

# SAFETY DATA SHEET



MOTIVO CHIARO 2083-30

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

### 1.1 Product identifier

**Product name** : MOTIVO CHIARO 2083-30

### 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** : 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** : Contains: EO bis(benzotriazolyl)phenylpropionat and 1,2-benzisothiazol-3(2H)-one

**Supplemental label elements** :

**Date of issue/Date of revision** : 26/09/2024

**Date of previous issue** : 03/05/2024

**Version** : 1.01 1/23

MOTIVO CHIARO 2083-30

**Label No** : 48261

## SECTION 2: Hazards identification

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

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

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures : Mixture

| Product/ingredient name                  | Identifiers  | %     | Classification  | Specific Conc. Limits, M-factors and ATEs                                       | Type    |
|--|--|-------|---|---|---------|
| 2-Butoxyethanol                          | REACH #:<br>01-2119475108-36<br>EC: 203-905-0<br>CAS: 111-76-2<br>Index: 603-014-00-0    | ≤3    | Acute Tox. 4, H302<br>Acute Tox. 3, H331<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319   | ATE [Oral] = 1200<br>mg/kg<br>ATE [Inhalation<br>(vapours)] = 3 mg/l            | [1] [2] |
| Ethanediol                               | REACH #:<br>01-2119456816-28<br>EC: 203-473-3<br>CAS: 107-21-1<br>Index: 603-027-00-1    | ≤3    | Acute Tox. 4, H302<br>STOT RE 2, H373<br>(oral)   | ATE [Oral] = 500<br>mg/kg   | [1] [2] |
| EO bis(benztriazolyl)<br>phenylpropionat | REACH #:<br>01-0000015075-76<br>EC: 400-830-7<br>CAS: 104810-48-2<br>Index: 607-176-00-3 | ≤0.3  | Skin Sens. 1A, H317<br>Aquatic Chronic 2,<br>H411   | -   | [1]     |
| 1,2-benzisothiazol-3(2H)-<br>one         | EC: 220-120-9<br>CAS: 2634-33-5<br>Index: 613-088-00-6                                   | <0.05 | Acute Tox. 4, H302<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>Skin Sens. 1, H317<br>Aquatic Acute 1, H400<br><b>See Section 16 for<br/>the full text of the H<br/>statements declared<br/>above.</b> | ATE [Oral] = 1020<br>mg/kg<br>Skin Sens. 1, H317:<br>C ≥ 0.05%<br>M [Acute] = 1 | [1]     |

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** : 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.
- 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 gloves.

### 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
- Ingestion** : No specific data.

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

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

- Hazards from the substance or mixture** : In a fire or if heated, a pressure increase will occur and the container may burst.
- Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide

## SECTION 5: Firefighting measures

### 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.
- 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.

## SECTION 7: Handling and storage

### 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 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-Butoxyethanol         | <b>Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin.</b><br>TWA: 20 ppm 8 hours.<br>TWA: 98 mg/m <sup>3</sup> 8 hours.<br>PEAK: 40 ppm, 4 times per shift, 30 minutes.<br>PEAK: 200 mg/m <sup>3</sup> , 4 times per shift, 30 minutes.  |
| Ethanediol              | <b>Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin.</b><br>TWA: 10 ppm 8 hours.<br>TWA: 26 mg/m <sup>3</sup> 8 hours.<br>CEIL: 20 ppm, 8 times per shift, 5 minutes.<br>CEIL: 52 mg/m <sup>3</sup> , 8 times per shift, 5 minutes.   |
| 2-Butoxyethanol         | <b>Limit values (Belgium, 5/2021). Absorbed through skin.</b><br>TWA: 20 ppm 8 hours.<br>TWA: 98 mg/m <sup>3</sup> 8 hours.<br>STEL: 50 ppm 15 minutes.<br>STEL: 246 mg/m <sup>3</sup> 15 minutes.   |
| Ethanediol              | <b>Limit values (Belgium, 5/2021). Absorbed through skin.</b><br>TWA: 20 ppm 8 hours. Form: Aerosol<br>TWA: 52 mg/m <sup>3</sup> 8 hours. Form: Aerosol<br>Limit value - M: 40 ppm Form: Aerosol<br>Limit value - M: 104 mg/m <sup>3</sup> Form: Aerosol   |
| 2-Butoxyethanol         | <b>Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). Absorbed through skin.</b><br>Limit value 8 hours: 98 mg/m <sup>3</sup> 8 hours.<br>Limit value 15 min: 246 mg/m <sup>3</sup> 15 minutes.<br>Limit value 15 min: 50 ppm 15 minutes.<br>Limit value 8 hours: 20 ppm 8 hours. |
| Ethanediol              | <b>Ministry of Labour and Social Policy and the Ministry of Health - Ordinance No 13/2003. (Bulgaria, 6/2021). Absorbed through skin.</b><br>Limit value 8 hours: 52 mg/m <sup>3</sup> 8 hours.<br>Limit value 15 min: 104 mg/m <sup>3</sup> 15 minutes.<br>Limit value 15 min: 40 ppm 15 minutes.<br>Limit value 8 hours: 20 ppm 8 hours. |

