

SAFETY DATA SHEET



DUPLEX 4553-20

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

1.1 Product identifier

Product name : DUPLEX 4553-20

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]

Not classified.

The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.

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

2.2 Label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Supplemental label elements : Contains 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. 220-239-6] (3:1). May produce an allergic reaction.
Safety data sheet available on request.

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

2.3 Other hazards

SECTION 2: Hazards identification

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

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

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

| Product/ingredient name | Identifiers | % | Classification | Specific Conc. Limits, M-factors and ATEs | Type |
|---|---|--------|---|---|---------|
| 2-Butoxyethanol | REACH #: 01-2119475108-36 EC: 203-905-0 CAS: 111-76-2 Index: 603-014-00-0 | ≤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 | <0.001 | 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 See Section 16 for the full text of the H statements declared above. | ATE [Oral] = 53 mg/kg ATE [Dermal] = 50 mg/kg ATE [Inhalation (vapours)] = 0.5 mg/l Skin Corr. 1C, H314: C ≥ 0.6% Eye Dam. 1, H318: C ≥ 0.6% Eye Irrit. 2, H319: 0.06% ≤ C < 0.6% Skin Sens. 1, H317: C ≥ 0.0015% M [Acute] = 100 M [Chronic] = 100 | [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. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

SECTION 4: First aid measures

- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

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** : No specific data.
- 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
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. 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".

SECTION 6: Accidental release measures

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. 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.

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).
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 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 | Regulation on Limit Values - MAC (Austria, 4/2021). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m ³ 8 hours. PEAK: 40 ppm, 4 times per shift, 30 minutes. PEAK: 200 mg/m ³ , 4 times per shift, 30 minutes. |
| reaction mass of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and | Regulation on Limit Values - MAC (Austria, 4/2021). [5-chloro-2-methyl-2,3-dihydroisothiazol-3-one and 2-methyl-2,3-di- |

SECTION 8: Exposure controls/personal protection

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|---|--|
| 2-methyl-2H-isothiazol-3-one [EC no. 220-239-6] (3:1) | hydroisothiazol-3-one (mixture in the ratio 3:1)] Skin sensitiser. TWA: 0.05 mg/m ³ 8 hours. |
| 2-Butoxyethanol | Limit values (Belgium, 5/2021). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 15 minutes. |
| 2-Butoxyethanol | 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 ³ 8 hours. Limit value 15 min: 246 mg/m ³ 15 minutes. Limit value 15 min: 50 ppm 15 minutes. Limit value 8 hours: 20 ppm 8 hours. |
| Propylene glycol | Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). ELV: 10 mg/m ³ 8 hours. Form: only particles ELV: 474 mg/m ³ 8 hours. Form: total vapour and particles ELV: 150 ppm 8 hours. Form: total vapour and particles |
| 2-Butoxyethanol | Ministry of Economy, Labour and Entrepreneurship ELV/ STELV (Croatia, 1/2021). Absorbed through skin. STELV: 246 mg/m ³ 15 minutes. STELV: 50 ppm 15 minutes. ELV: 98 mg/m ³ 8 hours. ELV: 20 ppm 8 hours. |
| 2-Butoxyethanol | Department of labour inspection (Cyprus, 7/2021). Absorbed through skin. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 15 minutes. TWA: 20 ppm 8 hours. TWA: 98 mg/m ³ 8 hours. |
| 2-Butoxyethanol | Government regulation of Czech Republic PEL/NPK-P (Czech Republic, 10/2022). Absorbed through skin. TWA: 100 mg/m ³ 8 hours. TWA: 20.4 ppm 8 hours. STEL: 200 mg/m ³ 15 minutes. STEL: 40.8 ppm 15 minutes. |
| 2-Butoxyethanol | Working Environment Authority (Denmark, 6/2022). Absorbed through skin. TWA: 20 ppm 8 hours. TWA: 98 mg/m ³ 8 hours. STEL: 246 mg/m ³ 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 ³ 8 hours. TWA: 20 ppm 8 hours. STEL: 246 mg/m ³ 15 minutes. STEL: 50 ppm 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 ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 15 minutes. |
| 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 ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 250 mg/m ³ 15 minutes. |

