

SAFETY DATA SHEET

ANTIFREEZE (READY TO USE)

According to Regulation (EC) No 1907/2006, Annex II

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

1.1. Product identifier

Product name ANTIFREEZE (READY TO USE)
Product number 2712

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

Identified uses Antifreeze liquid.
Uses advised against Any use other than the intended application.

1.3. Details of the supplier of the safety data sheet

Supplier

Reagent Chemical Services
 18 Aston Fields Road
 Whitehouse Industrial Estate
 Runcorn
 Cheshire WA7 3DL

T: 01928 716903 (08.30 - 17.00)
 F: 01928 716425
 E: info@reagent.co.uk

1.4. Emergency telephone number

Emergency telephone OHES Environmental Ltd 24-7
 Tel. 0333 333 9939 (24 hour)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified
Health hazards Acute Tox. 4 - H302 STOT RE 2 - H373
Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) Xn;R22.

Human health

The acute effects of ingesting large amounts are similar to alcohol intoxication, followed by vomiting, headache, elevated breathing and heart rate, collapse and unconsciousness. May be fatal, the lethal dose of ethanediol for humans is 100ml. Repeated small exposures can produce skin allergies, kidney problems and brain damage. May aggravate pre-existing skin, eye, liver, kidney or respiratory conditions.

ANTIFREEZE (READY TO USE)

Environmental Although not classified as harmful to the environment the material should not be discharged to land or water systems, this may have an impact on the organisms in the local area. The Environment Agency or other regulatory body must be informed of large or uncontrolled discharges to land or water. The product is miscible with water and will spread in water systems. Spillages may cause slippery surfaces.

Physicochemical The following information refers to the major constituent ethanediol. Violent reaction with oxidisers, oxidising acids and sulphuric acid. Forms explosive mixture with sodium perchlorate. Incompatible with strong acids, alkalis, aliphatic amines, isocyanates, chlorosulphonic acid, oleum, potassium dichromate, phosphorous pentasulphide, sodium chlorate. Causes ignition at room temperature with chromium trioxide, potassium permanganate and sodium peroxide.

2.2. Label elements

Pictogram



Signal word Warning

Hazard statements H302 Harmful if swallowed.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements P260 Do not breathe vapour/ spray.
P270 Do not eat, drink or smoke when using this product.
P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P330 Rinse mouth.
P501 Dispose of contents/ container in accordance with national regulations.

Contains ETHANEDIOL

Supplementary precautionary statements P264 Wash contaminated skin thoroughly after handling.
P314 Get medical advice/ attention if you feel unwell.

2.3. Other hazards

This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

ETHANEDIOL	60-100%	
CAS number: 107-21-1	EC number: 203-473-3	REACH registration number: 01-2119456816-28-0000
Classification	Classification (67/548/EEC or 1999/45/EC)	
Acute Tox. 4 - H302	Xn;R22	
STOT RE 2 - H373		

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

Composition comments The product contains a small amount of sodium 2-ethylhexanoate which is classified as toxic for reproduction (development) with possible risk of harm to the unborn child.

SECTION 4: First aid measures

4.1. Description of first aid measures

ANTIFREEZE (READY TO USE)

General information	CAUTION! First aid personnel must be aware of own risk during rescue! Always consider any dangers in the vicinity before approaching to treat the casualty. First aid personnel must protect themselves with all necessary personal protective equipment during the assistance of casualties. When breathing is difficult, properly trained personnel may assist the casualty by administering oxygen. Check airway for any blockages. Place unconscious person on the side in the recovery position and ensure breathing can take place. Never give anything by mouth to an unconscious person. If breathing has stopped perform CPR. Avoid mouth to mouth resuscitation. If medical assistance is needed take as much detail as possible about the incident and hazardous materials involved with the casualty.
Inhalation	In case of exposure to vapours or mists remove victim from source of exposure and obtain medical attention if any discomfort continues.
Ingestion	Do not induce vomiting. Rinse mouth thoroughly with plenty of water. Get medical attention.
Skin contact	Remove contaminated clothing and wash before re - use. Wash skin thoroughly with soap and water. Get medical attention if any symptoms occur after washing.
Eye contact	Promptly wash eyes with plenty of water or eye wash solution while lifting the eyelids. If possible remove any contact lenses and continue to wash. Get medical attention.