## SECTION 8: Exposure controls/personal protection

|                 |   |
|-----------------|---|
| 2-Butoxyethanol | <p><b>Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin.</b><br/>           STELV: 246 mg/m<sup>3</sup> 15 minutes.<br/>           STELV: 50 ppm 15 minutes.<br/>           ELV: 98 mg/m<sup>3</sup> 8 hours.<br/>           ELV: 20 ppm 8 hours.</p>      |
| Ethanediol      | <p><b>Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin.</b><br/>           STELV: 104 mg/m<sup>3</sup> 15 minutes.<br/>           STELV: 40 ppm 15 minutes.<br/>           ELV: 52 mg/m<sup>3</sup> 8 hours.<br/>           ELV: 20 ppm 8 hours.</p>      |
| 2-Butoxyethanol | <p><b>Department of labour inspection (Cyprus, 7/2021). Absorbed through skin.</b><br/>           STEL: 50 ppm 15 minutes.<br/>           STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/>           TWA: 20 ppm 8 hours.<br/>           TWA: 98 mg/m<sup>3</sup> 8 hours.</p>                                     |
| Ethanediol      | <p><b>Department of labour inspection (Cyprus, 7/2021). Absorbed through skin.</b><br/>           STEL: 40 ppm 15 minutes.<br/>           STEL: 104 mg/m<sup>3</sup> 15 minutes.<br/>           TWA: 20 ppm 8 hours.<br/>           TWA: 52 mg/m<sup>3</sup> 8 hours.</p>                                     |
| 2-Butoxyethanol | <p><b>Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). Absorbed through skin.</b><br/>           TWA: 100 mg/m<sup>3</sup> 8 hours.<br/>           TWA: 20.4 ppm 8 hours.<br/>           STEL: 200 mg/m<sup>3</sup> 15 minutes.<br/>           STEL: 40.8 ppm 15 minutes.</p>     |
| Ethanediol      | <p><b>Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). Absorbed through skin.</b><br/>           TWA: 50 mg/m<sup>3</sup> 8 hours.<br/>           TWA: 19.4 ppm 8 hours.<br/>           STEL: 100 mg/m<sup>3</sup> 15 minutes.<br/>           STEL: 38.8 ppm 15 minutes.</p>      |
| 2-Butoxyethanol | <p><b>Working Environment Authority (Denmark, 6/2022). Absorbed through skin.</b><br/>           TWA: 20 ppm 8 hours.<br/>           TWA: 98 mg/m<sup>3</sup> 8 hours.<br/>           STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/>           STEL: 50 ppm 15 minutes.</p>                                      |
| Ethanediol      | <p><b>Working Environment Authority (Denmark, 6/2022). [ethylenglycol] Absorbed through skin.</b><br/>           TWA: 10 ppm 8 hours.<br/>           TWA: 26 mg/m<sup>3</sup> 8 hours.<br/>           STEL: 104 mg/m<sup>3</sup> 15 minutes.<br/>           STEL: 40 ppm 15 minutes.</p>                      |
| 2-Butoxyethanol | <p><b>Working Environment Authority (Denmark, 6/2022). [ethylenglycol Forstøvet]</b><br/>           TWA: 10 mg/m<sup>3</sup> 8 hours. Form: particles<br/>           STEL: 20 mg/m<sup>3</sup> 15 minutes. Form: particles</p>  |
| 2-Butoxyethanol | <p><b>Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). Absorbed through skin. Skin sensitiser.</b><br/>           TWA: 98 mg/m<sup>3</sup> 8 hours.<br/>           TWA: 20 ppm 8 hours.<br/>           STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/>           STEL: 50 ppm 15 minutes.</p> |
| Ethanediol      | <p><b>Occupational exposure limits, Regulation No. 293 (Estonia, 12/2022). Absorbed through skin.</b><br/>           TWA: 52 mg/m<sup>3</sup> 8 hours.<br/>           TWA: 20 ppm 8 hours.<br/>           STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>  |