SECTION 8: Exposure controls/personal protection

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| 2-Butoxyethanol | <p>Ministry of Labor (France, 10/2022). Absorbed through skin. Notes: Binding regulatory limit values (article R. 4412-149 of the Labor Code)</p> <p>TWA: 10 ppm 8 hours. TWA: 49 mg/m³ 8 hours. STEL: 246 mg/m³ 15 minutes. STEL: 50 ppm 15 minutes.</p> |
| 2-Butoxyethanol | <p>TRGS 900 OEL (Germany, 6/2022). Absorbed through skin.</p> <p>TWA: 49 mg/m³ 8 hours. PEAK: 98 mg/m³ 15 minutes. TWA: 10 ppm 8 hours. PEAK: 20 ppm 15 minutes.</p> <p>DFG MAC-values list (Germany, 7/2022). Absorbed through skin.</p> <p>TWA: 10 ppm 8 hours. PEAK: 20 ppm, 4 times per shift, 15 minutes. TWA: 49 mg/m³ 8 hours. PEAK: 98 mg/m³, 4 times per shift, 15 minutes.</p> |
| 1,2-benzisothiazol-3(2H)-one | DFG MAC-values list (Germany, 7/2022). Skin sensitiser. |
| 2-Butoxyethanol | <p>Presidential Decree 307/1986: Occupational exposure limit values (Greece, 9/2021). Absorbed through skin.</p> <p>TWA: 25 ppm 8 hours. TWA: 120 mg/m³ 8 hours.</p> |
| 2-Butoxyethanol | <p>5/2020. (II. 6.) ITM Decree (Hungary, 12/2022). Absorbed through skin. Skin sensitiser. Inhalation sensitiser.</p> <p>TWA: 98 mg/m³ 8 hours. PEAK: 246 mg/m³ 15 minutes. PEAK: 50 ppm 15 minutes. TWA: 20 ppm 8 hours.</p> |
| 2-Butoxyethanol | <p>Ministry of Welfare, List of Exposure Limits (Iceland, 5/2021). Absorbed through skin.</p> <p>STEL: 246 mg/m³ 15 minutes. STEL: 50 ppm 15 minutes. TWA: 100 mg/m³ 8 hours. TWA: 20 ppm 8 hours.</p> |
| Propylene glycol | <p>NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs)</p> <p>OELV-8hr: 10 mg/m³ 8 hours. Form: particulate OELV-8hr: 470 mg/m³ 8 hours. Form: vapour and particulates OELV-8hr: 150 ppm 8 hours. Form: vapour and particulates</p> |
| 2-Butoxyethanol | <p>NAOSH (Ireland, 5/2021). Absorbed through skin. Notes: EU derived Occupational Exposure Limit Values</p> <p>OELV-8hr: 20 ppm 8 hours. OELV-8hr: 98 mg/m³ 8 hours. OELV-15min: 50 ppm 15 minutes. OELV-15min: 246 mg/m³ 15 minutes.</p> |
| 2-Butoxyethanol | <p>Legislative Decree No. 819/2008. Title IX. Protection from chemical agents, carcinogens and mutagens (Italy, 6/2020). Absorbed through skin.</p> <p>8 hours: 20 ppm 8 hours. 8 hours: 98 mg/m³ 8 hours. Short Term: 50 ppm 15 minutes. Short Term: 246 mg/m³ 15 minutes.</p> |
| Propylene glycol | <p>Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021).</p> <p>TWA: 7 mg/m³ 8 hours.</p> |
| 2-Butoxyethanol | <p>Ministers Cabinet Regulations Nr.325 - AER (Latvia, 2/2021). Absorbed through skin.</p> <p>TWA: 98 mg/m³ 8 hours. TWA: 20 ppm 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m³ 15 minutes.</p> |

SECTION 8: Exposure controls/personal protection

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| Propylene glycol | Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). TWA: 7 mg/m ³ 8 hours. |
| 2-Butoxyethanol | Lithuanian Hygiene Standard HN 23 (Lithuania, 7/2022). Absorbed through skin. TWA: 50 mg/m ³ 8 hours. TWA: 10 ppm 8 hours. STEL: 100 mg/m ³ 15 minutes. STEL: 20 ppm 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 ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 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 ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 15 minutes. |
| 2-Butoxyethanol | Ministry of Social Affairs and Employment, Legal limit values (Netherlands, 12/2022). Absorbed through skin. OEL, 8-h TWA: 100 mg/m ³ 8 hours. STEL, 15-min: 246 mg/m ³ 15 minutes. OEL, 8-h TWA: 20.4 ppm 8 hours. STEL, 15-min: 50 ppm 15 minutes. |
| Propylene glycol | FOR-2011-12-06-1358 (Norway, 12/2022). TWA: 79 mg/m ³ 8 hours. TWA: 25 ppm 8 hours. |
| 2-Butoxyethanol | FOR-2011-12-06-1358 (Norway, 12/2022). Absorbed through skin. Notes: indicative limit value TWA: 10 ppm 8 hours. TWA: 50 mg/m ³ 8 hours. |
| Propylene glycol | 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: 100 mg/m ³ 8 hours. Form: vapor and inhalable fraction |
| 2-Butoxyethanol | 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. TWA: 98 mg/m ³ 8 hours. STEL: 200 mg/m ³ 15 minutes. |
| 2-Butoxyethanol | Portuguese Institute of Quality (Portugal, 11/2014). TWA: 20 ppm 8 hours. |
| 2-Butoxyethanol | HG 1218/2006, Annex 1, with subsequent modifications and additions (Romania, 3/2021). Absorbed through skin. VLA: 98 mg/m ³ 8 hours. VLA: 20 ppm 8 hours. Short term: 246 mg/m ³ 15 minutes. Short term: 50 ppm 15 minutes. |
| 2-Butoxyethanol | Government regulation SR c. 355/2006 (Slovakia, 9/2020). Absorbed through skin. TWA: 98 mg/m ³ 8 hours. TWA: 20 ppm 8 hours. STEL: 246 mg/m ³ 15 minutes. STEL: 50 ppm 15 minutes. |