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

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	Acute: May irritate the respiratory system and cause coughing. Delayed: Repeat exposure may be harmful.
Ingestion	Acute: Nausea, vomiting. Delayed: May cause damage to organs.
Skin contact	Acute: May irritate the skin. Delayed: Prolonged exposure may cause skin conditions such as dryness or eczema.
Eye contact	Acute: May cause eye irritation. Delayed: May cause redness. Prolonged exposure may cause eye damage.

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

Notes for the doctor	Have facilities in place to wash skin and eyes in case of exposure. Cases of ingestion should receive prompt medical attention.
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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	The product is non-combustible. Use fire-extinguishing media suitable for the surrounding fire. Water spray, dry powder, carbon dioxide or alcohol resistant foam.
Unsuitable extinguishing media	Do not use water jet as this can spread the fire. Do not use carbon dioxide in enclosed spaces with insufficient ventilation.

5.2. Special hazards arising from the substance or mixture

Specific hazards	In case of fire, toxic fumes or vapours may be formed. No unusual fire or explosion hazards noted.
Hazardous combustion products	The product in its normal state is not classed as combustible. In the heat of a fire it can produce: Carbon monoxide (CO). Carbon dioxide (CO ₂).

5.3. Advice for firefighters

ANTIFREEZE (READY TO USE)

Protective actions during firefighting	Prevent run-off from entering drains and watercourses. Evacuate and keep non-emergency personnel away from the fire area until it is properly extinguished with no danger of re-ignition. Be aware of dangers from other hazardous substances in the immediate area. Containers close to the fire area should be cooled with water if safe to do so. Be aware that any flammable substance containers are liable to explode when heated.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet. Avoid ingestion, inhalation of vapours and contact with skin and eyes. Non-emergency personnel should be kept away from the area of spillage. Have emergency procedures in place for treating spillages, evacuating the area and informing the emergency services if necessary. Restrict access to the area until the spillage is treated and it is safe to return.
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6.2. Environmental precautions

Environmental precautions	Avoid unauthorised discharge to the environment. Clean up any spillages immediately, prevent material from spreading and entering drains or sewage systems. If the product has entered a foul drain or sewage system in significant amounts to cause a hazard then the local water treatment company must be informed. Large spillages or uncontrolled discharge to water systems must be alerted to the Environmental Agency or other regulatory body. If spillages to land cannot be treated safely or if contamination will occur the Environment Agency must be alerted immediately.
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6.3. Methods and material for containment and cleaning up

Methods for cleaning up	Remove ignition sources when treating spillages, no smoking. Small Spillages: Absorb spillage with sand or other inert absorbent. Large Spillages: Dam and absorb spillages with sand, earth or other inert, non-combustible material. Use drain covers if available to prevent contamination. Dam around drains with sand or other compatible material. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Wash spillage site well with water and detergent, be aware of the potential for surfaces to become slippery. Ventilate area and allow to dry before allowing access.
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6.4. Reference to other sections

Reference to other sections	Refer to sections 8 and 13 for additional information.
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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions	Avoid ingestion of the product, inhalation of any vapours/mists when produced and contact with skin and eyes. Avoid spilling the product. Remove contaminated clothing/footwear/equipment before entering eating areas or places that would expose others to the product. Wash at the end of each work shift, before eating, drinking, smoking and using the toilet. Do not dispose of the substance to the environment through unauthorised means. Do not discharge to land or water including the drainage system. Wear protective equipment as specified in section 8.
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7.2. Conditions for safe storage, including any incompatibilities

ANTIFREEZE (READY TO USE)

Storage precautions Store in closed original container at temperatures between 5°C and 35°C. Store away from heat, direct sunlight and moisture. Avoid sources of ignition. Store away from incompatible materials. Store in a stable situation to avoid spillages. It is advisable to store in a bunded area or use other protective measures such as a sump pallet or storage tray. If the mixture is transferred to another container then this should be made of a compatible material. Consult with the packaging manufacturer about suitability.

