

This safety data sheet was created pursuant to the requirements of:
UK REACH Regulations (SI 2019/758 as amended)

Supersedes date 08-Nov-2016

Revision date 02-Oct-2025

Revision Number 2

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

1.1. Product identifier

Product Code(s) 50147
Safety data sheet number 50147
Product Name CAFLON HDC100
Synonyms CAFLON HDC100 GREEN
Pure substance/mixture Mixture
Contains ETHANEDIOL; SODIUM NITRITE; DISODIUM TETRABORATE PENTAHYDRATE

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

Recommended use Antifreeze liquid
Restricted to professional users

1.3. Details of the supplier of the safety data sheet

Supplier

Univar Solutions UK Ltd
Aquarius House
6 Mid Point Business Park
Bradford
GBR

For further information, please contact

E-mail address SDS.EMEA@univarsolutions.com
Non-Emergency Telephone Number +44 1274 267300 / +44 1274 267306

1.4. Emergency telephone number

Emergency Telephone SGS - +32 (0)3 575 55 55 (24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Acute toxicity - Oral	Category 4 - (H302)
Serious eye damage/eye irritation	Category 2 - (H319)
Reproductive toxicity	Category 1B - (H360FD)

Specific target organ toxicity — repeated exposure

Category 2 - (H373)

2.2. Label elements

Contains ETHANEDIOL; SODIUM NITRITE; DISODIUM TETRABORATE PENTAHYDRATE

**Signal word**

Danger

Hazard statements

H302 - Harmful if swallowed

H319 - Causes serious eye irritation

H360FD - May damage fertility. May damage the unborn child

H373 - May cause damage to the following organs through prolonged or repeated exposure: Kidneys

Restricted to professional users

Precautionary statements

P201 - Obtain special instructions before use

P260 - Do not breathe dust/fume/gas/mist/vapours/spray

P264 - Wash face, hands and any exposed skin thoroughly after handling

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P308 + P313 - IF exposed or concerned: Get medical advice/attention

P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.1 Substances**

Not applicable

3.2 Mixtures

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)
ETHANEDIOL 107-21-1	80 - 90%	203-473-3 (603-027-00-1)	-	Acute Tox. 4 (H302) STOT RE 2 (H373)	-	-	-
SODIUM BENZOATE 532-32-1	1 - 5%	208-534-8	-	Eye Irrit. 2 (H319)	-	-	-
SODIUM NITRITE	1 - 5%	231-555-9	-	Ox. Sol. 2 (H272)	-	1	-

7632-00-0		(007-010-00-4)		Acute Tox. 3 (H301) Eye Irrit. 2 (H319) Aquatic Acute 1 (H400)			
DISODIUM TETRABORATE PENTAHYDRATE 12179-04-3	1 - 5%	215-540-4 (005-011-00-4)	-	Repr. 1B (H360FD)	-	-	-
METHANOL 67-56-1	< 0.1%	200-659-6 (603-001-00-X)	-	Flam. Liq. 2 (H225) Acute Tox. 3 (H301) Acute Tox. 3 (H311) Acute Tox. 3 (H331) STOT SE 1 (H370)	STOT SE 1 :: C>=10% STOT SE 2 :: 3%<=C<10%	-	-
ETHANOL 64-17-5	< 0.1%	200-578-6 (603-002-00-5)	-	Flam. Liq. 2 (H225) Eye Irrit. 2 (H319)	Eye Irrit. 2 (H319) :: C>=50%	-	-

Full text of H- and EUH-phrases: see section 16

Chemical name	CAS No	SVHC candidates
DISODIUM TETRABORATE PENTAHYDRATE	12179-04-3	X

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if symptoms occur.
Ingestion	Get immediate medical attention. Rinse mouth thoroughly with water. Drink plenty of water. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit does not enter the lungs.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

Inhalation	Coughing and/or wheezing. Difficulty in breathing.
Eyes	May cause temporary eye irritation.
Dermal	Prolonged contact may cause redness and irritation.
Ingestion	Harmful if swallowed Ingestion may cause: Gastrointestinal discomfort Unconsciousness