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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). Absorbed through skin. TWA: 98 mg/m ³ 8 hours. TWA: 20 ppm 8 hours. KTV: 246 mg/m ³ , 4 times per shift, 15 minutes. KTV: 50 ppm, 4 times per shift, 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 ³ 8 hours. STEL: 245 mg/m ³ 15 minutes. STEL: 50 ppm 15 minutes. |
| 2-Butoxyethanol | Work environment authority Regulation 2018:1 (Sweden, 9/2021). Absorbed through skin. TWA: 10 ppm 8 hours. TWA: 50 mg/m ³ 8 hours. STEL: 50 ppm 15 minutes. STEL: 246 mg/m ³ 15 minutes. |
| 2-Butoxyethanol | SUVA (Switzerland, 1/2023). Absorbed through skin. TWA: 10 ppm 8 hours. TWA: 49 mg/m ³ 8 hours. STEL: 20 ppm 15 minutes. STEL: 98 mg/m ³ 15 minutes. |
| 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) | SUVA (Switzerland, 1/2023). Skin sensitiser. STEL: 0.4 mg/m ³ 15 minutes. Form: Inhalable fraction TWA: 0.2 mg/m ³ 8 hours. Form: Inhalable fraction |
| 2-Butoxyethanol | EH40/2005 WELs (United Kingdom (UK), 1/2020). Absorbed through skin. STEL: 50 ppm 15 minutes. TWA: 25 ppm 8 hours. STEL: 246 mg/m ³ 15 minutes. TWA: 123 mg/m ³ 8 hours. |

Biological exposure indices

| Product/ingredient name | Exposure indices |
|----------------------------|---|
| No exposure indices known. | 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. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| 2-Butoxyethanol | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |

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|----------------------------|---|
| 2-Butoxyethanol | <p>DFG BEI-values list (Germany, 7/2022) Notes: danger from percutaneous absorption (see p. 211 and p. 228). 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.</p> <p>TRGS 903 - BEI Values (Germany, 2/2022) 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> |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| 2-Butoxyethanol | <p>NAOSH (Ireland, 1/2011) BMGV: 200 mg/g creatinine, BAA [in urine]. Sampling time: end of shift - As soon as possible after exposure ceases.</p> |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| No exposure indices known. | |
| 2-Butoxyethanol | <p>Portuguese Institute of Quality (Portugal, 11/2014) BEI: 200 mg/g creatinine, butoxyacetic acid (BAA) [in urine]. Sampling time: end of shift.</p> |
| No exposure indices known. | |
| No exposure indices known. | |
| 2-Butoxyethanol | <p>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.</p> |
| 2-Butoxyethanol | <p>National institute of occupational safety and health (Spain, 4/2022) VLB: 200 mg/g creatinine, butoxyacetic acid [in urine]. Sampling time: end of shift.</p> |
| No exposure indices known. | |
| 2-Butoxyethanol | <p>SUVA (Switzerland, 1/2023) 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.</p> |
| 2-Butoxyethanol | <p>EH40/2005 BMGVs (United Kingdom (UK), 8/2018) BGV: 240 mmol/mol creatinine, butoxyacetic acid [in urine]. Sampling time: post shift.</p> |

