



# SAFETY DATA SHEET

## Prefere 5021

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

#### 1.1 Product identifier

Product name : Prefere 5021  
Product type : Liquid.

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

Use of the substance/  
mixture : Industrial/Professional Use: Hardener. Woodworking industry.

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

Supplier : Dynea AS  
P.O.Box 160, N-2001 Lillestrøm  
Norway  
Tel. +47 63897100  
Fax. +47 63897610

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

#### 1.4 Emergency telephone number

##### National advisory body/Poison Centre

Telephone number : Not available.

##### Supplier

Telephone number : +47 63897100

Hours of operation : 24 hours

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

Product definition : Mixture

##### Classification according to UK CLP/GHS

Skin Irrit. 2, H315

Eye Irrit. 2, H319

The product is classified as hazardous according to UK CLP Regulation SI 2019/720 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 : H315 - Causes skin irritation.  
H319 - Causes serious eye irritation.

## SECTION 2: Hazards identification

### Precautionary statements

- Prevention** : P280 - Wear protective gloves. Wear eye or face protection.  
P264 - Wash thoroughly after handling.
- Response** : P362 + P364 - Take off contaminated clothing and wash it before reuse.  
P302 + P352 - IF ON SKIN: Wash with plenty of water.  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313 - If eye irritation persists: Get medical advice or attention.
- Storage** : Not applicable.
- Disposal** : Not applicable.
- Supplemental label elements** : Contains 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.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.

### Special packaging requirements

Not applicable.

### 2.3 Other hazards

- Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
- Other hazards which do not result in classification** : Causes digestive tract burns.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures : Mixture

| Product/ingredient name     | Identifiers                                                                           | %    | Classification                                                                                                                                                                                                                            | Type    |
|-----------------------------|---------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| formic acid                 | REACH #:<br>01-2119491174-37<br>EC: 200-579-1<br>CAS: 64-18-6<br>Index: 607-001-00-0  | <10  | Flam. Liq. 3, H226<br>Acute Tox. 4, H302<br>Acute Tox. 3, H331<br>Skin Corr. 1A, H314<br>Eye Dam. 1, H318<br>EUH071                                                                                                                       | [1] [2] |
| ethanediol; ethylene glycol | 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>(kidneys) (oral)                                                                                                                                                                                 | [1] [2] |
| methanol                    | REACH #:<br>01-2119433307-44<br>EC: 200-659-6<br>CAS: 67-56-1<br>Index: 603-001-00-X  | ≤0,3 | Flam. Liq. 2, H225<br>Acute Tox. 3, H301<br>Acute Tox. 3, H311<br>Acute Tox. 3, H331<br>STOT SE 1, H370<br>(central nervous system (CNS), optic nerve)<br><br><b>See Section 16 for the full text of the H statements declared above.</b> | [1] [2] |

## SECTION 3: Composition/information on ingredients

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

- |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>                | : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. Get medical attention.                                                                                                                                                                                                                                                 |
| <b>Inhalation</b>                 | : Move exposed person to fresh air. Get medical attention if symptoms occur.                                                                                                                                                                                                                                                                                                                                       |
| <b>Skin contact</b>               | : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.                                                                                                                                                                                         |
| <b>Ingestion</b>                  | : 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. 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.                                     |
| <b>General</b>                    | : Move the victim to a safe area as soon as possible. If unconscious, place in recovery position and seek medical advice. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Allow the victim to rest in a well-ventilated area. |
| <b>Protection of first-aiders</b> | : No action shall be taken involving any personal risk or without suitable training.                                                                                                                                                                                                                                                                                                                               |

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

#### Potential acute health effects

- |                     |                                                                                                   |
|---------------------|---------------------------------------------------------------------------------------------------|
| <b>Eye contact</b>  | : Causes serious eye irritation.                                                                  |
| <b>Skin contact</b> | : Causes skin irritation.                                                                         |
| <b>Ingestion</b>    | : Corrosive to the digestive tract. Causes burns. May be irritating to mouth, throat and stomach. |

#### Over-exposure signs/symptoms

- |                     |                                                                                            |
|---------------------|--------------------------------------------------------------------------------------------|
| <b>Eye contact</b>  | : Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| <b>Skin contact</b> | : Adverse symptoms may include the following:<br>irritation<br>redness                     |
| <b>Ingestion</b>    | : Adverse symptoms may include the following:<br>stomach pains                             |

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

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

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.