May cause damage to organs through prolonged or repeated exposure if swallowed
Kidneys

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

Note to doctors

If several ounces (60 - 100 ml) of ethylene glycol have been ingested, early administration of ethanol may counter the toxic effects (metabolic acidosis, renal damage). Consider hemodialysis or peritoneal dialysis & thiamine 100 mg plus pyridoxine 50 mg intravenously every 6 hours. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol: loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical, CO ₂ , alcohol-resistant foam or water spray.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.

5.2. Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

5.3. Advice for firefighters

Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Cool containers with flooding quantities of water until well after fire is out. Collect contaminated fire extinguishing water separately. Do not allow it to enter drains or surface water.
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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid contact with skin, eyes and inhalation of vapours. Provide adequate ventilation. Use
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personal protection recommended in Section 8. Do not touch or walk through spilled material. Keep unnecessary and unprotected personnel from entering.

Other information

Refer to protective measures listed in Sections 7 and 8.

For emergency responders

Use personal protection recommended in Section 8.

6.2. Environmental precautions**Environmental precautions**

Do not allow runoff to sewer, waterway or ground. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and material for containment and cleaning up**Methods for containment**

Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

Methods for cleaning up

Clean contaminated objects and areas thoroughly observing environmental regulations. After cleaning, flush away traces with water.

Prevention of secondary hazards

Observe good chemical hygiene practices.

6.4. Reference to other sections**Reference to other sections**

See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Avoid contact with skin, eyes and inhalation of vapours. Handle all packages and containers carefully to minimise spills. Ensure adequate ventilation.

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities**Storage Conditions**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from food, drink and animal feedingstuffs. Store away from incompatible materials. Strong acids. Strong bases. Strong oxidising agents.

7.3. Specific end use(s)**Specific use(s)**

See section 1 for more information.

Risk Management Methods (RMM)

The information required is contained in this Safety Data Sheet.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

Exposure Limits

Chemical name	United Kingdom
ETHANEDIOL 107-21-1	TWA: 10 mg/m ³ (particulate) TWA: 20 ppm TWA: 52 mg/m ³ STEL: 40 ppm STEL: 104 mg/m ³ (vapour) Sk*
DISODIUM TETRABORATE PENTAHYDRATE 12179-04-3	TWA: 1 mg/m ³ STEL: 3 mg/m ³
METHANOL 67-56-1	TWA: 200 ppm TWA: 266 mg/m ³ STEL: 250 ppm STEL: 333 mg/m ³ Sk*
ETHANOL 64-17-5	TWA: 1000 ppm TWA: 1920 mg/m ³ STEL: 3000 ppm STEL: 5760 mg/m ³

Biological occupational exposure limits

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
ETHANEDIOL 107-21-1		106 mg/kg bw/day [4] [6]	35 mg/m ³ [5] [6]
SODIUM BENZOATE 532-32-1		62.5 mg/kg bw/day [4] [6]	3 mg/m ³ [4] [6] 0.1 mg/m ³ [5] [6]
SODIUM NITRITE 7632-00-0			2 mg/m ³ [4] [6]
DISODIUM TETRABORATE PENTAHYDRATE 12179-04-3		458.2 mg/kg/day [4] [6]	17.04 mg/m ³ [5] [6]
METHANOL 67-56-1		20 mg/kg bw/day [4] [6] 20 mg/kg bw/day [4] [7]	130 mg/m ³ [4] [6] 130 mg/m ³ [4] [7] 130 mg/m ³ [5] [6] 130 mg/m ³ [5] [7]
ETHANOL 64-17-5		8238 mg/kg bw/day [4] [6]	380 mg/m ³ [4] [6] 1900 mg/m ³ [5] [7]

