

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

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 Irrit. 2, H315

Eye Irrit. 2, H319

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	: Warning
Hazard statements	: H319 - Causes serious eye irritation. H315 - Causes skin irritation.
Precautionary statements	: P280 - Wear protective gloves. Wear eye or face protection. P264 - Wash hands thoroughly after handling. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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) See Section 16 for the full text of the H statements declared above.	[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 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** : 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.
- Inhalation** : Move exposed person to fresh air. Get medical attention if symptoms occur.
- Skin contact** : 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.
- Ingestion** : Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. 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.
- 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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

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

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, CO₂, 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. 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. 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 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

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	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 9,6 mg/m ³ 8 hours. TWA: 5 ppm 8 hours.
ethanediol	EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. TWA: 10 mg/m ³ 8 hours. Form: Particulate STEL: 104 mg/m ³ 15 minutes. Form: Vapour TWA: 52 mg/m ³ 8 hours. Form: Vapour STEL: 40 ppm 15 minutes. Form: Vapour TWA: 20 ppm 8 hours. Form: Vapour
methanol	EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. STEL: 333 mg/m ³ 15 minutes. STEL: 250 ppm 15 minutes. TWA: 266 mg/m ³ 8 hours. 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 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

SECTION 8: Exposure controls/personal protection

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 ³	Workers	Local
	DNEL	Long term Inhalation	9,5 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	19 mg/m ³	Workers	Local
	DNEL	Short term Inhalation	19 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	3 mg/m ³	Consumers	Local
	DNEL	Long term Inhalation	3 mg/m ³	Consumers	Systemic
	DNEL	Short term Inhalation	9,5 mg/m ³	Consumers	Local
	DNEL	Short term Inhalation	9,5 mg/m ³	Consumers	Systemic
ethanediol	DNEL	Long term Inhalation	35 mg/m ³	Workers	Local
	DNEL	Long term Dermal	106 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	53 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	7 mg/m ³	Consumers	Local
methanol	DNEL	Short term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m ³	Workers	Systemic
	DNEL	Short term Inhalation	260 mg/m ³	Workers	Local
	DNEL	Long term Dermal	40 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	260 mg/m ³	Workers	Local
	DNEL	Short term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	50 mg/m ³	Consumers	Systemic
	DNEL	Short term Oral	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Short term Inhalation	50 mg/m ³	Consumers	Local
	DNEL	Long term Dermal	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	50 mg/m ³	Consumers	Systemic
	DNEL	Long term Oral	8 mg/kg bw/day	Consumers	Systemic
	DNEL	Long term Inhalation	50 mg/m ³	Consumers	Local

PNECs

SECTION 8: Exposure controls/personal protection

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	-
	PNEC	Fresh water sediment	20,9 mg/l	-
methanol	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 wwt	Equilibrium Partitioning
	PNEC	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.

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.
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

Physical state	: Liquid.
Colour	: White.
Odour	: Formic acid.
Odour threshold	: Not available.
pH	: 2 to 2,2
Melting point/freezing point	: Not available.
Initial boiling point and boiling range	: Not available.
Flash point	: Closed cup: >100°C
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Upper/lower flammability or explosive limits	: Not available.
Vapour pressure	: Not available.
Vapour density	: Not available.
Relative density	: Not available.
Density (liquid)	: 1,1 g/cm ³ [25°C]
Solubility	: Soluble in water
Partition coefficient: n-octanol/ water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Dynamic: 3000 to 4000 mPa·s [25 °C]
Explosive properties	: Not available.
Oxidising properties	: Not available.

9.2 Other information

VOC content (Without volume exclusion)	: 11,9 % (w/w) 30,4 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	: 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

Potential Adverse effects

- Ingestion** : Irritating to mouth, throat and stomach.
- Skin contact** : Causes skin irritation.
Adverse symptoms may include the following:
irritation
redness
- Eye contact** : Causes serious eye irritation.
Adverse symptoms may include the following:
pain or irritation
watering
redness

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
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

Product	ATE value
Oral	5820,7 mg/kg
Dermal	234375 mg/kg
Inhalation (vapours)	82,2 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
formic acid	Eyes - Severe irritant	Rabbit	-	122 milligrams	-
	Skin - Mild irritant	Rabbit	-	610 milligrams	-
ethanediol	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	-
methanol	Skin - Oedema	Rabbit	0	-	72 hours
	Eyes - Cornea opacity	Rabbit	1	24 hours	-

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	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 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.
- Respiratory** : **methanol**: No specific data.
- Product Conclusion/ Summary** : Causes skin irritation. Causes serious eye irritation.