Storage class Chemical storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

ETHANEDIOL

Long-term exposure limit (8-hour TWA): WEL 52 mg/m³(Sk)

Short-term exposure limit (15-minute): WEL 104 mg/m³(Sk)

WEL = Workplace Exposure Limit

DNEL

Industry - Dermal; Long term : 106 (Systemic) mg/kg/day

Refers to ethanediol.

Taken from the ECHA website: List of Registered Substances -Toxicity data.

Industry - Inhalation; Long term : 53 (Local) mg/m³

Consumer - Dermal; Long term : 53 (Systemic) mg/m³

Consumer - Inhalation; Long term : 7 (local) mg/m³

PNEC

- Fresh water; 10 mg/l

The above information refers to ethanediol.

Taken from the ECHA website: List of Registered Substances - Ecotoxicity data.

- Marine water; 1 mg/l

- STP; 199.5 mg/l

- Sediment; 20.9 (Freshwater) mg/l

- Soil; 1.53 mg/l

ETHANEDIOL (CAS: 107-21-1)

DNEL

Workers - Inhalation; Long term local effects: 35 mg/m³

Workers - Dermal; Long term systemic effects: 106 mg/kg/day

General population - Inhalation; Long term local effects: 7 mg/m³

General population - Dermal; Long term systemic effects: 53 mg/kg/day

PNEC

- Fresh water; 10 mg/l

- Marine water; 1 mg/l

- Intermittent release; 10 mg/l

- STP; 199.5 mg/l

- Sediment (Freshwater); 37 mg/kg

- Sediment (Marinewater); 3.7 mg/kg

- Soil; 1.53 mg/kg

8.2. Exposure controls

Appropriate engineering controls

The mixture is non-volatile and will not require any engineering measures under normal use. However if sprays or mists are generated then use appropriate ventilation and extraction to avoid occupational exposure.

ANTIFREEZE (READY TO USE)

Eye/face protection	As a minimum wear safety glasses with side shields. It is advisable to wear chemical safety goggles conforming to EN 166.
Hand protection	Wear protective gloves. Butyl rubber. Neoprene. Nitrile rubber. Polyvinyl chloride (PVC). For gloves involving total immersion 1.0mm thickness (if available) are recommended, at least 0.5mm and breakthrough time of >480 minutes. For splash resistance use minimum 0.5mm thickness and breakthrough time > 240 minutes. It should be noted that liquid may penetrate the gloves. Frequent changes are recommended. Gloves showing signs of degradation should be changed to avoid skin contamination. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Gloves should carry the CE mark and conform to BS EN 374, chemicals and micro-organisms.
Other skin and body protection	Wear suitable protective clothing as protection against splashing or contamination. Wear rubber apron and full length gauntlets if handling large amounts. If there is a risk of splashing then wear a face shield. Protective clothing should conform to the general requirements of EN 340:2003. Also consider EN 13034:2005; EN 14605:2005; EN 943:2002 dependent upon the situation resulting in exposure. Safety footwear should conform to standards EN 344 - 347. Consult with the supplier as to the compatibility of protective clothing and footwear. Have facilities in place to wash eyes in case of contact. If handling large amounts it is recommended to have a safety shower.
Hygiene measures	Do not eat, drink or smoke in the work area. Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove contaminated clothing and wash before reuse. Remove contaminated clothing when entering eating areas or other places that could lead to contamination of others with the product.
Respiratory protection	Wear suitable respiratory protection if vapours or mists are generated. Wear a respirator fitted with the following cartridge: Organic vapour filter. Type A. If a particulate filter is used it should be at least type P2. Respiratory protection should conform to the following standards. BS EN 136: Full face masks. BS EN 140: Half-face masks. BS EN 143: Particulates. Consult with the supplier as to the compatibility of the equipment with the chemical of concern. CAUTION: Air purifying respirators do not protect the user in oxygen deficient atmospheres, use air supplied system. Powered air respirators should meet requirements of EN146 and EN12941. Airline fed respirators should meet the requirements of EN 270 and EN1835. Respiratory protection should be maintained in a proper condition and inspected at the frequency specified by current legislation.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless.
Odour	Mild.
Odour threshold	Not applicable. Not applicable.
pH	pH (concentrated solution): Approx. 8 Not determined. The pH is dependent upon the dilution factor. A change of 1 pH unit requires a 10:1 dilution.
Melting point	Not determined.
Initial boiling point and range	Not determined. Boiling point for ethanediol is quoted as 197.4°C @ 1013 hPa.
Flash point	111°C @ 1013.25 hPa°C CC (Closed cup).
Evaporation rate	Not determined.
Evaporation factor	Not determined.