- [4] Systemic health effects.
 [5] Local health effects.
 [6] Long term.
 [7] Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
ETHANEDIOL 107-21-1		53 mg/kg bw/day [4] [6]	7 mg/m ³ [5] [6]
SODIUM BENZOATE 532-32-1	16.6 mg/kg bw/day [4] [6]	31.25 mg/kg bw/day [4] [6]	1.5 mg/m ³ [4] [6] 0.06 mg/m ³ [5] [6]

Chemical name	Oral	Dermal	Inhalation
DISODIUM TETRABORATE PENTAHYDRATE 12179-04-3	1.15 mg/kg/day [4] [7]	231.8 mg/kg/day [4] [6]	17.04 mg/m ³ [5] [7]
METHANOL 67-56-1	4 mg/kg bw/day [4] [6] 4 mg/kg bw/day [4] [7]	4 mg/kg bw/day [4] [6] 4 mg/kg bw/day [4] [7]	26 mg/m ³ [4] [6] 26 mg/m ³ [4] [7] 26 mg/m ³ [5] [6] 26 mg/m ³ [5] [7]
ETHANOL 64-17-5	87 mg/kg bw/day [4] [6]	206 mg/kg bw/day [4] [6]	114 mg/m ³ [4] [6] 950 mg/m ³ [5] [7]

[4] Systemic health effects.
 [5] Local health effects.
 [6] Long term.
 [7] Short term.

Predicted No Effect Concentration (PNEC)

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
ETHANEDIOL 107-21-1	10 mg/L	10 mg/L	1 mg/L	10 mg/L	
SODIUM BENZOATE 532-32-1	0.13 mg/L	0.305 mg/l	0.013 mg/L		
SODIUM NITRITE 7632-00-0	0.0054 mg/l	0.0054 mg/l	0.00616 mg/l		
METHANOL 67-56-1	20.8 mg/L	1540 mg/L	2.08 mg/L		
ETHANOL 64-17-5	0.96 mg/l		0.79 mg/l		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
ETHANEDIOL 107-21-1	37 mg/kg sediment dw	3.7 mg/kg sediment dw	199.5 mg/L	1.53 mg/kg soil dw	
SODIUM BENZOATE 532-32-1	1.76 mg/kg sediment dw	0.176 mg/kg sediment dw	10 mg/L	0.06 mg/kg soil dw	300 mg/kg food
SODIUM NITRITE 7632-00-0	0.0195 mg/kg	0.0223 mg/kg		0.000733 mg/kg	21 mg/l
METHANOL 67-56-1	77 mg/kg sediment dw	7.7 mg/kg sediment dw	100 mg/L	100 mg/kg soil dw	
ETHANOL 64-17-5	3.6 mg/kg dwt	2.9 mg/kg dwt	580 mg/l	0.63 mg/kg dwt	0.38 g/kg

8.2. Exposure controls

Engineering controls

Ensure adequate ventilation. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye/face protection

Tight sealing safety goggles. Use eye protection according to EN 166.

Hand protection	Chemical resistant gloves required for prolonged or repeated contact. Gloves must conform to standard EN 374. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves. Gloves should be removed and replaced if there are any signs of degradation or breakthrough.
Skin and body protection	Wear appropriate clothing to prevent reasonably probable skin contact.
Respiratory protection	In case of inadequate ventilation wear respiratory protection. EN 136/140/141/145/143/149.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using the product. Remove contaminated clothing and protective equipment before entering eating areas. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash it before reuse.
Environmental exposure controls	Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear liquid
Colour	Green
Odour	No information available.
Odour threshold	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point		No information available.
Initial boiling point and boiling range		No information available.
Flammability		No information available.
Flammability Limit in Air		No information available.
Upper flammability or explosive limits		
Lower flammability or explosive limits		
Flash point		No information available.
Autoignition temperature		No information available.
Decomposition temperature		No information available.
pH	6 - 7	No information available.
pH (as aqueous solution)		No information available.
Kinematic viscosity		No information available.
Dynamic viscosity		No information available.
Water solubility	Soluble in water	No information available.
Solubility(ies)		No information available.
Partition coefficient		No information available.
Vapour pressure		No information available.
Relative density	1.119 - 1.139	@ 20 °C.
Bulk density		No information available
Liquid Density	No information available	No information available
Relative vapour density		No information available.
Particle characteristics		Not applicable.
Particle Size	.	
Particle Size Distribution	.	
Explosive properties	No information available	
Oxidising properties	No information available	

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity No reactive hazards known/expected.