## SECTION 8: Exposure controls/personal protection

|                              |  |
|------------------------------|--|
| 2-Butoxyethanol              | <p>STEL: 40 ppm 15 minutes.</p> <p><b>EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b></p> <p>TWA: 20 ppm 8 hours.<br/>TWA: 98 mg/m<sup>3</sup> 8 hours.<br/>STEL: 50 ppm 15 minutes.<br/>STEL: 246 mg/m<sup>3</sup> 15 minutes.</p>   |
| Ethanediol                   | <p><b>EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b></p> <p>TWA: 20 ppm 8 hours.<br/>TWA: 52 mg/m<sup>3</sup> 8 hours.<br/>STEL: 40 ppm 15 minutes.<br/>STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>   |
| 2-Butoxyethanol              | <p><b>Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin.</b></p> <p>TWA: 20 ppm 8 hours.<br/>TWA: 98 mg/m<sup>3</sup> 8 hours.<br/>STEL: 50 ppm 15 minutes.<br/>STEL: 250 mg/m<sup>3</sup> 15 minutes.</p>  |
| Ethanediol                   | <p><b>Institute of Occupational Health, Ministry of Social Affairs (Finland, 10/2021). Absorbed through skin.</b></p> <p>TWA: 20 ppm 8 hours.<br/>TWA: 50 mg/m<sup>3</sup> 8 hours.<br/>STEL: 40 ppm 15 minutes.<br/>STEL: 100 mg/m<sup>3</sup> 15 minutes.</p>  |
| 2-Butoxyethanol              | <p><b>Ministry of Labor (France, 10/2022). Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)</b></p> <p>TWA: 10 ppm 8 hours.<br/>TWA: 49 mg/m<sup>3</sup> 8 hours.<br/>STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/>STEL: 50 ppm 15 minutes.</p>   |
| Ethanediol                   | <p><b>Ministry of Labor (France, 10/2022). Absorbed through skin. Notes: Indicative regulatory limit values (decree of 30-06-2004 modified)</b></p> <p>STEL: 40 ppm 15 minutes. Form: Vapour<br/>STEL: 104 mg/m<sup>3</sup> 15 minutes. Form: Vapour<br/>TWA: 20 ppm 8 hours. Form: Vapour<br/>TWA: 52 mg/m<sup>3</sup> 8 hours. Form: Vapour</p>  |
| 2-Butoxyethanol              | <p><b>TRGS 900 OEL (Germany, 6/2022). Absorbed through skin.</b></p> <p>TWA: 49 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 98 mg/m<sup>3</sup> 15 minutes.<br/>TWA: 10 ppm 8 hours.<br/>PEAK: 20 ppm 15 minutes.</p> <p><b>DFG MAC-values list (Germany, 7/2022). Absorbed through skin.</b></p> <p>TWA: 10 ppm 8 hours.<br/>PEAK: 20 ppm, 4 times per shift, 15 minutes.<br/>TWA: 49 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 98 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.</p> |
| Ethanediol                   | <p><b>TRGS 900 OEL (Germany, 6/2022). Absorbed through skin.</b></p> <p>TWA: 26 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 52 mg/m<sup>3</sup> 15 minutes.<br/>TWA: 10 ppm 8 hours.<br/>PEAK: 20 ppm 15 minutes.</p> <p><b>DFG MAC-values list (Germany, 7/2022). Absorbed through skin.</b></p> <p>TWA: 10 ppm 8 hours.<br/>PEAK: 20 ppm, 4 times per shift, 15 minutes.<br/>TWA: 26 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 52 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.</p> |
| 1,2-benzisothiazol-3(2H)-one | <p><b>DFG MAC-values list (Germany, 7/2022). Skin sensitiser.</b></p>  |

## SECTION 8: Exposure controls/personal protection

|                 |   |
|-----------------|---|
| 2-Butoxyethanol | <p><b>Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021). Absorbed through skin.</b><br/>TWA: 25 ppm 8 hours.<br/>TWA: 120 mg/m<sup>3</sup> 8 hours.</p>   |
| Ethanediol      | <p><b>Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021).</b><br/>TWA: 50 ppm 8 hours. Form: Vapour<br/>TWA: 125 mg/m<sup>3</sup> 8 hours. Form: Vapour<br/>STEL: 50 ppm 15 minutes. Form: Vapour<br/>STEL: 125 mg/m<sup>3</sup> 15 minutes. Form: Vapour</p>                          |
| 2-Butoxyethanol | <p><b>5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.</b><br/>TWA: 98 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 246 mg/m<sup>3</sup> 15 minutes.<br/>PEAK: 50 ppm 15 minutes.<br/>TWA: 20 ppm 8 hours.</p>   |
| Ethanediol      | <p><b>5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.</b><br/>TWA: 52 mg/m<sup>3</sup> 8 hours.<br/>PEAK: 104 mg/m<sup>3</sup> 15 minutes.<br/>PEAK: 40 ppm 15 minutes.<br/>TWA: 20 ppm 8 hours.</p>   |
| 2-Butoxyethanol | <p><b>Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). Absorbed through skin.</b><br/>STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/>STEL: 50 ppm 15 minutes.<br/>TWA: 100 mg/m<sup>3</sup> 8 hours.<br/>TWA: 20 ppm 8 hours.</p>  |
| Ethanediol      | <p><b>Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). Absorbed through skin.</b><br/>TWA: 26 mg/m<sup>3</sup> 8 hours.<br/>TWA: 10 ppm 8 hours.</p>   |
| 2-Butoxyethanol | <p><b>NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values</b><br/>OELV-8hr: 20 ppm 8 hours.<br/>OELV-8hr: 98 mg/m<sup>3</sup> 8 hours.<br/>OELV-15min: 50 ppm 15 minutes.<br/>OELV-15min: 246 mg/m<sup>3</sup> 15 minutes.</p>                                       |
| Ethanediol      | <p><b>NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values</b><br/>OELV-15min: 104 mg/m<sup>3</sup> 15 minutes. Form:<br/>OELV-15min: 40 ppm 15 minutes. Form:<br/>OELV-8hr: 52 mg/m<sup>3</sup> 8 hours. Form:<br/>OELV-8hr: 20 ppm 8 hours. Form:</p>               |
| 2-Butoxyethanol | <p><b>Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). Absorbed through skin.</b><br/>8 hours: 20 ppm 8 hours.<br/>8 hours: 98 mg/m<sup>3</sup> 8 hours.<br/>Short Term: 50 ppm 15 minutes.<br/>Short Term: 246 mg/m<sup>3</sup> 15 minutes.</p> |
| Ethanediol      | <p><b>Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). Absorbed through skin.</b><br/>8 hours: 20 ppm 8 hours.<br/>8 hours: 52 mg/m<sup>3</sup> 8 hours.<br/>Short Term: 40 ppm 15 minutes.<br/>Short Term: 104 mg/m<sup>3</sup> 15 minutes.</p> |