ANTIFREEZE (READY TO USE)

Upper/lower flammability or explosive limits	Scientifically unjustified.
Vapour pressure	0.123 hPa @ °C
Vapour density	Not determined.
Relative density	Approx. 1.11 @ 20°C
Bulk density	Not determined.
Solubility(ies)	100g @ °C Miscible with water. Refers to ethanediol, quoted by ECHA.
Partition coefficient	log Pow: -1.36
Auto-ignition temperature	393°C @ 1013.25 hPa°C
Decomposition Temperature	Not available.
Viscosity	16.1 mPa s @ 25°C Refers to ethanediol, quoted by ECHA.
Explosive properties	Not explosive in its normal state.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Other information All available information has been included in section 9.1.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity Can react with acids, alkalis or oxidising agents. May react violently.

10.2. Chemical stability

Stability Stable under normal temperatures and prescribed storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions May react exothermically. Pressure may build up if reaction occurs in a sealed container. Will not polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid direct sunlight and moisture. Avoid extremes of temperatures. Avoid storage with incompatible materials. Avoid storage near to unprotected drainage systems.

10.5. Incompatible materials

Materials to avoid Strong acids. Strong alkalis. Strong oxidising agents. Aluminium. Aldehydes. Aliphatic amines Isocyanates. If the mixture is transferred to another container make sure it is compatible. Check with the supplier of the packaging.

10.6. Hazardous decomposition products

Hazardous decomposition products Carbon monoxide (CO). Carbon dioxide (CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects The mixture has not been tested for toxicological properties, information is provided for relevant constituent substances where available as included in section 3.2. References have been taken from the ECHA website, List of Registered Substances - Toxicological Information. This information refers to the major constituent ethanediol.

ANTIFREEZE (READY TO USE)**Acute toxicity - oral**

Acute toxicity oral (LD₅₀ mg/kg) 7,712.0

Species Rat

ATE oral (mg/kg) 526.32

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 3,500.0

Species Mouse

Acute toxicity - inhalation

Species Rat

Notes (inhalation LC₅₀) Industry - Dermal; Long term systemic effects 22 mg/kg/day 6 hour duration

Skin corrosion/irritation

Animal data Primary dermal irritation index: 0 Not irritating.

Human skin model test No information available.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation:: Negative.

Genotoxicity - in vivo Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity NOAEL None determined , Oral, Mouse Not a carcinogen.

Reproductive toxicity

Reproductive toxicity - fertility Three-generation study - NOAEL >1000 mg/kg, Oral, Rat

Reproductive toxicity - development Maternal toxicity: - : 3549 (NOEL) cutaneous mg/kg, , Mouse

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEL 150 mg/kg, Oral, Rat

Target organs Kidneys

Inhalation

Vapours or mists in high concentration may irritate the respiratory system and be harmful. In high concentrations vapours may cause nausea, headache and dizziness.

Ingestion

Harmful if swallowed. Ingestion of large amounts may cause unconsciousness and can be fatal.

Skin contact

The product can exaggarate existing skin conditions in sensitive individuals.

Eye contact

May irritate the eyes, especially people with pre-existing conditions.

Acute and chronic health hazards

Exposure to alcohol can increase the toxic effects.

ANTIFREEZE (READY TO USE)

Target organs	Repeated exposure can effect the: Liver Kidneys Brain
Medical symptoms	The initial effects of ingestion are similar to alcohol consumption followed by nausea, vomiting, abdominal pain, muscle weakness and collapse. If not treated death can occur between 8 and 24 hours.

