Applied Thermal Control Ltd
39 Hayhill Industrial Estate
Barrow upon Soar, Leicestershire
LE12 8LD, United Kingdom

SAFETY DATA SHEET
COOLFLOW EG

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier — CoolFlow EG

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

Identified Uses — Industrial grade secondary refrigerant with antifreeze and inhibitor functions designed for use in process cooling, refrigeration and HVAC systems.

Uses advised against — This product is not recommended for any industrial, professional or consumer use other than the identified uses above.

1.3 Details of the supplier of the Safety Data Sheet

Supplier — Applied Thermal Control Limited
39 Hayhill Industrial Estate, Barrow upon Soar, Leicestershire, LE12 8LD, United Kingdom
www.app-therm.com

Telephone Number — +44 (0) 1530 839998

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification - Regulation (EC) No. 1272/2008 (CLP) — *Physical and chemical hazards*
Not classified as a physical or chemical hazard
Human health
Acute Tox. 4 - H302, STOT RE 2 - H373 *Environment*
Not classified as an environmental hazard

2.2 Label elements

EC No — N/A

Labelling – Regulation (EC) No. 1272/2008 (CLP)

Signal Word — Warning

Hazard Statements
H302 – Harmful if swallowed
H373 – May cause damage to organs – Kidneys – through prolonged or repeated exposure if swallowed

Precautionary Statements
P260 – Do not breathe dust/fumes/gas/mist/vapours/spray
P264 – Wash hands thoroughly after handling
P270 – Do not eat, drink or smoke when using this product
P301 + P312 – IF SWALLOWED: Call a POISON CENTRE or doctor/physician if you feel unwell
P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Component – Monoethylene glycol (ethane-1, 2 diol) — Concentration – 80-95%
EC No. – 203-473-3

	CAS No. – 107-21-1
	Reach registration No. 01-2119456816-28
Classification – Regulation (EC) No. 1272/2008 (CLP)	Acute Tox 4. – H302 STOT RE 2 – H373
Component – Ethanol	Concentration – 1-5% EC No. – 200-578-6 CAS No. – 64-17-5 Reach registration No. – 01-211945719-43
Classification – Regulation (EC) No. 1272/2008 (CLP)	Flam. Liq. 2 – H225 Eye Irrit. 2 – H319
Component – Sodium Nitrate	Concentration - <0.25% EC No. – 231-555-9 CAS No. – 7632-00-0 Reach registration No. – 01-2119471836-27
Classification – Regulation (EC) No. 1272/2008 (CLP)	Ox. Sol. 3 – H272 Acute Tox. 3 – H301 Eye Irrit. 2 – H319 Aquatic Acute 1 – H400

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid procedures

General Information	When safe to do so remove the victim from the source of exposure giving consideration as to whether this may cause further discomfort to the victim.
Inhalation	Move the affected person to fresh air at once. Keep warm in a position comfortable for breathing. If breathing becomes difficult, properly trained personnel may assist the victim by supplying oxygen to ease breathing. Get medical attention if any discomfort continues.
Ingestion	Do NOT induce vomiting and seek medical attention immediately. Move victim to fresh air and keep warm and at rest in a position comfortable for breathing. Give victim approximately 250ml of water, however, do not give victim anything to drink if not fully conscious. If medical advice is delayed and an adult has consumed several ounces of the chemical, give approximately 100ml of hard liquor (for children, give 2ml per kg of body weight)
Skin Contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention if any discomfort continues.
Eye Contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

4.2 More important symptoms and effects, both acute and delayed

General information	The following symptoms are listed in case of exposure up to the 100% neat product.
Inhalation	Inhalation of vapours may cause mild irritation of the upper respiratory tract.

Ingestion	Initial symptoms may include an upset stomach, nausea, vomiting, and diarrhoea. Symptoms may progress to hyperventilation, metabolic acidosis, cardiovascular dysfunction and acute kidney failure depending on the extent of poisoning.
Skin Contact	Prolonged and repeated contact may cause mild irritation of the skin.
Eye Contact	Direct eye contact may cause reddening of the eyes.

4.3 Indication of immediate medical needs or special treatment

If several ounces (> 50 mL) of this product have been ingested, early administration of ethanol may help to counteract the toxic side effects such as metabolic acidosis, cardiovascular dysfunction and in severe cases kidney failure. Consider haemodialysis or peritoneal dialysis and 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 fusion. Respiratory symptoms such as pulmonary oedema, may be delayed. Victims receiving significant exposure should be kept under observation for 24-48 hours for signs of respiratory distress. In the case of severe poisoning, respiratory support with mechanical ventilation and oxygenation of the patient.