## SECTION 8: Exposure controls/personal protection

|                 |  |
|-----------------|--|
| 2-Butoxyethanol | <p><b>Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). Absorbed through skin.</b><br/> TWA: 98 mg/m<sup>3</sup> 8 hours.<br/> TWA: 20 ppm 8 hours.<br/> STEL: 50 ppm 15 minutes.<br/> STEL: 246 mg/m<sup>3</sup> 15 minutes.</p>   |
| Ethanediol      | <p><b>Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). Absorbed through skin.</b><br/> TWA: 52 mg/m<sup>3</sup> 8 hours.<br/> TWA: 20 ppm 8 hours.<br/> STEL: 40 ppm 15 minutes.<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>   |
| 2-Butoxyethanol | <p><b>Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin.</b><br/> TWA: 50 mg/m<sup>3</sup> 8 hours.<br/> TWA: 10 ppm 8 hours.<br/> STEL: 100 mg/m<sup>3</sup> 15 minutes.<br/> STEL: 20 ppm 15 minutes.</p>   |
| Ethanediol      | <p><b>Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin.</b><br/> TWA: 25 mg/m<sup>3</sup> 8 hours. Form: vapour and aerosol<br/> TWA: 10 ppm 8 hours. Form: vapour and aerosol<br/> STEL: 50 mg/m<sup>3</sup> 15 minutes. Form: vapour and aerosol<br/> STEL: 20 ppm 15 minutes. Form: vapour and aerosol</p>  |
| 2-Butoxyethanol | <p><b>Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021). Absorbed through skin.</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 98 mg/m<sup>3</sup> 8 hours.<br/> STEL: 50 ppm 15 minutes.<br/> STEL: 246 mg/m<sup>3</sup> 15 minutes.</p>  |
| Ethanediol      | <p><b>Grand-Duchy Regulation 2016. Chemical agents. Annex I (Luxembourg, 3/2021). Absorbed through skin.</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 52 mg/m<sup>3</sup> 8 hours.<br/> STEL: 40 ppm 15 minutes.<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>  |
| 2-Butoxyethanol | <p><b>EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 98 mg/m<sup>3</sup> 8 hours.<br/> STEL: 50 ppm 15 minutes.<br/> STEL: 246 mg/m<sup>3</sup> 15 minutes.</p>  |
| Ethanediol      | <p><b>EU OEL (Europe, 1/2022). Absorbed through skin. Notes: list of indicative occupational exposure limit values</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 52 mg/m<sup>3</sup> 8 hours.<br/> STEL: 40 ppm 15 minutes.<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>  |
| 2-Butoxyethanol | <p><b>Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). Absorbed through skin.</b><br/> OEL, 8-h TWA: 100 mg/m<sup>3</sup> 8 hours.<br/> STEL, 15-min: 246 mg/m<sup>3</sup> 15 minutes.<br/> OEL, 8-h TWA: 20.4 ppm 8 hours.<br/> STEL, 15-min: 50 ppm 15 minutes.</p>   |
| Ethanediol      | <p><b>Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). [ethaan-1,2-diol druppels]</b><br/> OEL, 8-h TWA: 10 mg/m<sup>3</sup> 8 hours. Form: droplets<br/> <b>Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). [ethaan-1,2-diol damp] Absorbed through skin.</b><br/> OEL, 8-h TWA: 52 mg/m<sup>3</sup> 8 hours. Form: Vapour<br/> STEL, 15-min: 104 mg/m<sup>3</sup> 15 minutes. Form: Vapour<br/> STEL, 15-min: 40 ppm 15 minutes. Form: Vapour</p> |