**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

### 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.

## 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. Absorb with liquid-binding material (sand, diatomite, universal binders etc.) or use a spill kit.

**Large spill** : Approach the release from upwind. 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 (see Section 13). Contaminated absorbent material may pose the same hazard as the spilt product. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

### 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). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist.
- 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 away from incompatible materials (see Section 10). Keep away from food, drink and animal feeding stuffs. 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

### 8.1 Control parameters

#### Occupational exposure limits

| Product/ingredient name     | Exposure limit values                                                                                                                                                                                                                                                                                                        |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| formic acid                 | <b>EH40/2005 WELs (United Kingdom (UK), 8/2018).</b><br>TWA: 9,6 mg/m <sup>3</sup> 8 hours.<br>TWA: 5 ppm 8 hours.                                                                                                                                                                                                           |
| ethanediol; ethylene glycol | <b>EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin.</b><br>TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Particulate<br>STEL: 104 mg/m <sup>3</sup> 15 minutes. Form: Vapour<br>TWA: 52 mg/m <sup>3</sup> 8 hours. Form: Vapour<br>STEL: 40 ppm 15 minutes. Form: Vapour<br>TWA: 20 ppm 8 hours. Form: Vapour |
| methanol                    | <b>EH40/2005 WELs (United Kingdom (UK), 8/2018). Absorbed through skin.</b><br>STEL: 333 mg/m <sup>3</sup> 15 minutes.<br>STEL: 250 ppm 15 minutes.<br>TWA: 266 mg/m <sup>3</sup> 8 hours.<br>TWA: 200 ppm 8 hours.                                                                                                          |

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

## SECTION 8: Exposure controls/personal protection

| Product/ingredient name     | Type | Exposure              | Value                 | Population         | Effects  |
|-----------------------------|------|-----------------------|-----------------------|--------------------|----------|
| formic acid                 | DNEL | Long term Inhalation  | 3 mg/m <sup>3</sup>   | General population | Local    |
|                             | DNEL | Long term Inhalation  | 3 mg/m <sup>3</sup>   | General population | Systemic |
|                             | DNEL | Long term Inhalation  | 9,5 mg/m <sup>3</sup> | Workers            | Local    |
|                             | DNEL | Long term Inhalation  | 9,5 mg/m <sup>3</sup> | Workers            | Systemic |
| ethanediol; ethylene glycol | DNEL | Long term Dermal      | 53 mg/kg bw/day       | General population | Systemic |
|                             | DNEL | Long term Inhalation  | 7 mg/m <sup>3</sup>   | General population | Local    |
|                             | DNEL | Long term Dermal      | 106 mg/kg bw/day      | Workers            | Systemic |
|                             | DNEL | Long term Inhalation  | 35 mg/m <sup>3</sup>  | Workers            | Local    |
| methanol                    | DNEL | Short term Dermal     | 4 mg/kg bw/day        | General population | Systemic |
|                             | DNEL | Long term Dermal      | 4 mg/kg bw/day        | General population | Systemic |
|                             | DNEL | Short term Dermal     | 20 mg/kg bw/day       | Workers            | Systemic |
|                             | DNEL | Long term Dermal      | 20 mg/kg bw/day       | Workers            | Systemic |
|                             | DNEL | Short term Inhalation | 26 mg/m <sup>3</sup>  | General population | Local    |
|                             | DNEL | Long term Inhalation  | 26 mg/m <sup>3</sup>  | General population | Local    |
|                             | DNEL | Short term Inhalation | 26 mg/m <sup>3</sup>  | General population | Systemic |
|                             | DNEL | Long term Inhalation  | 26 mg/m <sup>3</sup>  | General population | Systemic |
|                             | DNEL | Short term Inhalation | 130 mg/m <sup>3</sup> | Workers            | Local    |
|                             | DNEL | Long term Inhalation  | 130 mg/m <sup>3</sup> | Workers            | Local    |
|                             | DNEL | Short term Inhalation | 130 mg/m <sup>3</sup> | Workers            | Systemic |
|                             | DNEL | Long term Inhalation  | 130 mg/m <sup>3</sup> | Workers            | Systemic |
|                             | DNEL | Long term Oral        | 4 mg/kg bw/day        | General population | Systemic |
|                             | DNEL | Short term Oral       | 4 mg/kg bw/day        | General population | Systemic |

