



# SAFETY DATA SHEET

## Prefere 5047

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

#### 1.1 Product identifier

Product name : Prefere 5047

#### 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 Regulation (EC) No. 1272/2008 [CLP/GHS]

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

Skin Corr. 1, H314

Eye Dam. 1, H318

See Section 16 for the full text of the R phrases or H statements declared above.

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

#### 2.2 Label elements

Hazard pictograms :



**SECTION 2: Hazards identification**

**Signal word** : Danger

**Hazard statements** : H314 - Causes severe skin burns and eye damage.

**Precautionary statements** : P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
 P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.  
 P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.  
 P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a POISON CENTER or physician.  
 P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.  
 P405 - Store locked up.  
 P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Hazardous ingredients** : formic acid

**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**

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

**SECTION 3: Composition/information on ingredients**

**3.2 Mixtures** : Mixture

**Chemical characterisation** : Waterbased.

Product/ingredient name	Identifiers	%	Classification	Type
formic acid	REACH #: 01-2119491174-37 EC: 200-579-1 CAS: 64-18-6 Index: 607-001-00-0	≥5 - <10	Flam. Liq. 3, H226  Acute Tox. 4, H302 Acute Tox. 3, H331 Skin Corr. 1A, H314 Eye Dam. 1, H318	[1] [2]
ethanediol	REACH #: 01-2119456816-28 EC: 203-473-3  CAS: 107-21-1 Index: 603-027-00-1	≥1 - <3	Acute Tox. 4, H302  STOT RE 2, H373 (kidneys) (oral)	[1] [2]
methanol	REACH #: 01-2119433307-44 EC: 200-659-6 CAS: 67-56-1 Index: 603-001-00-X	≥0,1 - <0,3	Flam. Liq. 2, H225  Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 STOT SE 1, H370 (central nervous system (CNS) and optic nerve)	[1] [2]

### SECTION 3: Composition/information on ingredients

			See Section 16 for the full text of the H statements declared above.	
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs or vPvBs 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
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern

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

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If breathing is difficult, give oxygen.
- Skin contact** : Get medical attention immediately. Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. 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. Chemical burns must be treated promptly by a physician.
- General** : 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.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

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

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.
- Skin contact** : Causes severe burns.
- Ingestion** : May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:  
 pain  
 watering  
 redness
- Skin contact** : Adverse symptoms may include the following:  
 pain or irritation  
 redness  
 blistering may occur

## SECTION 4: First aid measures

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

### 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. 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 precautions 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. Do not breathe 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.

## SECTION 6: Accidental release measures

- 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. The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Contaminated absorbent material may pose the same hazard as the spilt product.
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

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

### 7.1 Precautions for safe handling

- Protective measures** : See Section 8 for information on appropriate personal protective equipment. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment.
- 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). Store locked up. Keep away from food, drink and animal feeding stuffs. Separate from alkalis. 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.

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
Formic acid	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 9,6 mg/m <sup>3</sup> 8 hours. TWA: 5 ppm 8 hours.
ethanediol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin.</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Particulate STEL: 104 mg/m <sup>3</sup> 15 minutes. Form: Vapour TWA: 52 mg/m <sup>3</sup> 8 hours. Form: Vapour STEL: 40 ppm 15 minutes. Form: Vapour TWA: 20 ppm 8 hours. Form: Vapour

**SECTION 8: Exposure controls/personal protection**

methanol	<p><b>EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin.</b></p> <p>STEL: 333 mg/m<sup>3</sup> 15 minutes.                  STEL: 250 ppm 15 minutes.                  TWA: 266 mg/m<sup>3</sup> 8 hours.                  TWA: 200 ppm 8 hours.</p>
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**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**DNELs/DMELs**