## SECTION 8: Exposure controls/personal protection

|                 |  |
|-----------------|--|
| 2-Butoxyethanol | OEL, 8-h TWA: 20 ppm 8 hours. Form: Vapour<br><b>FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin. Notes: indicative limit value</b><br>TWA: 10 ppm 8 hours.<br>TWA: 50 mg/m <sup>3</sup> 8 hours.   |
| Ethanediol      | <b>FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin. Notes: indicative limit value</b><br>TWA: 52 mg/m <sup>3</sup> 8 hours. Form: dust<br>TWA: 20 ppm 8 hours.<br><b>FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin.</b><br>STEL: 104 mg/m <sup>3</sup> 15 minutes.<br>STEL: 40 ppm 15 minutes.   |
| 2-Butoxyethanol | <b>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.</b><br>TWA: 98 mg/m <sup>3</sup> 8 hours.<br>STEL: 200 mg/m <sup>3</sup> 15 minutes. |
| Ethanediol      | <b>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.</b><br>TWA: 15 mg/m <sup>3</sup> 8 hours.<br>STEL: 50 mg/m <sup>3</sup> 15 minutes.  |
| 2-Butoxyethanol | <b>Portuguese Institute of Quality (Portugal, 11/2014).</b><br>TWA: 20 ppm 8 hours.  |
| Ethanediol      | <b>Portuguese Institute of Quality (Portugal, 11/2014).</b><br>CEIL: 100 mg/m <sup>3</sup> Form: Aerosol   |
| 2-Butoxyethanol | <b>HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). Absorbed through skin.</b><br>VLA: 98 mg/m <sup>3</sup> 8 hours.<br>VLA: 20 ppm 8 hours.<br>Short term: 246 mg/m <sup>3</sup> 15 minutes.<br>Short term: 50 ppm 15 minutes.   |
| Ethanediol      | <b>HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). Absorbed through skin.</b><br>VLA: 52 mg/m <sup>3</sup> 8 hours.<br>VLA: 20 ppm 8 hours.<br>Short term: 104 mg/m <sup>3</sup> 15 minutes.<br>Short term: 40 ppm 15 minutes.   |
| 2-Butoxyethanol | <b>Government regulation SR c. 355/2006 (Slovakia, 9/2020). Absorbed through skin.</b><br>TWA: 98 mg/m <sup>3</sup> 8 hours.<br>TWA: 20 ppm 8 hours.<br>STEL: 246 mg/m <sup>3</sup> 15 minutes.<br>STEL: 50 ppm 15 minutes.  |
| Ethanediol      | <b>Government regulation SR c. 355/2006 (Slovakia, 9/2020). Absorbed through skin.</b><br>TWA: 52 mg/m <sup>3</sup> 8 hours.<br>TWA: 20 ppm 8 hours.<br>STEL: 104 mg/m <sup>3</sup> 15 minutes.<br>STEL: 40 ppm 15 minutes.  |
| 2-Butoxyethanol | <b>Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). Absorbed through skin.</b><br>TWA: 98 mg/m <sup>3</sup> 8 hours.<br>TWA: 20 ppm 8 hours.<br>KTV: 246 mg/m <sup>3</sup> , 4 times per shift, 15 minutes.<br>KTV: 50 ppm, 4 times per shift, 15 minutes.                                  |

