, 4 times per shift, 15 minutes.

Ammonia

2-(2-butoxyethoxy)ethanol

Ammonia

2-Butoxyethanol

Ammonia

2-Butoxyethanol

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2-(2-butoxyethoxy)ethanol National institute of occupational safety and health (Spain, 4/2022). 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. Ammonia National institute of occupational safety and health (Spain, 4/2022). [ammonia] TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 36 mg/m³ 15 minutes. 2-Butoxyethanol National institute of occupational safety and health (Spain, 4/2022). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m<sup>3</sup> 8 hours. STEL: 245 mg/m<sup>3</sup> 15 minutes. STEL: 50 ppm 15 minutes. 2-(2-butoxyethoxy)ethanol Work environment authority Regulation 2018:1 (Sweden, 9/2021). TWA: 10 ppm 8 hours. TWA: 68 mg/m<sup>3</sup> 8 hours. STEL: 15 ppm 15 minutes. STEL: 101 mg/m<sup>3</sup> 15 minutes. Ammonia Work environment authority Regulation 2018:1 (Sweden, 9/2021). [ammonia] TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 5 minutes. STEL: 36 mg/m<sup>3</sup> 5 minutes. Work environment authority Regulation 2018:1 (Sweden, 2-Butoxyethanol 9/2021). Absorbed through skin. TWA: 10 ppm 8 hours. TWA: 50 mg/m<sup>3</sup> 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m<sup>3</sup> 15 minutes. 2-(2-butoxyethoxy)ethanol SUVA (Switzerland, 1/2021). TWA: 67 mg/m<sup>3</sup> 8 hours. Form: vapour and aerosols STEL: 101 mg/m³ 15 minutes. Form: vapour and aerosols STEL: 15 ppm 15 minutes. Form: vapour and aerosols TWA: 10 ppm 8 hours. Form: vapour and aerosols Ammonia SUVA (Switzerland, 1/2021). [] TWA: 20 ppm 8 hours. TWA: 14 mg/m<sup>3</sup> 8 hours. STEL: 40 ppm 15 minutes. STEL: 28 mg/m<sup>3</sup> 15 minutes. reaction mass of: 5-chloro-2-methyl-SUVA (Switzerland, 1/2021). Skin sensitiser. 4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1) STEL: 0.4 mg/m<sup>3</sup> 15 minutes. Form: Inhalable fraction TWA: 0.2 mg/m<sup>3</sup> 8 hours. Form: Inhalable fraction 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<sup>3</sup> 8 hours. STEL: 101.2 mg/m<sup>3</sup> 15 minutes. EH40/2005 WELs (United Kingdom (UK), 1/2020). [ammonia] Ammonia STEL: 25 mg/m<sup>3</sup> 15 minutes. Form: anhydrous STEL: 35 ppm 15 minutes. Form: anhydrous TWA: 25 ppm 8 hours. Form: anhydrous TWA: 18 mg/m<sup>3</sup> 8 hours. Form: anhydrous

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through skin.

EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed

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STEL: 50 ppm 15 minutes. TWA: 25 ppm 8 hours. STEL: 246 mg/m<sup>3</sup> 15 minutes. TWA: 123 mg/m<sup>3</sup> 8 hours. Formaldehyde EH40/2005 WELs (United Kingdom (UK), 1/2020). STEL: 2.5 mg/m³ 15 minutes. STEL: 2 ppm 15 minutes. TWA: 2 ppm 8 hours. TWA: 2.5 mg/m<sup>3</sup> 8 hours.

#### **Biological exposure indices**

Product/ingredient name	Exposure indices
No exposure indices known.	
<b>2</b> -Butoxyethanol	Government regulation of Czech Republic Limit Values of Biological Exposure Tests (Czech Republic, 9/2015)  Biological limit values: 0.17 mmol/mmol creatinine, butoxyacetic acid (after hydrolysis) [in urine]. Sampling time: the end of the shift at the end of the week.  Biological limit values: 200 mg/g creatinine, butoxyacetic acid (after hydrolysis) [in urine]. Sampling time: the end of the shift at the end of the week.
No exposure indices known.	
Z-Butoxyethanol	NAOSH (Ireland, 1/2011)  BMGV: 200 mg/g creatinine, BAA [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.
No exposure indices known.	

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2-Butoxyethanol

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

BAT: 150 mg/g creatinine, butoxyacetic acid (after hydrolysis) [in urine]. Sampling time: at the end of the work shift, at long-term exposure: at the end of the work shift after several consecutive workdays.

**2**-Butoxyethanol

National institute of occupational safety and health (Spain, 4/2022)

VLB: 200 mg/g creatinine, butoxyacetic acid [in urine]. Sampling time: end of shift.