### PNECs

| Product/ingredient name     | Compartment Detail     | Value      | Method Detail            |
|-----------------------------|------------------------|------------|--------------------------|
| formic acid                 | Fresh water            | 2 mg/l     | -                        |
|                             | Marine                 | 0,2 mg/l   | -                        |
|                             | Fresh water sediment   | 13,4 mg/kg | -                        |
|                             | Marine water sediment  | 1,34 mg/kg | -                        |
|                             | Soil                   | 1,5 mg/kg  | -                        |
|                             | Sewage Treatment Plant | 7,2 mg/l   | -                        |
| ethanediol; ethylene glycol | Fresh water            | 10 mg/l    | Assessment Factors       |
|                             | Intermittent release   | 10 mg/l    | Assessment Factors       |
|                             | Marine                 | 1 mg/l     | Assessment Factors       |
|                             | Sewage Treatment Plant | 199,5 mg/l | Assessment Factors       |
|                             | Fresh water sediment   | 37 mg/l    | Equilibrium Partitioning |
|                             | Marine water sediment  | 3,7 mg/l   | Equilibrium Partitioning |
|                             | Soil                   | 1,53 mg/kg | Equilibrium Partitioning |

## SECTION 8: Exposure controls/personal protection

|          |                        |               |                          |
|----------|------------------------|---------------|--------------------------|
| methanol | Fresh water            | 20,8 mg/l     | Assessment Factors       |
|          | Marine                 | 2,08 mg/l     | Assessment Factors       |
|          | Intermittent release   | 1540 mg/l     | Assessment Factors       |
|          | Fresh water sediment   | 77 mg/kg dwt  | Equilibrium Partitioning |
|          | Soil                   | 100 mg/kg dwt | Equilibrium Partitioning |
|          | Marine water sediment  | 7,7 mg/kg dwt | Equilibrium Partitioning |
|          | Sewage Treatment Plant | 100 mg/l      | Assessment Factors       |

### 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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

**Eye/face protection** : Use eye protection according to EN 166, designed to protect against liquid splashes. Recommended: chemical splash goggles.

#### Skin protection

**Hand protection** : Wear suitable gloves tested to EN374. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers.  
Recommended: Protective Index 6 / Breakthrough time >480 minutes: neoprene rubber 0.7 mm thickness or butyl rubber 0.7 mm thickness

**Body protection** : Wear work clothing with long sleeves. Cotton or cotton/synthetic overalls or coveralls are normally suitable.

**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** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. No personal respiratory protective equipment normally required.  
Long Term Exposure / high concentrations : Self-contained respirator (DIN EN 133) or full face mask (DIN EN 136)  
Short term exposure / Low exposure : Half-face mask (DIN EN 140)  
Recommended: Filter type: Type A (Brown): organic gases and vapours with a boiling point higher than 65°C.

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## SECTION 9: Physical and chemical properties

The information provided in this section are typical values and not sales specifications

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

### 9.1 Information on basic physical and chemical properties

#### Appearance

**Physical state** : Liquid.  
**Colour** : White.  
**Odour** : Pungent.  
**Odour threshold** : Not available.  
**Melting point/freezing point** : 0°C  
**Initial boiling point and boiling range** : 100°C

## SECTION 9: Physical and chemical properties

|                                                     |                                                                                       |
|-----------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Flammability (solid, gas)</b>                    | : Not available.                                                                      |
| <b>Upper/lower flammability or explosive limits</b> | : Not available.                                                                      |
| <b>Flash point</b>                                  | : Closed cup: >100°C [ASTM D 93]                                                      |
| <b>Auto-ignition temperature</b>                    | : Not applicable.                                                                     |
| <b>Decomposition temperature</b>                    | : Not available.                                                                      |
| <b>pH</b>                                           | : 2,1 [EN 1245]                                                                       |
| <b>Viscosity</b>                                    | : Dynamic (room temperature): 3000 to 4000 mPa·s<br>Kinematic (40°C): Not applicable. |