## SECTION 8: Exposure controls/personal protection

|                           |   |
|---------------------------|---|
| Ethanediol                | <p><b>Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021). Absorbed through skin.</b><br/> TWA: 52 mg/m<sup>3</sup> 8 hours.<br/> TWA: 20 ppm 8 hours.<br/> KTV: 104 mg/m<sup>3</sup>, 4 times per shift, 15 minutes.<br/> KTV: 40 ppm, 4 times per shift, 15 minutes.</p> |
| 2-Butoxyethanol           | <p><b>National institute of occupational safety and health (Spain, 4/2022). Absorbed through skin.</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 98 mg/m<sup>3</sup> 8 hours.<br/> STEL: 245 mg/m<sup>3</sup> 15 minutes.<br/> STEL: 50 ppm 15 minutes.</p>   |
| Ethanediol                | <p><b>National institute of occupational safety and health (Spain, 4/2022). Absorbed through skin.</b><br/> TWA: 20 ppm 8 hours.<br/> TWA: 52 mg/m<sup>3</sup> 8 hours.<br/> STEL: 40 ppm 15 minutes.<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>   |
| 2-Butoxyethanol           | <p><b>Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin.</b><br/> TWA: 10 ppm 8 hours.<br/> TWA: 50 mg/m<sup>3</sup> 8 hours.<br/> STEL: 50 ppm 15 minutes.<br/> STEL: 246 mg/m<sup>3</sup> 15 minutes.</p>  |
| Ethanediol                | <p><b>Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin.</b><br/> TWA: 10 ppm 8 hours.<br/> TWA: 25 mg/m<sup>3</sup> 8 hours.<br/> STEL: 40 ppm 15 minutes.<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes.</p>  |
| 2-Butoxyethanol           | <p><b>SUVA (Switzerland, 1/2023). Absorbed through skin.</b><br/> TWA: 10 ppm 8 hours.<br/> TWA: 49 mg/m<sup>3</sup> 8 hours.<br/> STEL: 20 ppm 15 minutes.<br/> STEL: 98 mg/m<sup>3</sup> 15 minutes.</p>  |
| Ethanediol                | <p><b>SUVA (Switzerland, 1/2023). Absorbed through skin.</b><br/> TWA: 10 ppm 8 hours. Form: vapour and aerosols<br/> TWA: 26 mg/m<sup>3</sup> 8 hours. Form: vapour and aerosols<br/> STEL: 20 ppm 15 minutes. Form: vapour and aerosols<br/> STEL: 52 mg/m<sup>3</sup> 15 minutes. Form: vapour and aerosols</p>                              |
| 2-Butoxyethanol           | <p><b>EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.</b><br/> STEL: 50 ppm 15 minutes.<br/> TWA: 25 ppm 8 hours.<br/> STEL: 246 mg/m<sup>3</sup> 15 minutes.<br/> TWA: 123 mg/m<sup>3</sup> 8 hours.</p>  |
| Ethanediol                | <p><b>EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin.</b><br/> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Particulate<br/> TWA: 20 ppm 8 hours. Form: Vapour<br/> STEL: 40 ppm 15 minutes. Form: Vapour<br/> TWA: 52 mg/m<sup>3</sup> 8 hours. Form: Vapour<br/> STEL: 104 mg/m<sup>3</sup> 15 minutes. Form: Vapour</p>      |
| 2-(2-butoxyethoxy)ethanol | <p><b>EH40/2005 WELs (United Kingdom (UK), 1/2020).</b><br/> TWA: 10 ppm 8 hours.<br/> STEL: 15 ppm 15 minutes.<br/> TWA: 67.5 mg/m<sup>3</sup> 8 hours.<br/> STEL: 101.2 mg/m<sup>3</sup> 15 minutes.</p>  |
| Formaldehyde              | <p><b>EH40/2005 WELs (United Kingdom (UK), 1/2020).</b><br/> STEL: 2.5 mg/m<sup>3</sup> 15 minutes.<br/> STEL: 2 ppm 15 minutes.<br/> TWA: 2 ppm 8 hours.</p>   |

## SECTION 8: Exposure controls/personal protection

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

### Biological exposure indices

| Product/ingredient name   | Exposure indices  |
|---|---|
| <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p>   |   |
| <p>2-Butoxyethanol</p>  | <p><b>Government regulation of Czech Republic Limit Values of Biological Exposure Tests (Czech Republic, 9/2015)</b><br/>                     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.<br/>                     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.</p>  |
| <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p>   |   |
| <p>2-Butoxyethanol</p>  | <p><b>DFG BEI-values list (Germany, 7/2022) Notes: danger from percutaneous absorption (see p. 211 and p. 228).</b><br/>                     BEI: 150 mg/g creatinine, butoxyacetic acid (after hydrolysis) [in urine]. Sampling time: end of exposure or end of shift / for long-term exposures: at the end of the shift after several shifts.<br/> <b>TRGS 903 - BEI Values (Germany, 2/2022)</b><br/>                     BEI: 150 mg/g creatinine, butoxy acetic acid (after hydrolysis) [in urine]. Sampling time: end of exposure or end of shift; for long-term exposures: at the end of shift after several shifts.</p> |
| <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p>   |   |
| <p>2-Butoxyethanol</p>  | <p><b>NAOSH (Ireland, 1/2011)</b><br/>                     BMGV: 200 mg/g creatinine, BAA [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.</p>  |
| <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> <p>No exposure indices known.</p> |   |
| <p>2-Butoxyethanol</p>  | <p><b>Portuguese Institute of Quality (Portugal, 11/2014)</b><br/>                     BEI: 200 mg/g creatinine, butoxyacetic acid (BAA) [in urine]. Sampling time: end of shift.</p>   |
| <p>No exposure indices known.</p> <p>No exposure indices known.</p>   |   |

## SECTION 8: Exposure controls/personal protection

|                            |  |
|----------------------------|--|
| 2-Butoxyethanol            | <b>Regulation on protection of workers from the risks related to exposure to chemical substances at work (Slovenia, 5/2021)</b><br>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            | <b>National institute of occupational safety and health (Spain, 4/2022)</b><br>VLB: 200 mg/g creatinine, butoxyacetic acid [in urine]. Sampling time: end of shift.  |
| No exposure indices known. |  |
| 2-Butoxyethanol            | <b>SUVA (Switzerland, 1/2023)</b><br>BEI: 150 mg/g creatinine, 2-butoxy acetic acid (after hydrolysis) [in urine]. Sampling time: immediately after exposure or after working hours. In case of long-term exposure: after more than one shift.   |
| 2-Butoxyethanol            | <b>EH40/2005 BMGVs (United Kingdom (UK), 8/2018)</b><br>BGV: 240 mmol/mol creatinine, butoxyacetic acid [in urine]. Sampling time: post shift.   |