10.2. Chemical stability

Stability Stable under recommended storage conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Hazardous polymerisation does not occur.

10.4. Conditions to avoid

Conditions to avoid Avoid contact with: Acids. Oxidising agents.

10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on likely routes of exposure

Product Information

Inhalation	May cause irritation of respiratory tract.
Eye contact	Causes serious eye irritation.
Skin contact	Prolonged contact may cause redness and irritation.
Ingestion	May cause damage to organs through prolonged or repeated exposure. Kidneys. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Unconsciousness. Causes serious eye irritation.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 520.00 mg/kg
 ATEmix (inhalation-dust/mist) 328.70 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
ETHANEDIOL	7712 mg/kg (Rat)	> 3500 mg/kg (Mouse)	> 2.5 mg/L (Rat) 6 h
SODIUM BENZOATE	2100 - 3450 mg/kg (Rat)	-	-
SODIUM NITRITE	= 85 mg/kg (Rat)	-	= 5.5 mg/L (Rat) 4 h
DISODIUM TETRABORATE PENTAHYDRATE	= 2403 mg/kg (Rat)	-	-
METHANOL	300 mg/kg	300 mg/kg	3 mg/L
ETHANOL	= 17800 mg/kg (Rat)	> 15800 mg/kg (Rabbit)	= 124.7 mg/L (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Skin corrosion/irritation**

Based on available data the classification criteria are not met.

ETHANEDIOL (107-21-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Brief contact is essentially non-irritating to skin. Prolonged contact may cause slight skin irritation with local redness

SODIUM BENZOATE (532-32-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD 404	Rabbit	Dermal			Brief contact is essentially non-irritating to skin.

SODIUM NITRITE (7632-00-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal			non-irritant

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	Dermal			non-irritant

METHANOL (67-56-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	Dermal			Mild skin irritant Prolonged contact may cause slight skin irritation with local redness

ETHANOL (64-17-5)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 404: Acute Dermal Irritation/Corrosion	Rabbit	Dermal			non-irritant Dryness and/or cracking

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes serious eye irritation.

ETHANEDIOL (107-21-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					May cause slight eye irritation Corneal injury is unlikely

SODIUM BENZOATE (532-32-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD 405	Rabbit	eye			Causes serious eye irritation

SODIUM NITRITE (7632-00-0)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 405: Acute Eye Irritation/Corrosion	Rabbit	eye			Causes serious eye irritation

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	eye			Causes serious eye irritation Fully reversible within 14 days

METHANOL (67-56-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rabbit	eye			May cause eye irritation

ETHANOL (64-17-5)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 405: Acute Eye Irritation/Corrosion	Rabbit	eye			Causes serious eye irritation

Respiratory or skin sensitisation Based on available data the classification criteria are not met.

ETHANEDIOL (107-21-1)

Method	Species	Exposure route	Results
	Guinea pig	Dermal	Not a skin sensitiser

SODIUM BENZOATE (532-32-1)

Method	Species	Exposure route	Results
			Skin contact may cause an allergic skin reaction in a small proportion of individuals

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Exposure route	Results
Guinea pig maximisation test (GPMT)	Guinea pig	Dermal	Not a skin sensitiser

METHANOL (67-56-1)

Method	Species	Exposure route	Results
	Guinea pig	Dermal	No sensitisation responses were observed

ETHANOL (64-17-5)

Method	Species	Exposure route	Results
OECD Test No. 406: Skin Sensitisation	Guinea pig	Dermal	Not a skin sensitiser

Germ cell mutagenicity

Based on available data the classification criteria are not met.