### Solubility(ies)

| Media      | Result            |
|------------|-------------------|
| cold water | Partially soluble |

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

### Vapour pressure

|                       | Vapour Pressure at 20°C |        | Vapour pressure at 50°C |        |
|-----------------------|-------------------------|--------|-------------------------|--------|
| Ingredient name       | kPa                     | Method | kPa                     | Method |
| acetaldehyde; ethanal | 120                     |        |                         |        |

|                         |                                              |
|-------------------------|----------------------------------------------|
| <b>Relative density</b> | : Not available.                             |
| <b>Density</b>          | : 1,1 g/cm <sup>3</sup> [25°C] [ASTM D 4052] |
| <b>Vapour density</b>   | : Not available.                             |

### Particle characteristics

**Median particle size** : Not applicable.

## 9.2 Other information

No specific data.

## 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 toxicological effects

#### Acute toxicity

## SECTION 11: Toxicological information

| Product/ingredient name     | Result                          | Species               | Dose        | Exposure |
|-----------------------------|---------------------------------|-----------------------|-------------|----------|
| formic acid                 | LC50 Inhalation Vapour          | Rat                   | 7,85 mg/l   | 4 hours  |
|                             | LD50 Dermal                     | Rat                   | >2000 mg/kg | -        |
|                             | LD50 Oral                       | Rat                   | 730 mg/kg   | -        |
| ethanediol; ethylene glycol | LC50 Inhalation Dusts and mists | Rat                   | >2,5 mg/l   | 6 hours  |
|                             | LD50 Oral                       | Rat - Male,<br>Female | 7712 mg/kg  | -        |
| methanol                    | LC50 Inhalation Vapour          | Rat - Male,<br>Female | 128,2 mg/l  | 4 hours  |
|                             | LD50 Dermal                     | Rabbit                | 17100 mg/kg | -        |

formic acid: Toxic by inhalation. Harmful if swallowed.

ethanediol: Harmful if swallowed.

methanol: Toxic by inhalation, in contact with skin and if swallowed.

### Acute toxicity estimates

| Product/ingredient name     | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|-----------------------------|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| Prefere 5021                | 5827,5       | 238100,3       | N/A                      | 87,1                        | N/A                                 |
| formic acid                 | 730          | N/A            | N/A                      | 7,85                        | N/A                                 |
| ethanediol; ethylene glycol | 500          | N/A            | N/A                      | N/A                         | N/A                                 |
| methanol                    | 100          | 300            | N/A                      | 3                           | N/A                                 |

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

### Chronic toxicity

| Product/ingredient name     | Result                              | Species               | Dose                           | Exposure                    |
|-----------------------------|-------------------------------------|-----------------------|--------------------------------|-----------------------------|
| formic acid                 | Sub-chronic NOAEC Inhalation Vapour | Rat                   | 122 mg/m <sup>3</sup>          | 13 weeks; 5 days per week   |
|                             | Chronic NOAEL Oral                  | Rat                   | 142 mg/kg                      | -                           |
| ethanediol; ethylene glycol | Sub-chronic NOAEL Oral              | Rat                   | 150 mg/kg                      | 16 weeks; 7 days per week   |
| methanol                    | Chronic NOAEC Inhalation Vapour     | Rat - Male,<br>Female | 1,3 mg/l<br>Continuous         | 108 days                    |
|                             | Chronic NOAEC Inhalation Vapour     | Rat                   | 1,33 mg/l<br>Continuous        | 17 days; 22,7 hours per day |
|                             | Chronic NOAEL Oral                  | Rat - Male,<br>Female | 466 to 529 mg/kg Repeated dose | 104 weeks                   |
|                             | Chronic NOEC Inhalation Vapour      | Rat - Male,<br>Female | 0,13 mg/l                      | 12 months                   |

### Irritation/Corrosion

**Skin** : formic acid: Corrosive to the skin.  
ethanediol: Mild irritant  
methanol: Based on available data, the classification criteria are not met.