**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-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/m <sup>3</sup>   | General population | Systemic |
|                              | DNEL | Long term Inhalation  | 98 mg/m <sup>3</sup>   | Workers            | Systemic |
|                              | DNEL | Short term Inhalation | 147 mg/m <sup>3</sup>  | 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/m <sup>3</sup> | Workers            | Systemic |
| Ethanediol                   | DNEL | Long term Inhalation  | 7 mg/m <sup>3</sup>    | General population | Local    |
|                              | DNEL | Long term Inhalation  | 35 mg/m <sup>3</sup>   | Workers            | Local    |
|                              | DNEL | Long term Dermal      | 53 mg/kg bw/day        | General population | Systemic |
|                              | DNEL | Long term Dermal      | 106 mg/kg bw/day       | 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/m <sup>3</sup> | Workers            | Systemic |

## SECTION 8: Exposure controls/personal protection

Inhalation

### 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.

## 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** : Various

**Odour** : Slight

**Odour threshold** : Not available.

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

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## SECTION 9: Physical and chemical properties

**Initial boiling point and boiling range** :

| Ingredient name | °C           | °F             | Method    |
|-----------------|--------------|----------------|-----------|
| water           | 100          | 212            |           |
| 2-Butoxyethanol | 171 to 171.5 | 339.8 to 340.7 | IP 123-93 |

**Flammability** : Not available.

**Lower and upper explosion limit** : Lower: 3.2% (ethanediol)  
Upper: 15.3% (ethanediol)

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

**Auto-ignition temperature** :

| Ingredient name | °C  | °F    | Method    |
|-----------------|-----|-------|-----------|
| 2-Butoxyethanol | 230 | 446   | DIN 51794 |
| Ethanediol      | 398 | 748.4 |           |

**Decomposition temperature** : Not available.

**pH** : 7.2 to 7.8

**Viscosity** : Not available.

**Solubility(ies)** :

Not available.

**Solubility in water** : Not available.

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

**Vapour pressure** :

| Ingredient name | Vapour Pressure at 20°C |     |        | Vapour pressure at 50°C |     |        |
|-----------------|-------------------------|-----|--------|-------------------------|-----|--------|
|                 | mm Hg                   | kPa | Method | mm Hg                   | kPa | Method |
| water           | 17.5                    | 2.3 |        |                         |     |        |
| 2-Butoxyethanol | 0.75006                 | 0.1 |        |                         |     |        |

**Relative density** : Not available.

**Density** : 1 g/cm<sup>3</sup>

**Vapour density** : Not available.

**Explosive properties** : Not available.

**Oxidising properties** : Not available.

### **Particle characteristics**

**Median particle size** : Not applicable.

### 9.2 Other information

No additional information.

## 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.

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## SECTION 10: Stability and reactivity

**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 |
|--|-----------|---------|------------|----------|
| Ethanediol<br>1,2-benzisothiazol-3(2H)-one | LD50 Oral | Rat     | 4700 mg/kg | -        |
|  | LD50 Oral | Rat     | 1020 mg/kg | -        |

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

#### Acute toxicity estimates

| Route                        | ATE value                     |
|------------------------------|-------------------------------|
| Oral<br>Inhalation (vapours) | 15789.47 mg/kg<br>107.14 mg/l |

#### Irritation/Corrosion

| Product/ingredient name      | Result                   | Species | Score | Exposure        | Observation |
|------------------------------|--------------------------|---------|-------|-----------------|-------------|
| 2-Butoxyethanol              | Eyes - Moderate irritant | Rabbit  | -     | 24 hours 100 mg | -           |
|                              | Eyes - Severe irritant   | Rabbit  | -     | 100 mg          | -           |
| Ethanediol                   | Skin - Mild irritant     | Rabbit  | -     | 500 mg          | -           |
|                              | Eyes - Mild irritant     | Rabbit  | -     | 1 hours 100 mg  | -           |
|                              | Eyes - Mild irritant     | Rabbit  | -     | 24 hours 500 mg | -           |
|                              | Eyes - Moderate irritant | Rabbit  | -     | 6 hours 1440 mg | -           |
| 1,2-benzisothiazol-3(2H)-one | Skin - Mild irritant     | Rabbit  | -     | 555 mg          | -           |
|                              | Skin - Mild irritant     | Human   | -     | 48 hours 5 %    | -           |

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

#### Sensitisation

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

#### Mutagenicity

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

#### Carcinogenicity

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

#### Reproductive toxicity

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

#### Teratogenicity

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

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

Not available.