No exposure indices known.

No exposure indices known.

No exposure indices known.

Recommended monitoring procedures

: 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-butoxyethoxy)ethanol	DNEL	Long term Oral	6.25 mg/ kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	67.5 mg/m³		Local
	DNEL	Short term Inhalation	101.2 mg/ m³	Workers	Local
2-Butoxyethanol	DNEL	Long term Oral	6.3 mg/kg bw/day	General population	Systemic
	DNEL	Short term Oral	26.7 mg/ kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	59 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	98 mg/m³	Workers	Systemic
	DNEL	Short term Inhalation	147 mg/m³	General population	Local
	DNEL	Short term Inhalation	246 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Inhalation	426 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Short term Inhalation	1091 mg/ m³	Workers	Systemic
1,2-benzisothiazol-3(2H)-one	DNEL	Long term Dermal	0.345 mg/ kg bw/day	General population	Systemic
	DNEL	Long term Dermal	0.966 mg/ kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	1.2 mg/m <sup>3</sup>	General population	Systemic
	DNEL	Long term Inhalation	6.81 mg/m³		Systemic
reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1)	DNEL	Long term Inhalation	0.02 mg/m <sup>3</sup>	General population	Local
(5)	DNEL	Long term Inhalation	0.02 mg/m <sup>3</sup>	Workers	Local

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#### SECTION 8: Exposure controls/personal protection DNEL Short term 0.04 mg/m<sup>3</sup> General Local Inhalation population **DNEL** Short term 0.04 mg/m Workers Local Inhalation **DNEL** Long term Oral 0.09 mg/ General Systemic kg bw/day population **DNEL** Short term Oral 0.11 mg/ General Systemic kg bw/day population

#### **PNECs**

No PNECs available

#### 8.2 Exposure controls

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

#### 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

## 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.

Recommendations: Wear suitable gloves tested to EN374.

> 8 hours (breakthrough time): Nitrile gloves. thickness > 0.3 mm Not recommended polyvinyl alcohol (PVA) gloves

**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.

Filter type (spray application): A P

**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.

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## **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. Colour : White. : Slight **Odour** 

: Not available. **Odour threshold** Melting point/freezing point : Not available.

Initial boiling point and

Ingredient name

2-(2-butoxyethoxy)ethanol

boiling range

water

°C °F **Method** 100 212

437 to 441.7

**Flammability** : Not available. : Lower: 0.8% Lower and upper explosion Upper: 9.4% limit

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

**Auto-ignition temperature** 

Ingredient name	°C	°F	Method
2-(2-butoxyethoxy)ethanol	210	410	DIN 51794
2,2,4-trimethylpentane-1,3-diol isobutyrate	393	739.4	

225 to 227.6

**Decomposition temperature** : Not available. pН Not applicable. Not available. **Viscosity** 

Solubility(ies)

Not available.

Solubility in water : Not available. Partition coefficient: n-octanol/ : Not applicable.

water

Vapour pressure

	Va	Vapour Pressure at 20°C			Vapour pressure at 50°		
Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method	
water	17.5	2.3					
2-(2-butoxyethoxy)ethanol	0.022	0.0029					

**Relative density** : Not available. : 1.2 g/cm<sup>3</sup> **Density** : Not available. Vapour density : Not available. **Explosive properties** : Not available. **Oxidising properties** 

**Particle characteristics** 

**Median particle size** : Not applicable.

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## **SECTION 10: Stability and 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

10.1 Reactivity

: 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.

## **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-butoxyethoxy)ethanol	LD50 Dermal	Rabbit	2700 mg/kg	-
	LD50 Oral	Rat	4500 mg/kg	-
Ammonia	LD50 Oral	Rat	350 mg/kg	-
1,2-benzisothiazol-3(2H)-	LD50 Oral	Rat	1020 mg/kg	-
one				
reaction mass of: 5-chloro-	LD50 Oral	Rat	53 mg/kg	-
2-methyl-4-isothiazolin-				
3-one [EC no. 247-500-7]				
and 2-methyl-2H-isothiazol-				
3-one [EC no. 220-239-6] (3:				
1)				