**Eyes** : formic acid: Risk of serious damage to eyes.  
ethanediol: Mildly irritating to the eyes.  
methanol: Based on available data, the classification criteria are not met.

**Product Conclusion/ Summary** : Causes skin irritation. Causes serious eye irritation.

### Sensitisation

## SECTION 11: Toxicological information

| Product/ingredient name     | Route of exposure | Species    | Result          |
|-----------------------------|-------------------|------------|-----------------|
| formic acid                 | skin              | Guinea pig | Not sensitizing |
| ethanediol; ethylene glycol | skin              | Human      | Not sensitizing |
| methanol                    | Respiratory       | Guinea pig | Not sensitizing |
|                             | skin              | Guinea pig | Not sensitizing |

**Skin** : formic acid: Not sensitizing  
ethanediol: Not sensitizing  
methanol: Not sensitizing

**Respiratory** : ethanediol: Not sensitizing  
methanol: Not sensitizing

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

### Mutagenicity

| Product/ingredient name     | Test | Experiment                                | Result   |
|-----------------------------|------|-------------------------------------------|----------|
| ethanediol; ethylene glycol | -    | Experiment: In vitro<br>Subject: Bacteria | Negative |

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

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

### Carcinogenicity

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

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

### Reproductive toxicity

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

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

### Teratogenicity

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

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

### Specific target organ toxicity (single exposure)

| Product/ingredient name | Category   | Route of exposure | Target organs                                |
|-------------------------|------------|-------------------|----------------------------------------------|
| methanol                | Category 1 | -                 | central nervous system (CNS),<br>optic nerve |

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

### Specific target organ toxicity (repeated exposure)

| Product/ingredient name     | Category   | Route of exposure | Target organs |
|-----------------------------|------------|-------------------|---------------|
| ethanediol; ethylene glycol | Category 2 | oral              | kidneys       |

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

### Aspiration hazard

## SECTION 11: Toxicological information

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

### Potential Adverse effects

- Eye contact** : Causes serious eye irritation.  
Adverse symptoms may include the following:  
pain or irritation  
watering  
redness
- Skin contact** : Causes skin irritation.  
Adverse symptoms may include the following:  
irritation  
redness
- Ingestion** : Corrosive to the digestive tract. Causes burns. May be irritating to mouth, throat and stomach.  
Adverse symptoms may include the following:  
stomach pains
- Interactive effects** : No specific data.
- Other information** : No specific data.

## SECTION 12: Ecological information

### 12.1 Toxicity

| Product/ingredient name     | Result                             | Species                           | Exposure                 |
|-----------------------------|------------------------------------|-----------------------------------|--------------------------|
| formic acid                 | EC50 1000 mg/l Fresh water         | Algae                             | 72 hours                 |
|                             | EC50 365 mg/l Fresh water          | Daphnia                           | 48 hours                 |
|                             | LC50 130 mg/l Fresh water          | Fish                              | 96 hours                 |
|                             | NOEC 100 mg/l Marine water         | Algae                             | 72 hours                 |
| ethanediol; ethylene glycol | Chronic NOEC 100 mg/l Fresh water  | Daphnia                           | 21 days                  |
|                             | NOEC 100 mg/l                      | Algae                             | 72 hours                 |
|                             | Acute EC20 >1995 mg/l Fresh water  | Micro-organism - Activated sludge | 30 minutes               |
|                             | Acute EC50 >100 mg/l Fresh water   | Daphnia - Daphnia magna           | Static<br>48 hours       |
| methanol                    | Acute LC50 72860 mg/l Fresh water  | Fish - Pimephales promelas        | Static<br>96 hours       |
|                             | Chronic NOEC 15380 mg/l            | Fish - Pimephales promelas        | 7 days                   |
|                             | EC50 22000 mg/l Fresh water        | Algae - Selenastrum capricornutum | 96 hours<br>Static       |
|                             | Acute EC50 >10000 mg/l Fresh water | Daphnia - Daphnia magna           | 48 hours<br>Static       |
|                             | Acute LC50 15400 mg/l Fresh water  | Fish - Lepomis macrochirus        | 96 hours<br>Flow through |
|                             | Chronic NOEC 208 mg/l Fresh water  | Daphnia                           | 21 days<br>Static        |
|                             | Chronic NOEC 450 mg/l Fresh water  | Fish                              | 28 days<br>Static        |

ethanediol: Based on available data, the classification criteria are not met.  
methanol: No known significant effects or critical hazards.