SECTION 12: Ecological Information

Ecotoxicity Although not classified as environmentally hazardous, harmful effects cannot be excluded in the event of improper handling or disposal. Do not allow to enter drinking water, waste water or soil. The information in section 12 refers to ethanediol.

12.1. Toxicity

Acute toxicity - fish	LC50, 96 hours: 72860 mg/l, Pimephales promelas (Fat-head Minnow) Static, freshwater.
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: > 100 mg/l, Daphnia magna OECD Guideline 202. Static, freshwater.
Acute toxicity - aquatic plants	EC ₅₀ , 96 hours: 9750 mg/l, Selenastrum capricornutum Growth rate test.
Acute toxicity - microorganisms	, >: > 10000 mg/l, Toxic threshold concentration, 16 hour, static, freshwater, Pseudomonas putida.
Acute toxicity - terrestrial	Not available.
Chronic toxicity - fish early life stage	Not available.
Short term toxicity - embryo and sac fry stages	Not available.
Chronic toxicity - aquatic invertebrates	NOEC, : 8590 mg/l, 7 day study, Ceriodaphnia sp., semi-static, freshwater, reproduction.

12.2. Persistence and degradability

Phototransformation	Water - DT ₅₀ : 46.3 hours Refers to ethanediol.
Stability (hydrolysis)	Scientifically unjustified.
Biodegradation	Water - Degradation (%) 90: 10 days Aerobic; activated sludge, domestic.

12.3. Bioaccumulative potential

Bioaccumulative potential Study scientifically unjustifiable.

Partition coefficient log Pow: -1.36

12.4. Mobility in soil

Mobility The product is miscible with water and mobile in water systems. It will spread in the aquatic environment and travel through groundwater. From distribution data it is assumed that the product will not be absorbed by the soil (based on ethanediol).

Adsorption/desorption coefficient Water - Koc: 1 @ °C Mixture not tested. The value is a calculated estimate.

Henry's law constant 0.1327 Pa m³/mol @ 25°C

ANTIFREEZE (READY TO USE)

Surface tension Not available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

12.6. Other adverse effects

Other adverse effects Will affect drinking water supplies.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Any waste material is classed as hazardous waste, it should only be disposed of through licenced waste handlers and treatment sites. Do not allow unauthorised disposal to the environment. If operators are exposed to vapours during the disposal process then suitable respiratory protection should be worn. All other personal protective equipment as described in section 8 should be worn.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Avoid unauthorised disposal. Do not dump illegally onto land or into water. Respiratory protection should be worn if disposal methods are producing vapours and there is insufficient extraction or ventilation. When dealing with waste always consider the waste management hierarchy of Prevention, Preparation for re-use, Recycling, Recovery and Disposal. It is advisable to minimise waste at source if possible, then re-use, recover or recycle wherever possible before considering waste disposal options. The recommended method for treatment of waste residues is either reclamation or incineration by specialist disposal company.

SECTION 14: Transport information

General The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.1. UN number

Not applicable.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

Transport labels

No transport warning sign required.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

ANTIFREEZE (READY TO USE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

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

National regulations	Industry - Dermal; Long term systemic effects 22 mg/kg/day
EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Regulation (EU) 453/2010.
Guidance	Workplace Exposure Limits EH40. Approved Classification and Labelling Guide (CHIP 4) Industry - Dermal; Long term systemic effects 22 mg/kg/day

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out on the mixture.

SECTION 16: Other information

General information	This datasheet is not intended to be a replacement for a full risk assessment, these should always be carried out by competent persons.
Key literature references and sources for data	Raw material safety data sheets. Web-based literature. ECHA website.
Revision comments	Full revision
Revision date	04/12/2014
Revision	2
Supersedes date	03/12/2014
SDS number	11649
SDS status	Approved.
Risk phrases in full	R22 Harmful if swallowed.
Hazard statements in full	H302 Harmful if swallowed. H373 May cause damage to organs through prolonged or repeated exposure. H373 May cause damage to organs through prolonged or repeated exposure if swallowed.