Notes for the doctor	No specific recommendations in addition to the suggestions in Sections 4.1 and 4.3. Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1	**Extinguishing media**	Extinguish with alcohol-resistant foam, carbon dioxide (CO2), dry chemicals, sand and dolomite or water fog.
5.2	**Special hazards arising from the substance or mixture**	
	Specific hazards	When heated and in the case of a fire, harmful vapours/gases (such as carbon monoxide and carbon dioxide) may be formed.
	Unusual fire and explosion hazards	Exposure to extreme heat may cause product containers to explode.
5.3	**Advice for firefighting**	
	Protective actions during firefighting	Move containers away from fire area if this can be done without risk. Keep people away, isolate the fire and deny unnecessary entry. Use water fog to keep fire-exposed containers cool and disperse vapours. Runoff water should be prevented from entering sewers and water courses.
	Specialist protective equipment	Wear positive-pressure self-contained breathing apparatus (SCBA)and full Fire fighters protective clothing.

SECTION 6: PROCEDURE FOR UNWANTED EMISSIONS

6.1	**Personal precautions, protective equipment and emergency procedures**	
	Personal precautions	Avoid flames, sparks, heat and smoking. In the case of inadequate ventilation, use respiratory protection.
	Protective equipment	Wear protective clothing as described in Section 8 of this Safety Data Sheet.
	Emergency procedures	Stop leak/release if possible to do so without risk. Extinguish all ignition sources if safe to do so. Warn everybody of potential danger and evacuate if necessary.

6.2 Environmental precautions

Do not discharge into drains, water courses or onto the ground. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

6.3 Methods and materials for containment and clean up

Absorb spillages with inert, damp, non-combustible material, then flush the contaminated area with water. Containers with collected spillage should be appropriately labelled with the correct contents and hazard labels. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

Reference to other sections – Wear protective clothing as described in Section 8 of this Safety Data Sheet. Collect and dispose of spillage as indicated in Section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid spilling and contact with the skin and the eyes as well as direct inhalation of sprays and mists. Provide good ventilation. Do not eat, drink or smoke in work areas and wash hands after handling this product.

7.2 Conditions for safe storage including any compatibilities

Store in tightly-closed, original containers. Keep separate from food, feedstuffs, fertilisers, and other sensitive materials. Do not store near heat sources or expose to high temperatures. Keep away from heat, sparks, and open flame.

7.3 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

Name	STD	TWA-8 Hrs	STEL-15 Min
Monoethylene glycol (ethane-1, 2-diol)	WEL	51 mg/m^3	104 mg/m^3

DNEL

Industry, Inhalation - Long term local effects: 35mg/m^3
Industry, Dermal - Long term systemic effects: 106mg/m^3
Consumer, Inhalation - Long term local effects: 7mg/m^3
Consumer, Dermal - Long term systemic effects: 7mg/m^3

PNEC

Fresh water: 0.96 mg/L Marine water: 0.79 mg/L
Intermittent release: 2.75 mg/L STP: 580 mg/L
Sediment fresh water: 3.6 mg/kg
Sediment marine water: 2.9 mg/kg Soil: 0.63 mg/kg

Name	STD	TWA-8 Hrs	STEL-15 Min
Ethanol	WEL	1920 mg/m^3	Not available

DNEL

Industry, Inhalation - Short term local effects: 1900 mg/m^3
Industry, Dermal - Long term systemic effects: 343 mg/kg/day

PNEC

Fresh water: 0.96 mg/L Marine water: 0.79 mg/L
Intermittent release: 2.75 mg/L STP: 580 mg/L
Sediment fresh water: 3.6 mg/kg
Sediment marine water: 2.9 mg/kg Soil: 0.63 mg/kg

Industry, Inhalation - Long term systemic effects:
950 mg/m³
Consumer, Inhalation - Short term local effects:
950 mg/m³
Consumer, Dermal - Long term systemic effects:
206 mg/kg/day
Consumer, Inhalation - Long term systemic effects: 114 mg/m³
Consumer, Oral - Long term systemic effects: 87 mg/kg/day

Personal protective equipment

Respiratory protection: Suitable respiratory protective device
Combination filter: A-P2
Filter Type: Combined particulates and organic vapour type
Hand protection: Category short time exposure - Break through time> 10 min
Protective index: Class 1 When prolonged exposure is expected: Break through time> 120 min
Protective index: Class 4 Observe the information of the glove manufacturers on permeability. Protective gloves should be chosen according to Workplace Safety Assessment. Gloves recommended according to EN 374 (protection against chemicals).
Material: Chemical resistant gloves made of butyl rubber or nitrile rubber category III according to EN 374.