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

| Product/ingredient name | Category   | Route of exposure | Target organs |
|-------------------------|------------|-------------------|---------------|
| Ethanediol              | Category 2 | oral              | -             |

#### Aspiration hazard

Not available.



## SECTION 11: Toxicological information

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

### 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

**Eye contact** : No specific data.  
**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 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** : 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-Butoxyethanol              | Acute EC50 >1000 mg/l Fresh water    | Daphnia - <i>Daphnia magna</i>                    | 48 hours |
|                              | Acute LC50 800000 µg/l Marine water  | Crustaceans - <i>Crangon crangon</i>              | 48 hours |
|                              | Acute LC50 1250000 µg/l Marine water | Fish - <i>Menidia beryllina</i>                   | 96 hours |
| Ethanediol                   | Acute LC50 6900000 µg/l Fresh water  | Crustaceans - <i>Ceriodaphnia dubia</i> - Neonate | 48 hours |
|                              | Acute LC50 41000000 µg/l Fresh water | Daphnia - <i>Daphnia magna</i> - Neonate          | 48 hours |
| 1,2-benzisothiazol-3(2H)-one | Acute LC50 8050000 µg/l Fresh water  | Fish - <i>Pimephales promelas</i>                 | 96 hours |
|                              | Acute EC50 0.36 mg/l Marine water    | Algae - <i>Skeletonema Costatum</i>               | 72 hours |
|                              | Acute EC50 3.7 mg/l                  | Daphnia - <i>Daphnia Magna</i>                    | 48 hours |

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## SECTION 12: Ecological information

|  |  |   |                      |
|--|--|---|----------------------|
|  | Acute LC50 1.9 mg/l Fresh water<br>Acute NOEC 0.15 mg/l Marine water | Fish - <i>Onorhynchus Mykiss</i><br>Algae - <i>Skeletonema Costatum</i> | 96 hours<br>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 |
|------------------------------|------|----------------|------|----------|
| 1,2-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 |
|------------------------------|-------------------|------------|------------------|
| 1,2-benzisothiazol-3(2H)-one | -                 | -          | Inherent         |

### 12.3 Bioaccumulative potential

| Product/ingredient name      | LogP <sub>ow</sub> | BCF | Potential |
|------------------------------|--------------------|-----|-----------|
| 2-Butoxyethanol              | 0.81               | -   | Low       |
| Ethenediol                   | -1.36              | -   | Low       |
| 1,2-benzisothiazol-3(2H)-one | -                  | 3.2 | Low       |

### 12.4 Mobility in soil

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

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

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

### 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.

**European waste catalogue (EWC)** : 08.01.19

#### 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.            |

**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 relevant/applicable due to nature of the product.

## 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] |
|-------------------------|-----|---------------------|
| MOTIVO CHIARO 2083-30   | ≥90 | 3                   |

**Labelling** :

**Other EU regulations**

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

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

**Explosive precursors** : Not applicable.

[Ozone depleting substances \(1005/2009/EU\)](#)

Not listed.

[Prior Informed Consent \(PIC\) \(649/2012/EU\)](#)

Not listed.

## SECTION 15: Regulatory information

### 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 organic solvents** : Permitted.

#### Czech Republic

**Storage code** : IV

#### Denmark

**Danish fire class** : IV-1

**MAL-code** : 0-1

**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: 0-1

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

- Arm protectors must be worn.

During non-atomising spraying in existing\* facilities of the combined-cabin, spray-cabin and spray-booth type where the operator is working inside the spray zone.

- Gas filter mask 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 worn.

**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.

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## SECTION 15: Regulatory information

List of undesirable substances : Not listed

### Finland

### France

Social Security Code, Articles L 461-1 to L 461-7 : 2-Butoxyethanol Ethanediol RG 84 RG 84

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 : 1

Technical instruction on air quality control : TA-Luft Number 5.2.5: 6.8%

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

### Italy

D.Lgs. 152/06 : Not determined.

### Netherlands

Water Discharge Policy (ABM) : A(4) Low hazard 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. 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

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## SECTION 16: Other information

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

|      |  |
|------|--|
| H302 | Harmful if swallowed.  |
| H315 | Causes skin irritation.  |
| H317 | May cause an allergic skin reaction.                               |
| H318 | Causes serious eye damage.   |
| H319 | Causes serious eye irritation.                                     |
| H331 | Toxic if inhaled.  |
| 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.                   |

### Full text of classifications [CLP/GHS]

|                   |   |
|-------------------|---|
| 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 2 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2                 |
| Eye Dam. 1        | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1                  |
| Eye Irrit. 2      | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2                  |
| Skin Irrit. 2     | SKIN CORROSION/IRRITATION - Category 2                          |
| Skin Sens. 1      | SKIN SENSITISATION - Category 1                                 |
| Skin Sens. 1A     | SKIN SENSITISATION - Category 1A                                |
| STOT RE 2         | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |

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 variants

### 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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