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

SECTION 8: Exposure controls/personal protection

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 ³ | General population | Systemic |
| | DNEL | Long term Inhalation | 98 mg/m ³ | Workers | Systemic |
| | DNEL | Short term Inhalation | 147 mg/m ³ | General population | Local |
| | DNEL | Short term Inhalation | 246 mg/m ³ | Workers | Local |
| | DNEL | Short term Inhalation | 426 mg/m ³ | General population | Systemic |
| | DNEL | Short term Inhalation | 1091 mg/m ³ | 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 ³ | General population | Systemic |
| | DNEL | Long term Inhalation | 6.81 mg/m ³ | Workers | 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 ³ | General population | Local |
| | DNEL | Long term Inhalation | 0.02 mg/m ³ | Workers | Local |
| | DNEL | Short term Inhalation | 0.04 mg/m ³ | General population | Local |
| | DNEL | Short term Inhalation | 0.04 mg/m ³ | Workers | Local |
| | DNEL | Long term Oral | 0.09 mg/kg bw/day | General population | Systemic |
| | DNEL | Short term Oral | 0.11 mg/kg bw/day | General population | Systemic |

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. 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

SECTION 8: Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
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.
- 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: 2.6%
Upper: 12.6%
- Flash point** : Closed cup: >100°C (>212°F)
- Auto-ignition temperature** :

| Ingredient name | °C | °F | Method |
|------------------|-----|-------|-----------|
| 2-Butoxyethanol | 230 | 446 | DIN 51794 |
| Propylene glycol | 371 | 699.8 | |

- Decomposition temperature** : Not available.
- pH** : 7 to 9
- Viscosity** : Not available.
- Solubility(ies)** :
Not available.
- Solubility in water** : Not available.

SECTION 9: Physical and chemical properties

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/cm³

Vapour density : Not available.

Explosive properties : Not available.

Oxidising properties : Not available.

Particle characteristics

Median particle size : Not applicable.

SECTION 10: Stability and reactivity

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

10.2 Chemical stability : The product is stable.

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

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : No specific data.

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

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 |
|---|-----------|---------|------------|----------|
| 1,2-benzisothiazol-3(2H)-one | LD50 Oral | Rat | 1020 mg/kg | - |
| 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) | LD50 Oral | Rat | 53 mg/kg | - |

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

Acute toxicity estimates

| Route | ATE value |
|--|--|
| Oral Inhalation (gases) Inhalation (vapours) | 66666.67 mg/kg 514420.06 ppm 166.67 mg/l |

Irritation/Corrosion

SECTION 11: Toxicological information

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|--------------------------|---------|-------|-----------------|-------------|
| 2-Butoxyethanol 1,2-benzisothiazol-3(2H)-one 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) | Eyes - Moderate irritant | Rabbit | - | 24 hours 100 mg | - |
| | Eyes - Severe irritant | Rabbit | - | 100 mg | - |
| | Skin - Mild irritant | Rabbit | - | 500 mg | - |
| | Skin - Mild irritant | Human | - | 48 hours 5 % | - |
| | Skin - Severe irritant | Human | - | 0.01 % | - |

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

Sensitisation

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

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)

Not available.

Aspiration hazard

Not available.

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 : No known significant effects or critical hazards.
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 : No specific data.
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

SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : Not available.

General : No known significant effects or critical hazards.

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 |
| 1,2-benzisothiazol-3(2H)-one | 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 |
| | Acute LC50 1.9 mg/l Fresh water | Fish - <i>Onorhynchus Mykiss</i> | 96 hours |
| | Acute NOEC 0.15 mg/l Marine water | Algae - <i>Skeletonema Costatum</i> | 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 _{ow} | BCF | Potential |
|------------------------------|--------------------|-----|-----------|
| 2-Butoxyethanol | 0.81 | - | Low |
| 1,2-benzisothiazol-3(2H)-one | - | 3.2 | Low |

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

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

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.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

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. 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

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.

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.

SECTION 15: Regulatory information

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.

List of undesirable substances : Not listed

Finland

France

Social Security Code, Articles L 461-1 to L 461-7 : 2-Butoxyethanol 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: 18%

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) : B(4) Low hazard for aquatic organisms. Decontamination effort: B

Norway

Sweden

Switzerland

VOC content : Exempt.

SECTION 15: Regulatory information

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
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]

Not classified.

Full text of abbreviated H statements

| | |
|--------|---|
| H301 | 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. |
| 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 |
| Eye Dam. 1 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Skin Corr. 1C | SKIN CORROSION/IRRITATION - Category 1C |
| Skin Irrit. 2 | SKIN CORROSION/IRRITATION - Category 2 |
| Skin Sens. 1 | SKIN SENSITISATION - Category 1 |

Date of issue/**Date of revision**

: 16/01/2024

Date of previous issue

: No previous validation

Version : 1

18/20

DUPLEX 4553-20

Label No :38817

SECTION 16: Other information

Skin Sens. 1A SKIN SENSITISATION - Category 1A

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DUPLEX 4553-20

All 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.