8.2 Exposure Controls

8.3 Technical Procedures

Engineering Measures
Methods to prevent or control exposure are preferred. Provided adequate ventilation to minimise the risk of inhalation of sprays and mists.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practices. Wash hands after handling this product and at the end of each work shift. Routinely wash work clothing and personal protective equipment to remove possible contaminants.

Respiratory Equipment
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved.

Hand Protection
PVC/butyl rubber/neoprene gloves are recommended.

Eye Protection
Wear approved chemical goggles or face shield.

Skin Protection
Wear rubber apron or protective clothing in case of contact.

Other Protection
Wear suitable protective clothing/footwear as a protection against splashing or contamination.

Thermal Hazards
No specific measures required.

Environmental Exposure Controls	Product not classified as an environmental hazard – no specific environmental exposure controls required.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	Blue liquid
Odour	Non-pungent but characteristic aroma
Odour Threshold	Not applicable
pH	7.5 – 10.5 depending on inhibitor formulation
Melting point/Pour poing	-40°C
Initial boiling point	>180°C
Flash point	>64°C
Evaporation rate	No test data available
Flammability	Product is not classified as flammable
Flammability/explosion limits	Upper limit: 13% Lower limit: 3%
Vapour pressure	No test data available
Vapour density (air=1)	No test data available
Relative density of the mixture	1.04 – 1.2
Solubility	Soluble in water
Partition coefficient: n-octanol/water	No test data available
Auto-ignition temperature	>390°C
Decomposition temperature	No test data available
Viscosity	See product data sheet
Explosive properties	Not applicable – product is not classified as an explosive
Oxidising properties	Not applicable – product is not classified as an oxidising agent

9.2 Other information Not determined

SECTION 10: STABILITY AND REACTIVITY

10.1	**Reactivity**	There are no known reactivity hazards associated with this product.
10.2	**Chemical stability**	Stable at normal ambient temperatures and when used as recommended. Product is hygroscopic and will absorb water by contact with the moisture in the air.
10.3	**Possibility of hazardous reactions**	There are no known hazardous reactions associated with this product.
10.4	**Conditions to avoid**	Avoid temperatures >180°C for prolonged periods of time, flames and sources of ignition.
10.5	**Incompatible materials**	Strong acids, strong alkalis, and strong oxidising agents.

SECTION 11: TOXICOLOGICAL INFORMATION

1.1 Information on toxicological effects

Acute toxicity

This product has not been tested as a whole for acute toxicity health effects. For this reason, the acute toxicity values for the main components of this mixture are listed below.

Acute toxicity values for monoethylene glycol:

LD50, oral, rat: 4700 mg/kg bw
LD50, dermal, rabbit: >10,600 mg/kg bw
LD50, dermal, mouse: >3500 mg/kg bw
LC50, inhalation (vapours), rat: >2.5 mg/L

Oral toxicity of monoethylene glycol is expected to be moderate in humans despite animal testing showing a lower degree of toxicity. The estimated lethal dose in humans of NEAT MONOETHYLENE GLYCOL is expected to be approximately 100mL.
Acute toxicity values for ethanol:
LD50, oral, rat: 10,470 mg/kg bw
LD50, dermal rabbit: 17,100 mg/kg bw

	Skin corrosion/irritation	Skin irritation is not expected when this product is used/handled correctly.
	Serious eye damage/irritation	Eye irritation is not expected when this product is used/handled correctly.
	Respiratory/skin sensitisation	Product is not classified as a skin/respiratory sensitiser.
	Germ cell mutagenicity	Product is not expected to be mutagenic.
	Carcinogenicity	Product is not expected to be carcinogenic.
	Reproductive toxicity	Product is not expected to damage the reproductive system or harm a developing foetus.
	Evaluation of CMR properties	No test data available
	STOT-single exposure	No test data available
	STOT-repeated exposure	No test data available
	Aspiration hazard	No test data available
11.2	**General information**	See Section 4.2 of this Safety Data Sheet
	Inhalation	Inhalation of vapours may cause mild irritation of the upper respiratory tract.
	Ingestion	Initial symptoms may include an upset stomach, nausea, vomiting, and diarrhoea. Symptoms may progress to hyperventilation, metabolic acidosis, cardiovascular dysfunction and acute kidney failure depending on the extend of poisoning.
	Skin contact	Prolonged and repeated contact may cause mild irritation of the skin.
	Eye contact	Direct eye contact may cause reddening of the skin.