Conclusion/Summary

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

#### **Acute toxicity estimates**

Route	ATE value
Inhalation (vapours)	3000 mg/l

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Manium dioxide	Skin - Mild irritant	Human	-	72 hours 300 ug I	-
2-(2-butoxyethoxy)ethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 20 mg	-
	Eyes - Severe irritant	Rabbit	-	20 mg	-
Ammonia	Eyes - Severe irritant	Rabbit	-	0.5 minutes 1 mg	-
	Eyes - Severe irritant	Rabbit	-	250 ug	-
2-Butoxyethanol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Severe irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
1,2-benzisothiazol-3(2H)-one	Skin - Mild irritant	Human	-	48 hours 5 %	-
reaction mass of: 5-chloro- 2-methyl-4-isothiazolin- 3-one [EC no. 247-500-7] and 2-methyl-2H-isothiazol- 3-one [EC no. 220-239-6] (3: 1)	Skin - Severe irritant	Human	-	0.01 %	-

**Conclusion/Summary** 

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

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## SECTION 11: Toxicological information

**Sensitisation** 

**Conclusion/Summary** : May cause an allergic skin reaction.

**Mutagenicity** 

**Conclusion/Summary** : Based on available data, the classification criteria are not met.

**Carcinogenicity** 

It has been observed that the carcinogenic hazard of this product arises when respirable dust is inhaled in quantities leading to significant impairment of particle clearance mechanisms in the lung.

: Based on available data, the classification criteria are not met. Conclusion/Summary

**Reproductive toxicity** 

: Based on available data, the classification criteria are not met. Conclusion/Summary

**Teratogenicity** 

: Based on available data, the classification criteria are not met. **Conclusion/Summary** 

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Ammonia	Category 3	-	Respiratory tract irritation

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

Not available.

#### Aspiration hazard

Not available.

Information on likely routes : Not available.

of exposure

Potential acute health effects

**Eye contact** : No known significant effects or critical hazards. Inhalation : No known significant effects or critical hazards.

Skin contact : May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

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

: No specific data. **Eye contact** Inhalation : No specific data.

Skin contact Adverse symptoms may include the following:

> irritation redness

Ingestion : No specific data.

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

**Potential immediate** : Not available.

effects

Potential delayed effects : Not available.

**Long term exposure** 

**Potential immediate** : Not available.

effects

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary Not available.

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## **SECTION 11: Toxicological information**

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.
 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
iranium dioxide	Acute LC50 3 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 6.5 mg/l Fresh water	Daphnia - <i>Daphnia pulex</i> - Neonate	48 hours
	Acute LC50 >1000000 μg/l Marine water	Fish - Fundulus heteroclitus	96 hours
2-(2-butoxyethoxy)ethanol	Acute LC50 1300000 µg/l Fresh water	Fish - Lepomis macrochirus	96 hours
Ammonia	Acute LC50 37 ppm Fresh water	Fish - <i>Gambusia affinis</i> - Adult	96 hours
2-Butoxyethanol	Acute EC50 >1000 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
-	Acute LC50 800000 μg/l Marine water	Crustaceans - Crangon crangon	48 hours
	Acute LC50 1250000 µg/l Marine water	Fish - Menidia beryllina	96 hours
1,2-benzisothiazol-3(2H)-one	Acute EC50 0.36 mg/l Marine water	Algae - Skeletonema Costatum	72 hours
	Acute EC50 3.7 mg/l	Daphnia - <i>Daphnia Magna</i>	48 hours
	Acute LC50 1.9 mg/l Fresh water	Fish - Onorhynchus Mykiss	96 hours
	Acute NOEC 0.15 mg/l Marine water	Algae - Skeletonema Costatum	72 hours

**Conclusion/Summary**: Based on available data, the classification criteria are not met.

#### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
7,2-benzisothiazol-3(2H)-one	EU	24 % - 28 days	-	-

**Conclusion/Summary**: This product has not been tested for biodegradation.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
7,2-benzisothiazol-3(2H)-one	-	-	Inherent

#### 12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
2-(2-butoxyethoxy)ethanol	1	-	Low
2-Butoxyethanol	0.81	-	Low
1,2-benzisothiazol-3(2H)-one	-	3.2	Low

#### 12.4 Mobility in soil

coefficient (Koc)

Soil/water partition : 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.

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## **SECTION 12: Ecological information**

#### 12.6 Endocrine disrupting properties

Not available.

#### 12.7 Other adverse effects

No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

#### **Product**

Methods of disposal

: The generation of waste should be avoided or minimised 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.

: The classification of the product may meet the criteria for a hazardous waste.

**Hazardous waste European waste** catalogue (EWC)

: 080112, 200128

**Packaging** 

**Methods of disposal** 

- : The generation of waste should be avoided or minimised 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

## **SECTION 14: Transport information**

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	Not regulated.	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.	No.

user

14.6 Special precautions for : 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 relevant/applicable due to nature of the product.