Product/ingredient name	Type	Exposure	Value	Population	Effects
formic acid	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
	DNEL	Short term Inhalation	19 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Inhalation	19 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	3 mg/m <sup>3</sup>	Consumers	Local
	DNEL	Long term Inhalation	3 mg/m <sup>3</sup>	Consumers	Systemic
	DNEL	Short term Inhalation	9,5 mg/m <sup>3</sup>	Consumers	Local
	DNEL	Short term Inhalation	9,5 mg/m <sup>3</sup>	Consumers	Systemic
ethanediol	DNEL	Long term Inhalation	35 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	106 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	53 mg/kg bw/day	Consumers	Systemic
methanol	DNEL	Long term Inhalation	7 mg/m <sup>3</sup>	Consumers	Local
	DNEL	Short term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m <sup>3</sup>	Workers	Local
	DNEL	Long term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m <sup>3</sup>	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m <sup>3</sup>	Workers	Local
	DNEL	Short term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	50 mg/m <sup>3</sup>	Consumers	Systemic
DNEL	Short term Oral	8 mg/kg	Consumers	Systemic	

**SECTION 8: Exposure controls/personal protection**

	DNEL	Short term Inhalation	bw/day 50 mg/m <sup>3</sup>	Consumers	Local
	DNEL	Long term Dermal	8 mg/kg	Consumers	Systemic
	DNEL	Long term Inhalation	bw/day 50 mg/m <sup>3</sup>	Consumers	Systemic
	DNEL	Long term Oral	8 mg/kg	Consumers	Systemic
	DNEL	Long term Inhalation	bw/day 50 mg/m <sup>3</sup>	Consumers	Local

**PNECs**

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
Formic acid	PNEC	Fresh water	2 mg/l	-
	PNEC	Marine	0,2 mg/l	-
	PNEC	Fresh water sediment	13,4 mg/kg	-
	PNEC	Marine water sediment	1,34 mg/kg	-
	PNEC	Soil	1,5 mg/kg	-
	PNEC	Sewage Treatment Plant	7,2 mg/l	-
ethanediol	PNEC	Fresh water	10 mg/l	-
	PNEC	Marine	1 mg/l	-
	PNEC	Sewage Treatment Plant	199,5 mg/l	-
methanol	PNEC	Fresh water sediment	20,9 mg/l	-
	PNEC	Soil	1,53 mg/kg	-
	PNEC	Fresh water	154 mg/l	Assessment Factors
	PNEC	Marine	15,4 mg/l	Assessment Factors
	PNEC	Intermittent release	1540 mg/l	Assessment Factors
	PNEC	Sediment	570,4 mg/kg dwt	Equilibrium Partitioning
	PNEC	Soil	23,5 mg/kg vwt	Equilibrium Partitioning
	PNEC	Sewage Treatment Plant	100 mg/l	Assessment Factors

**8.2 Exposure controls**

**Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

**Individual protection measures**

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. 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: Tightly-fitting goggles

**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

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

## SECTION 8: Exposure controls/personal protection

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: 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

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	: Liquid.
<b>Colour</b>	: White.
<b>Odour</b>	: Formic acid.
<b>Odour threshold</b>	: Not available.
<b>pH</b>	: 1,6 to 1,9
<b>Melting point/freezing point</b>	: Not available.
<b>Initial boiling point and boiling range</b>	: Not available.
<b>Flash point</b>	: Closed cup: >100°C
<b>Evaporation rate</b>	: Not available.
<b>Flammability (solid, gas)</b>	: Not available.
<b>Burning time</b>	: Not applicable.
<b>Burning rate</b>	: Not applicable.
<b>Upper/lower flammability or explosive limits</b>	: Not available.
<b>Vapour pressure</b>	: Not available.
<b>Vapour density</b>	: Not available.
<b>Relative density</b>	: Not available.
<b>Density (liquid)</b>	: 1,2 g/cm <sup>3</sup> [25°C]
<b>Solubility</b>	: Partly dispersible in water
<b>Partition coefficient: n-octanol/water</b>	: Not available.
<b>Auto-ignition temperature</b>	: Not available.
<b>Decomposition temperature</b>	: Not available.
<b>Viscosity</b>	: Dynamic: 800 to 1200 mPa·s [25 °C]
<b>Explosive properties</b>	: Not available.
<b>Oxidising properties</b>	: Not available.