Component Information

ETHANEDIOL (107-21-1)

Method	Species	Results
	in vitro	Negative
		Negative Did not show mutagenic effects in animal experiments

SODIUM BENZOATE (532-32-1)

Method	Species	Results
Ames Test OECD Test No. 471: Bacterial Reverse Mutation Test	S. typhimurium	Negative
Ames Test OECD Test No. 471: Bacterial Reverse Mutation Test	Escherichia coli	Negative
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	Chinese hamster cells	Positive
OECD 479 sister chromatid exchange assay	Human lymphocytes	Positive
OECD 487: In Vitro Mammalian Cell Micronucleus Test	Human lymphocytes	Positive
OECD Test No. 475: Mammalian Bone Marrow Chromosome Aberration Test	Rat	Negative
OECD Test No. 478: Rodent Dominant Lethal Test	Rat	Negative

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Results
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro	Negative Read-across

METHANOL (67-56-1)

Method	Species	Results
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro Ames Test Salmonella typhimurium	Negative
OECD Test No. 476: In Vitro Mammalian Cell Gene Mutation Tests using the Hprt and xprt genes	in vitro Chinese hamster fibroblasts	Negative
OECD Test No. 474: Mammalian Erythrocyte Micronucleus Test	in vivo Mouse	Negative

ETHANOL (64-17-5)

Method	Species	Results
	in vitro	Negative
		Animal genetic toxicity studies were negative in some cases and positive in other cases

Carcinogenicity

Based on available data the classification criteria are not met.

Component Information

ETHANEDIOL (107-21-1)

Method	Species	Results
		Did not cause cancer in laboratory animals.

SODIUM BENZOATE (532-32-1)

Method	Species	Results
	Rat	Did not cause cancer in laboratory animals. NOAEL $\geq$ 20,000 ppm

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Results
	Mouse	Negative Read-across

METHANOL (67-56-1)

Method	Species	Results
		Did not cause cancer in laboratory animals.

ETHANOL (64-17-5)

Method	Species	Results
Expert judgment and weight of evidence determination		Not Carcinogenic

Reproductive toxicity

Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	United Kingdom
DISODIUM TETRABORATE PENTAHYDRATE	Repr. 1B

ETHANEDIOL (107-21-1)

Method	Species	Results
		Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects. Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies.

SODIUM BENZOATE (532-32-1)

Method	Species	Results
OECD Test No. 416: Two-Generation Reproduction Toxicity	Rat	No effects on fertility and early embryonic development were detected NOAEL $\geq$ 10,000 ppm
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	General Toxicity Maternal: NOAEL = 1.306 mg/kg bw/day
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	Developmental Toxicity: NOAEL = 1.306 mg/kg bw/day

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Results
Fertility effects	Rat Oral	May damage fertility NOAEL 17.5 mg/kg
Developmental toxicity	Rat Oral	May damage the unborn child

		NOAEL 9.6 mg/kg
Maternal toxicity	Rat Oral	NOAEL 13.3 mg/kg

METHANOL (67-56-1)

Method	Species	Results
		In animal studies, did not interfere with reproduction

ETHANOL (64-17-5)

Method	Species	Results
OECD Test No. 414: Pre-natal Development Toxicity Study	Rat	Based on available data the classification criteria are not met.
OECD Test No. 416: Two-Generation Reproduction Toxicity	Mouse	Based on available data the classification criteria are not met.

STOT - single exposure

Based on available data the classification criteria are not met.

ETHANEDIOL (107-21-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Evaluation of available data suggests that this material is not an STOT-SE toxicant

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Not classified

METHANOL (67-56-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					May cause damage to organs Eyes Central nervous system

ETHANOL (64-17-5)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Evaluation of available data suggests that this material is not an STOT-SE toxicant

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

H373 - May cause damage to the following organs through prolonged or repeated exposure: Kidneys.