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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 authorisation

**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

Product/ingredient name	%	Designation [Usage]
FEKNOSAFE FLAME PROTECT 2458-00	≥90	3
2-(2-butoxyethoxy)ethanol	≤3	55 [Consumer paint]

Labelling

**Other EU regulations** 

**Industrial emissions** : Not listed

(integrated pollution prevention and control) -

Air

**Industrial emissions** : Not listed

(integrated pollution prevention and control) -

Water

: Not applicable. **Explosive precursors** 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** 

**Austria** 

**VbF** class : Not regulated. Limitation of the use of : Permitted.

organic solvents

**Czech Republic** 

Storage code : IV

**Denmark** 

**Danish fire class** : IV-1 Executive Order No. 1795/2015

Ingredient name	Annex I Section A	Annex I Section B
tranium dioxide	Listed	-

**MAL-code** : 00-1

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## SECTION 15: Regulatory information

Protection based on MAL : According to the regulations on work involving coded products, the following stipulations apply to the use of personal protective equipment:

> **General:** Gloves must be worn for all work that may result in soiling. Apron/ coveralls/protective clothing must be worn when soiling is so great that regular work clothes do not adequately protect skin against contact with the product. A face shield must be worn in work involving spattering if a full mask is not required. In this case, other recommended use of eye protection is not required.

> In all spraying operations in which there is return spray, the following must be worn: respiratory protection and arm protectors/apron/coveralls/protective clothing as appropriate or as instructed.

MAL-code: 00-1

Application: When spraying in existing\* spray booths, if the operator is outside the spray zone.

- Arm protectors must be worn.

During all spraying where atomisation occurs in cabins or spray booths where the operator is inside the spray zone and during spraying outside a closed facility, cabin or booth.

- Full mask with combined filter, coveralls and hood must be worn.

Drying: Items for drying/drying ovens that are temporarily placed on such things as rack trolleys, etc. must be equipped with a mechanical exhaust system to prevent fumes from wet items from passing through workers' inhalation zone.

**Polishing:** When polishing treated surfaces, a mask with dust filter must be worn. When machine grinding, eye protection must be worn. Work gloves must always be

**Caution** The regulations contain other stipulations in addition to the above.

\*See Regulations.

Restrictions on use

: Not to be used by professional users below 18 years of age. See the National Working Environment Authorities Executive Order regarding Young People At Work.

List of undesirable substances

: Not listed

Carcinogenic waste

: Waste containers must be labeled: Contains a substance or substances regulated by Danish working environment legislation on cancer risks.

**Finland France** 

Social Security Code, Articles L 461-1 to L 461-7

**RG 84** : 2-(2-butoxyethoxy)ethanol

Reinforced medical surveillance

: Act of July 11, 1977 determining the list of activities which require reinforced medical surveillance: not applicable

**Germany** 

Storage class (TRGS 510) : 10 **Hazardous incident ordinance** 

This product is not controlled under the Germany Hazardous Incident Ordinance.

Hazard class for water

**Technical instruction on** air quality control

: TA-Luft Number 5.2.5: 3.8%

**AOX** : The product contains organically bound halogens and can contribute to the AOX value in waste water.

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## SECTION 15: Regulatory information

**Italy** 

D.Lgs. 152/06 : Not determined.

**Netherlands** 

**Water Discharge Policy** 

(ABM)

: A(3) Hazardous for aquatic organisms, may have long-term hazardous effects in

aquatic environment. Decontamination effort: A

**Norway Sweden Switzerland** 

**VOC** content : Exempt.

**International regulations** 

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

**Montreal Protocol** 

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.

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.

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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

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

Classification	Justification
Skin Sens. 1, H317	Calculation method

#### Full text of abbreviated H statements

<b>⊮</b> 301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal 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.
H335	May cause respiratory irritation.

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#### **SECTION 16: Other information**

H351 Suspected of causing cancer. H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

EUH071 Corrosive to the respiratory tract.

#### 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 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

Carc. 2 CARCINOGENICITY - Category 2

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 Corr. 1C Skin Irrit. 2 SKIN CORROSION/IRRITATION - Category 1C SKIN CORROSION/IRRITATION - Category 2

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Skin Sens. 1 SKIN SENSITISATION - Category 1
Skin Sens. 1A SKIN SENSITISATION - Category 1A

STOT SE 3 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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#### **Notice to reader**

The information in this SDS is based on the present state of our knowledge and on current laws. The product is not to be used for purposes other than those specified under section 1 without first obtaining written handling instructions. It is always the responsibility of the user to take all necessary steps to fulfil the demands set out in the local rules and legislation. The information in this SDS is meant to be a description of the safety requirements for our product. It is not to be considered a guarantee of the product's properties.

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