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

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 Continuous	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
methanol	DNA damage and repair assay	Experiment: In vitro Subject: Bacteria	Positive
	OECD 471	Experiment: In vitro Subject: Bacteria	Negative
	OECD 476	Experiment: In vitro Subject: Mammalian-Animal	Negative

SECTION 11: Toxicological information

	OECD 474	Experiment: In vivo Subject: Mammalian-Animal	Negative
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ethanediol: Based on available data, the classification criteria are not met.
methanol: Conclusive, but not sufficient for classification.

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: Conclusive, but not sufficient for classification.

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

Teratogenicity

methanol: Conclusive, but not sufficient for classification.

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

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
	Acute EC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	96 hours
methanol	Acute EC50 >100 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 72860 mg/l Fresh water	Fish - Pimephales promelas	Static
	Acute LC50 72860 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 15380 mg/l	Fish - Pimephales promelas	Static
	EC50 22000 mg/l Fresh water	Algae - Selenastrum capricornutum	7 days
	IC50 8800 mg/l Fresh water	Micro-organism - Nitrosomonas sp.	96 hours
	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	
			Flow through
			200 hours
			Static

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 301C Ready Biodegradability - Modified MITI Test (I)	96 % - 14 days	-	-
methanol	-	83 to 91 % - Readily - 3 days	-	Fresh water
	-	71 to 83 % - Readily - 5 days	BOD/ThOD	Sediment
	-	69 to 97 % - 5 days	O ₂ Consumption	Sewage
	-	53,4 % - 5 days	-	Marine water
	-	46,3 % - 5 days	-	-

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

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 _{ow}	BCF	Potential
formic acid	-2,3	-	low
ethanediol	-1,36	-	low
methanol	-0,77	<10	low

SECTION 12: Ecological information

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : 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 

SECTION 14: Transport information

14.4 Packing group	II	II	II	II
14.5 Environmental hazards	No.	No.	No.	No.
Additional information	<u>Hazard identification number</u> 80 <u>Limited quantity</u> 1 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> 274	<u>Passenger and Cargo Aircraft</u> Quantity limitation: 1 L Packaging instructions: 851 <u>Cargo Aircraft Only</u> Quantity limitation: 30 L Packaging instructions: 855 <u>Limited Quantities - Passenger Aircraft</u> Quantity limitation: 0.5 L Packaging instructions: Y840 <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.

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

SECTION 15: Regulatory information

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 Irrit. 2, H315 Eye Irrit. 2, H319	Calculation method Calculation method
Full text of abbreviated H statements :	
✔ H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301 (oral)	Toxic if swallowed.
H302	Harmful if swallowed.
H302 (oral)	Harmful if swallowed.
H311 (dermal)	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 (inhalation)	Toxic if inhaled.
H370 (central nervous system (CNS) and optic nerve)	Causes damage to organs. (central nervous system (CNS) and optic nerve)
H373 (kidneys)	May cause damage to organs through prolonged or repeated exposure if swallowed. (kidneys)

SECTION 16: Other information

<p>Full text of classifications [CLP/GHS]</p>	<p>: Acute Tox. 3, H301 Acute Tox. 3, H311 Acute Tox. 3, H331 Acute Tox. 4, H302 Eye Dam. 1, H318 Eye Irrit. 2, H319 Flam. Liq. 2, H225 Flam. Liq. 3, H226 Skin Corr. 1A, H314 Skin Irrit. 2, H315 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 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 FLAMMABLE LIQUIDS - Category 2 FLAMMABLE LIQUIDS - Category 3 SKIN CORROSION/IRRITATION - Category 1A SKIN CORROSION/IRRITATION - Category 2 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>
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