SECTION 12: ECOLOGICAL INFORMATION

12.1	**Ecotoxicity**	This product is not classified as hazardous to the environment
12.2	**Toxicity**	LC50, 96 hours, fish: >100 mg/L - not classified as harmful to fish EC50, 48 hours, daphnia magna: >100 mg/L - not classified as harmful to daphnia EC50, 96 hours, aquatic plants: >100 mg/L - not classified as harmful to aquatic plants
12.3	**Persistance and degradability**	This product is readily biodegradable (90% over 10 days)
12.4	**Bioaccumulative potential**	Will not bio-accumulate. Partition coefficient – not determined.
12.5	**Mobility in soil**	Product is mobile in soil as it is water soluble.
12.6	**Results of PBT and vPvB assessment**	This product does not meet the PBT/vPvB criteria of REACH, annex XIII
12.7	**Other adverse effects**	Not determined

SECTION 13: ADVICE ON DISPOSAL

13.1	**General Information**	Waste to be treated as controlled waste. Disposal to be licensed waste disposal site in accordance with Local Waste Disposal Authority.
13.2	**Disposal methods**	Dispose of waste and residues in accordance with local authority and/or local sewage treatment plant requirements.

SECTION 14: TRANSPORT INFORMATION

14.1	**UN Number**	Product not hazardous for transport – no information required.
14.2	**UN proper shipping name**	Product not hazardous for transport – no information required.
14.3	**Transport hazard class(es)**	Product not hazardous for transport – no information required.
14.4	**Transport labels**	Product not hazardous for transport – no information required.
14.5	**Packing group**	Product not hazardous for transport – no information required.
14.6	**Environmental hazards**	Product not classed as environmentally hazardous substance or marine pollutant.
14.7	**Special precautions for user**	Product not hazardous for transport – no information required.
14.8	**Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Product not hazardous for transport – no information required.

SECTION 15: REGULATORY INFORMATION

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

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).
Guidance notes	CHIP for everyone HSG228. Approved Classification and Labelling Guide (Sixth Edition) L131. Safety Data Sheets for substances and preparations.
Chemical safety assessment	No chemical safety assessment for this mixture has been carried out.

SECTION 16: OTHER INFORMATION

Issued by Applied Thermal Control Ltd. Revision Date 01/04/2024. Approved by Graham Wade. Revision Comments Review in line with CLP regulation

Hazard statements in full

The following hazard statements are the hazard statements 'in full' for the components of this mixture. They are not the hazard statements associated with the final classification of this product.

H302 - Harmful if swallowed
H373 - May cause damage to organs - Kidneys - through prolonged or repeated exposure if swallowed
H225 - Highly flammable liquid and vapour
H319 - Causes serious eye irritation
H272 - May intensify fire; oxidiser
H301 - Toxic if swallowed

H400 - Very toxic to aquatic life

Further classification and composition comments — No further classification or composition comments required.

Indication of changes — Safety Data Sheet updated to comply with the new requirements as set out in Regulation (EC) No. 1272/2008 (CLP).

Abbreviations and acronyms

bw: bodyweight
CAS No: Chemical Abstracts Service number
CLP: Classification Labelling and Packaging Regulation
DNEL: Derived No-Effect Level
EC: European Commission
EC No: European Chemical number: EINECS, ELINCS or NLP
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
LC50: Lethal Concentration, 50%
LD50: Median Lethal Dose
PBT: Persistent, Bioaccumalative & Toxic
PNEC: Predicted No Effect Concentration
REACH: Registration, Evaluation, Authorisation & restrictions of Chemicals
SDS: Safety Data Sheet
vPvB: Very Persistent and Very Bioaccumalative
WEL: Workplace Exposure Limit

Training advice — Product should only be handled by trained operators

Additional information — The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give advice about the safe handling of the product named in this Safety Data Sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with products or in the case of processing, the information on this Safety Data Sheet is not necessarily valid for the new made-up material.