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

### 12.2 Persistence and degradability

## SECTION 12: Ecological information

| Product/ingredient name     | Test                                                 | Result                        | Dose                       | Inoculum     |
|-----------------------------|------------------------------------------------------|-------------------------------|----------------------------|--------------|
| ethanediol; ethylene glycol | OECD 301C                                            | 96 % - 14 days                | -                          | -            |
| methanol                    | 301C Ready Biodegradability - Modified MITI Test (I) | 83 to 91 % - Readily - 3 days | -                          | Fresh water  |
|                             | -                                                    | 71 to 83 % - Readily - 5 days | BOD/ThOD                   | Sediment     |
|                             | -                                                    | 69 to 97 % - 5 days           | O <sub>2</sub> Consumption | Sewage       |
|                             | -                                                    | 53,4 % - 5 days               | -                          | Marine water |
|                             | -                                                    | 46,3 % - 5 days               | -                          | -            |

| Product/ingredient name     | Aquatic half-life | Photolysis       | Biodegradability |
|-----------------------------|-------------------|------------------|------------------|
| formic acid                 | -                 | -                | Readily          |
| ethanediol; ethylene glycol | -                 | -                | Readily          |
| methanol                    | -                 | 50%; 17.2 day(s) | Readily          |

formic acid: Readily biodegradable  
ethanediol: Readily biodegradable  
methanol: Readily biodegradable

### 12.3 Bioaccumulative potential

| Product/ingredient name     | LogP <sub>ow</sub> | BCF | Potential |
|-----------------------------|--------------------|-----|-----------|
| formic acid                 | -2,3               | -   | low       |
| ethanediol; ethylene glycol | -1,36              | -   | low       |
| methanol                    | -0,77              | <10 | 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 Other adverse effects** : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

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

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or 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** : Yes.

#### Waste catalogue

## SECTION 13: Disposal considerations

| Waste code | Waste designation                                                                      |
|------------|----------------------------------------------------------------------------------------|
| 08 04 09*  | waste adhesives and sealants containing organic solvents or other hazardous substances |

### 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                                                                                      |
|----------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| <b>14.1 UN number</b>                  | UN3265                                                                                  | UN3265                                                                                  | UN3265                                                                                   | UN3265                                                                                    |
| <b>14.2 UN proper shipping name</b>    | CORROSIVE LIQUID, ACIDIC, ORGANIC, N. O.S. (formic acid)                                | CORROSIVE LIQUID, ACIDIC, ORGANIC, N. O.S. (formic acid)                                | CORROSIVE LIQUID, ACIDIC, ORGANIC, N. O.S. (formic acid)                                 | Corrosive liquid, acidic, organic, n.o.s. (formic acid)                                   |
| <b>14.3 Transport hazard class(es)</b> | 8<br> | 8<br> | 8<br> | 8<br> |
| <b>14.4 Packing group</b>              | II                                                                                      | II                                                                                      | II                                                                                       | II                                                                                        |
| <b>14.5 Environmental hazards</b>      | No.                                                                                     | No.                                                                                     | No.                                                                                      | No.                                                                                       |

### Additional information

- ADR/RID** : **Hazard identification number** 80  
**Limited quantity** 1 L  
**Special provisions** 274  
**Tunnel code** (E)
- ADN** : **Special provisions** 274
- IMDG** : **Emergency schedules** F-A, S-B  
**Special provisions** 274
- IATA** : **Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851. Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0,5 L. Packaging instructions: Y840.  
**Special provisions** A3, A803

- 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 Transport in bulk according to IMO instruments** : Not available.

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### UK (GB) /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.

#### Ozone depleting substances

Not listed.

#### Prior Informed Consent (PIC)

Not listed.

#### Persistent Organic Pollutants

Not listed.