Component Information

ETHANEDIOL (107-21-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Observations in humans include: Nystagmus (involuntary eye movement). In animals, effects

					have been reported on the following organs: Kidney Liver
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SODIUM BENZOATE (532-32-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
Chronic toxicity	Rat	Oral	10,000 - 20,000 ppm, 7 days/week	18 - 24 months	NOAEL >= 20,000 ppm
OECD Test No. 412: Sub-acute Inhalation Toxicity: 28-Day Study	Rat	Inhalation Dust/Mist	25; 250; 1200 mg/m ³ 6h/d, 5 days/week	4 weeks	NOAEC =250 mg/m ³ Systemic Toxicity Test results on an analogous product
OECD Test No. 412: Sub-acute Inhalation Toxicity: 28-Day Study	Rat	Inhalation Dust/Mist	25; 250; 1200 mg/m ³ , 6h/d, 5 days/week	4 weeks	LOAEC =25 mg/m ³ respiratory tract Test results on an analogous product
Subacute Toxicity	Rabbit	Dermal	100; 500; 2500, mg/kg bw/day, 5h/d, 5 days/week	3 weeks	NOAEL >2500 mg/kg Test results on an analogous product

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Exposure route	Effective dose	Exposure time	Results
	Rat	Oral	NOAEL: 17.5 mg/kg 7 days/week	24 months	Based on available data the classification criteria are not met.

METHANOL (67-56-1)

Method	Species	Exposure route	Effective dose	Exposure time	Results
					Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

ETHANOL (64-17-5)

Method	Species	Exposure route	Effective dose	Exposure time	Results
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral		14 weeks	Not classified Based on available data the classification criteria are not met.

Aspiration hazard

Based on available data the classification criteria are not met.

Other adverse effects

No information available.

SECTION 12: Ecological information**12.1. Toxicity**

Ecotoxicity

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

ETHANEDIOL (107-21-1)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Pimephales promelas	LC50	72860 mg/L	96 hours	
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test	Daphnia magna	EC50	> 100 mg/L	48 hours	

SODIUM BENZOATE (532-32-1)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Pimephales promelas	LC50	> 100 mg/L	96 hours	
Acute toxicity	Daphnia magna	EC50	> 100 mg/L	96 hours	
Acute toxicity	Pseudokirchneriella subcapitata	ErC50	> 100 mg/L	72 hours	

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Pimephales promelas	LC50	79.7 mg/L	96 hours	Read-across
Chronic toxicity	Brachydanio rerio	NOEC	6.4 mg/L		Read-across
Chronic toxicity	Daphnia magna	NOEC	13.9 mg/L		Read-across
Acute toxicity	Ceriodaphnia dubia	LC50	91 mg/L	48 hours	Read-across
Acute toxicity	Pseudokirchneriella subcapitata	EC50	52.4 mg/L	72 hours	Read-across
Chronic toxicity	Pseudokirchneriella subcapitata	NOEC	17.5 mg/L	72 hours	Read-across

METHANOL (67-56-1)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Lepomis macrochirus	LC50	15400 mg/L	96 hours	
Acute toxicity	Daphnia magna	LC50	> 10000 mg/L	48 hours	
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test or Equivalent.	Pseudokirchneriella subcapitata	ErC50	22000 mg/L	96 days	
OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)	activated sludge	IC50	> 1000 mg/L	3 hours	
OECD Test No. 222: Earthworm Reproduction Test (Eisenia fetida/Eisenia andrei)	Eisenia fetida		29646 mg/L	63 days	
OECD Test No. 222: Earthworm Reproduction Test (Eisenia fetida/Eisenia andrei)	Eisenia fetida		10000 mg/L	63 days	

ETHANOL (64-17-5)