### 9.2 Other information

<b>VOC content (Without volume exclusion)</b>	: 1,8 % (w/w) 41,7 g/l
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## 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** : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.  
Reactive or incompatible with the following materials:  
alkalis
- 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

#### Potential Adverse effects

- Inhalation** :  May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system.
- Ingestion** :  May cause burns to mouth, throat and stomach.  
 Adverse symptoms may include the following:  
stomach pains
- Skin contact** :  Causes severe burns.  
 Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur
- Eye contact** :  Causes serious eye damage.  
 Adverse symptoms may include the following:  
pain  
watering  
redness

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<input checked="" type="checkbox"/> formic acid	LC50 Inhalation Vapour	Rat	7,4 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
	LD50 Oral	Rat	730 mg/kg	-
ethanediol	LC50 Inhalation Dusts and mists	Rat	>2,5 mg/l	6 hours
	LD50 Dermal	Mouse - Male, Female	>3500 mg/kg	-
methanol	LD50 Oral	Rat - Male, Female	7712 mg/kg	-
	LC50 Inhalation Vapour	Rat - Male, 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

## SECTION 11: Toxicological information

Product	ATE value
<input checked="" type="checkbox"/> Oral <input type="checkbox"/> Dermal <input type="checkbox"/> Inhalation (vapours)	5867,2 mg/kg 214285,7 mg/kg 83,66 mg/l

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

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<input checked="" type="checkbox"/> formic acid  ethanediol	Eyes - Severe irritant	Rabbit	-	122 milligrams	-
	Skin - Mild irritant	Rabbit	-	610 milligrams	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	1 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	6 hours 1440 milligrams	-
	Skin - Mild irritant	Rabbit	-	555 milligrams	-

**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 severe skin burns and eye damage.

### Sensitisation

Product/ingredient name	Route of exposure	Species	Result
formic acid	skin	Guinea pig	Not sensitizing
ethanediol	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.

### Chronic toxicity

## SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
ethanediol	Sub-acute NOAEL Dermal	Dog	2 mg/kg	4 weeks; 7 days per week
methanol	Chronic NOAEL Oral	Rat - Male, Female	466 to 529 mg/kg Repeated dose	104 weeks
	Chronic NOEC Inhalation Vapour	Rat - Male, Female	0,13 mg/l	12 months
	Chronic NOAEC Inhalation Vapour	Rat - Male, Female	1,3 mg/l	108 days
	Chronic NOAEC Inhalation Vapour	Rat	1,33 mg/l Continuous	17 days; 22,7 hours per day

### Mutagenicity

Product/ingredient name	Test	Experiment	Result
ethanediol	-	Experiment: In vitro 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:** Methanol was investigated for chronic toxicity and carcinogenicity in two long-term body inhalation studies. There was no evidence of a carcinogenic potential in rats and mice exposed to air concentrations up to 1.3 mg/L.

In studies with oral administration in rats and mice the number of tumor-bearing animals in the rat study showed a clear dose-related trend. The effective dose levels were far above human occupational exposure levels and are already associated with other forms of toxicity in humans.

### 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	All	central nervous system (CNS) and optic nerve

### Specific target organ toxicity (repeated exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ethanediol	Category 2	Oral	kidneys

## SECTION 11: Toxicological information

### Aspiration hazard

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

**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	Acute EC50 32,64 mg/l	Algae - Scenedesmus subspicatus	72 hours
	Acute EC50 32,19 mg/l	Daphnia - Daphnia magna	48 hours
ethanediol	Acute LC50 68 mg/l	Fish - Leuciscus idus	96 hours
	Chronic NOEC >102 mg/l	Daphnia - Daphnia magna	21 days
	Acute EC20 >1995 mg/l Fresh water	Micro-organism	30 minutes
	Acute EC50 6500 to 13000 mg/l	Aquatic plants - Selenastrum capricornutum	Static
methanol	Acute EC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	96 hours
	Acute LC50 72860 mg/l Fresh water	Fish - Pimephales promelas	48 hours
	Chronic NOEC 15380 mg/l	Fish - Pimephales promelas	Static
	EC50 22000 mg/l Fresh water	Algae - Selenastrum capricornutum	96 hours
	IC50 8800 mg/l Fresh water	Micro-organism - Nitrosomonas sp.	Static
	Acute EC50 >10000 mg/l Fresh water	Daphnia - Daphnia magna	24 hours
	Acute LC50 15400 mg/l Fresh water	Fish - Lepomis macrochirus	Static
	Chronic NOEC 7900 mg/l Fresh water	Fish - Oryzias latipes	96 hours

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

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
ethanediol	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

**Conclusion/Summary** : **formic acid**: Readily biodegradable  
**ethanediol**: Readily biodegradable  
**methanol**: Readily biodegradable

## SECTION 12: Ecological information

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

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
formic acid	-2,3	-	low
ethanediol	-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

PBT : Not applicable.

vPvB : Not applicable.

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.

#### European waste catalogue (EWC)





Waste code	Waste designation
08 04 99	wastes not otherwise specified

#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number	UN3265	UN3265	UN3265	UN3265
14.2 UN proper shipping name	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)
14.3 Transport hazard class(es)	8 	8 	8 	8 
14.4 Packing group	III	III	III	III
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	<u>Hazard identification number</u> 80  <u>Limited quantity</u> 5 L  <u>Special provisions</u> 274  <u>Tunnel code</u> (E)	<u>Special provisions</u> 274	<u>Emergency schedules (EmS)</u> F-A, S-B  <u>Special provisions</u> 223, 274	<u>Passenger and Cargo Aircraft</u> Quantity limitation: 5 L Packaging instructions: 852 <u>Cargo Aircraft Only</u> Quantity limitation: 60 L Packaging instructions: 856 <u>Limited Quantities - Passenger Aircraft</u> Quantity limitation: 1 L Packaging instructions: Y841  <u>Special provisions</u> 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 Annex II of MARPOL 73/78 and the IBC Code** : Not available.

## 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.

## SECTION 15: Regulatory information

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

### Other EU regulations

**Europe inventory** : Not determined.

**Black List Chemicals** : Not listed

**Priority List Chemicals** : Not listed

**Integrated pollution prevention and control list (IPPC) - Air** : Not listed

**Integrated pollution prevention and control list (IPPC) - Water** : Not listed

### Seveso II Directive

This product is not controlled under the Seveso II Directive.

### National regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Inform 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]  
 DNEL = Derived No Effect Level  
 EUH statement = CLP-specific Hazard statement  
 PNEC = Predicted No Effect Concentration  
 RRN = REACH Registration Number

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

Classification	Justification
Skin Corr. 1, H314 Eye Dam. 1, H318	On basis of test data On basis of test data

**SECTION 16: Other information**

<p><b>Full text of abbreviated H statements</b></p>	<p>: H225 H226 H301 (oral) H302 H302 (oral) H311 (dermal) H314 H318 H331 (inhalation) H370 (central nervous system (CNS) and optic nerve) H373 (kidneys)</p>	<p>Highly flammable liquid and vapour. Flammable liquid and vapour. Toxic if swallowed. Harmful if swallowed. Harmful if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. Toxic if inhaled. Causes damage to organs. (central nervous system (CNS) and optic nerve) May cause damage to organs through prolonged or repeated exposure if swallowed. (kidneys)</p>
<p><b>Full text of classifications [CLP/GHS]</b></p>	<p>: Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Acute Tox. 4, H302 Eye Dam. 1, H318  Flam. Liq. 2, H225 Flam. Liq. 3, H226 Skin Corr. 1, H314 Skin Corr. 1A, H314 STOT RE 2, H373 (kidneys) (oral) STOT SE 1, H370 (central nervous system (CNS) and optic nerve)</p>	<p>ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 3 ACUTE TOXICITY (oral) - Category 4 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1  FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 1 SKIN CORROSION/IRRITATION - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys) (oral) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (central nervous system (CNS) and optic nerve) - Category 1</p>
<p><b>Date of issue/ Date of revision</b></p>	<p>: 03.11.2015.</p>	
<p><b>Date of previous issue</b></p>	<p>: 21.10.2015.</p>	
<p><b>Previous product name</b></p>	<p>: Not available.</p>	
<p><b>Version</b></p>	<p>: 5</p>	