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

#### Seveso Directive

This product is not controlled under the Seveso Directive.

#### EU regulations

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

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

#### 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.

#### Inventory list

|                                |                                                                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Australia</b>               | : Not determined.                                                                                                                                                  |
| <b>Canada</b>                  | : All components are listed or exempted.                                                                                                                           |
| <b>China</b>                   | : All components are listed or exempted.                                                                                                                           |
| <b>Eurasian Economic Union</b> | :  <b>Russian Federation inventory</b> : All components are listed or exempted. |
| <b>Japan</b>                   | : <b>Japan inventory (CSCL)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : Not determined.                                        |

## SECTION 15: Regulatory information

|                          |                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>New Zealand</b>       | : All components are listed or exempted.                                                                                   |
| <b>Philippines</b>       | : All components are listed or exempted.                                                                                   |
| <b>Republic of Korea</b> | : All components are listed or exempted.                                                                                   |
| <b>Taiwan</b>            | : All components are listed or exempted.                                                                                   |
| <b>Thailand</b>          | :  All components are listed or exempted. |
| <b>Turkey</b>            | : Not determined.                                                                                                          |
| <b>United States</b>     | : All components are active or exempted.                                                                                   |
| <b>Viet Nam</b>          | : All components are listed or exempted.                                                                                   |

**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.

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Abbreviations and acronyms</b> | <p>: ATE = Acute Toxicity Estimate</p> <p>GB CLP = UK CLP (EC No 1272/2008) on the Classification, Labelling and Packaging of Substances and Mixtures as amended by (EU Exit) Regulations 2019 No. 720 and amendments</p> <p>DMEL = Derived Minimal Effect Level</p> <p>DNEL = Derived No Effect Level</p> <p>EUH statement = GB CLP-specific Hazard statement</p> <p>N/A = Not available</p> <p>PBT = Persistent, Bioaccumulative and Toxic</p> <p>PNEC = Predicted No Effect Concentration</p> <p>RRN = REACH Registration Number</p> <p>SGG = Segregation Group</p> <p>vPvB = Very Persistent and Very Bioaccumulative</p> |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Procedure used to derive the classification

| Classification      | Justification      |
|---------------------|--------------------|
| Skin Irrit. 2, H315 | Calculation method |
| Eye Irrit. 2, H319  | Calculation method |

### Full text of abbreviated H statements

|        |                                                                    |
|--------|--------------------------------------------------------------------|
| H225   | Highly flammable liquid and vapour.                                |
| H226   | Flammable liquid and vapour.                                       |
| H301   | Toxic if swallowed.                                                |
| H302   | Harmful if swallowed.                                              |
| H311   | Toxic in contact with skin.                                        |
| H314   | Causes severe skin burns and eye damage.                           |
| H315   | Causes skin irritation.                                            |
| H318   | Causes serious eye damage.                                         |
| H319   | Causes serious eye irritation.                                     |
| H331   | Toxic if inhaled.                                                  |
| H370   | Causes damage to organs.                                           |
| H373   | May cause damage to organs through prolonged or repeated exposure. |
| EUH071 | Corrosive to the respiratory tract.                                |

### Full text of classifications

|               |                                                                 |
|---------------|-----------------------------------------------------------------|
| Acute Tox. 3  | ACUTE TOXICITY - Category 3                                     |
| Acute Tox. 4  | ACUTE TOXICITY - Category 4                                     |
| Eye Dam. 1    | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1                  |
| Eye Irrit. 2  | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2                  |
| Flam. Liq. 2  | FLAMMABLE LIQUIDS - Category 2                                  |
| Flam. Liq. 3  | FLAMMABLE LIQUIDS - Category 3                                  |
| Skin Corr. 1A | SKIN CORROSION/IRRITATION - Category 1A                         |
| Skin Irrit. 2 | SKIN CORROSION/IRRITATION - Category 2                          |
| STOT RE 2     | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |
| STOT SE 1     | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 1   |

**SECTION 16: Other information**

**Date of issue/ Date of revision** : 22.08.2024  
**Date of previous issue** : 15.12.2022  
**Previous product name** : Not available.  
**Version** : 0.1