Method	Species	Endpoint type	Effective dose	Exposure time	Results
Acute toxicity	Oncorhynchus	LC50	11200 - 13000 mg/L	96 hours	

	mykiss (rainbow trout)				
OECD Test No. 202: Daphnia sp., Acute Immobilisation Test or Equivalent.	Daphnia magna	EC50	5414 mg/L	48 hours	
OECD Test No. 201: Freshwater Algae and Cyanobacteria, Growth Inhibition Test or Equivalent.	Skeletonema costatum	EbC50	10943 - 11619 mg/L	5 days	
Chronic toxicity	Daphnia magna	NOEC	9.6 mg/L	9 days	

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
ETHANEDIOL	EC50: 6500 - 13000mg/L (96h, Pseudokirchneriella subcapitata)	LC50: =41000mg/L (96h, Oncorhynchus mykiss) LC50: 14 - 18mg/L (96h, Oncorhynchus mykiss) LC50: =27540mg/L (96h, Lepomis macrochirus) LC50: =40761mg/L (96h, Oncorhynchus mykiss) LC50: 40000 - 60000mg/L (96h, Pimephales promelas) LC50: =16000mg/L (96h, Poecilia reticulata)	-	EC50: =46300mg/L (48h, Daphnia magna)
SODIUM NITRITE	-	LC50: =0.19mg/L (96h, Oncorhynchus mykiss) LC50: 0.092 - 0.13mg/L (96h, Oncorhynchus mykiss) LC50: 0.4 - 0.6mg/L (96h, Oncorhynchus mykiss) LC50: 0.65 - 1mg/L (96h, Oncorhynchus mykiss) LC50: =2.3mg/L (96h, Pimephales promelas) LC50: =20mg/L (96h, Pimephales promelas)	-	-

12.2. Persistence and degradability

Persistence and degradability The product contains substances which are biodegradable.

ETHANEDIOL (107-21-1)

Method	Exposure time	Value	Results
OECD Test No. 301A: Ready Biodegradability: DOC Die-Away Test (TG 301 A) or Equivalent.	10 days	Biodegradation 90 - 100 %	Readily biodegradable

SODIUM BENZOATE (532-32-1)

Method	Exposure time	Value	Results
OECD Test No. 301B: Ready Biodegradability: CO2 Evolution Test (TG 301 B) or Equivalent.	28 days	Biodegradation > 74 %	Readily biodegradable

SODIUM NITRITE (7632-00-0)

Method	Exposure time	Value	Results
			The methods for determining biodegradability are not applicable to inorganic substances.

DISODIUM TETRABORATE PENTAHYDRATE (12179-04-3)

Method	Exposure time	Value	Results
			The methods for determining biodegradability are not applicable to inorganic substances.

METHANOL (67-56-1)

Method	Exposure time	Value	Results
OECD Test No. 301C: Ready Biodegradability: Modified MITI Test (I) (TG 301 C)	14 days	Biodegradation 92 %	Readily biodegradable

ETHANOL (64-17-5)

Method	Exposure time	Value	Results
OECD Test No. 301D: Ready Biodegradability: Closed Bottle Test (TG 301 D) or Equivalent.	5 days	> 70 % Biodegradation	Readily biodegradable

12.3. Bioaccumulative potential**Bioaccumulation**

Not likely to bioaccumulate.

Component Information

Chemical name	Partition coefficient
ETHANEDIOL	-1.36
SODIUM BENZOATE	1.88
SODIUM NITRITE	-3.7
METHANOL	-0.77
ETHANOL	-0.35

12.4. Mobility in soil**Mobility in soil**

Soluble in water.

12.5. Results of PBT and vPvB assessment**PBT and vPvB assessment**

The product does not contain any substance(s) classified as PBT or vPvB.

Chemical name	PBT and vPvB assessment
ETHANEDIOL	The substance is not PBT / vPvB
SODIUM BENZOATE	The substance is not PBT / vPvB
SODIUM NITRITE	The substance is not PBT / vPvB
DISODIUM TETRABORATE PENTAHYDRATE	Not applicable
METHANOL	The substance is not PBT / vPvB
ETHANOL	The substance is not PBT / vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products	Waste is classified as hazardous waste. Disposal to licensed waste disposal site in accordance with the local Waste Disposal Authority.
Contaminated packaging	Do not reuse empty containers. Empty remaining contents. Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

IATA

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

IMDG

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

RID

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

ADR

14.1 UN number or ID number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	
Special Provisions	None

SECTION 15: Regulatory information

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

National regulations

Authorisations and/or restrictions on use:

This product contains one or more substances subject to restriction (UK REACH - Annex XVII).

This product does not contain substances subject to authorisation (UK REACH - Annex XIV).

Product restricted per REACH Annex XVII: 3

Chemical name	Restricted substance per REACH Annex XVII	Substance subject to authorisation per REACH Annex XIV
SODIUM BENZOATE - 532-32-1	75	-
DISODIUM TETRABORATE PENTAHYDRATE - 12179-04-3	Use restricted. See item 30. Restricted Reproductive Toxin 1B	-
METHANOL - 67-56-1	69, 75.	-
ETHANOL - 64-17-5	75	-

Persistent Organic Pollutants

Not applicable

Export Notification requirements

Not applicable

Named dangerous substances per COMAH Regulations 2015 (as amended)

Chemical name	Lower-tier requirements (tons)	Upper-tier requirements (tons)
METHANOL - 67-56-1	500	5000

The Ozone-Depleting Substances Regulations 2015

Not applicable

The Biocidal Products Regulations 2001 (as amended)

Chemical name	The Biocidal Products Regulations 2001 (as amended)
SODIUM BENZOATE - 532-32-1	Simplified procedure - Category A
DISODIUM TETRABORATE PENTAHYDRATE - 12179-04-3	Product-type 8: Wood preservatives
ETHANOL - 64-17-5	Product-type 2: Disinfectants and algicides not intended for direct application to humans or animals Product-type 4: Food and feed area Product-type 1: Human hygiene

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)

Not applicable

Poisons Act 1972 (Explosive Precursors) Regulations (as Amended)

Chemical name	Poisons and Explosive Precursors
SODIUM NITRITE	Poison, Reportable

International Inventories

TSCA

Contact supplier for inventory compliance status

DSL/NDL

Contact supplier for inventory compliance status

EINECS/ELINCS

Contact supplier for inventory compliance status

ENCS

Contact supplier for inventory compliance status

IECSC

Contact supplier for inventory compliance status

KECI

Contact supplier for inventory compliance status

PICCS

Contact supplier for inventory compliance status

AIIC

Contact supplier for inventory compliance status

NZIoC

Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AIC - Australian Inventory of Industrial Chemicals
NZIoC - New Zealand Inventory of Chemicals

15.2. Chemical safety assessment

Chemical Safety Report

No Chemical Safety Assessment has been carried out for this substance/mixture

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H225 - Highly flammable liquid and vapour
 H272 - May intensify fire; oxidiser
 H301 - Toxic if swallowed
 H302 - Harmful if swallowed
 H311 - Toxic in contact with skin
 H319 - Causes serious eye irritation
 H331 - Toxic if inhaled
 H360FD - May damage fertility. May damage the unborn child
 H370 - Causes damage to organs
 H373 - May cause damage to organs through prolonged or repeated exposure
 H400 - Very toxic to aquatic life

Legend

SVHC: Substances of Very High Concern for Authorisation:
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

Legend Section 8: Exposure controls/personal protection

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	*	Skin designation
+	Sensitisers		

Revision Note **SDS sections updated 1 2 3 4 5 6 7 8 9 10 11 12 13 15 16**

Classification procedure

Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapour	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitisation	Calculation method
Skin sensitisation	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC)
European Chemicals Agency (ECHA) (ECHA_API)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
National Institute of Technology and Evaluation (NITE)
Australian National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme
Organisation for Economic Co-operation and Development Screening Information Data Set
World Health Organization

Prepared By	J Forth
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This material safety data sheet complies with the requirements of UK REACH Regulations (SI 2019/758 as amended)
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet