Material Safety Data Sheet

Product Name: 82-1032A Premixed Coolant, 40%,4 Litre

1. Product Name and Company Identification

Product name:	82-1032A Premixed Coolant, 40%,4 Litre
Chemical name/class:	Ethylene Glycol Solution in Water
Synonyms:	Pink Coolant, Monoethylene Glycol Solution, Premixed Coolant – 40% Heat Transfer Fluid / 60% Water
Product use:	Coolant
UN number:	None Allocated
UN dangerous goods class/subsidiary risk:	None Allocated
Hazchem Code (Australia):	None Allocated
Poisons Schedule Number (Australia):	Schedule 6
Supplier:	Creo Inc.

Emergency Telephone Number: **Infotrac®**
North America: 1-800-535-5053
International: +1-352-323-3500

Supplier Address:
Creo Inc.
3700 Gilmore Way
Burnaby, BC
Canada V5G 4M1

Response Centers:

Creo Americas and Asia Pacific (24 hr)	North America: 1-800-472-2727 International +1-604-451-2727
Creo Europe, Middle East and Africa	+ 32-2-352-2511
Creo Japan	0800-919-0900

2. Composition/Information on Ingredients

Hazardous Ingredients	WT %	CAS #	EINECS #	ENCS #	ECL #
Potassium Phosphate Dibasic	0.5–1.5	7758-11-4	231-834-5	1-452X	KE-12167
Ethylene Glycol	40–70	107-21-1	203-473-3	2-230	KE-13169
Water and other constituents.	Balance	7732-18-5	231-791-2	*NE	*NE

*NE = Not Established.

3. Hazards Identification

Emergency Overview

Appearance:	Clear, pink liquid with a mild odour.
Health Hazards:	May mildly to moderately irritate contaminated skin, eyes, mucous membranes, and any exposed tissues.
Flammability Hazards:	Class IIIB Combustible Liquid. May ignite if heated above 110°C (230°F).
Reactivity Hazards:	Not reactive.
Environmental Hazards:	Not listed as a marine pollutant.
Emergency Recommendations:	Responders must wear suitable personal protective equipment.

Potential Health Effects

Route of Entry:	**Inhalation:** Yes **Skin:** Yes **Ingestion:** Yes
Inhalation:	**Acute:** Inhaling vapors, mists, or sprays can cause nose and throat irritation, coughing, sleepiness, headache, nausea, and kidney and liver changes. **Chronic:** Chronic exposure may cause throat irritation, headache, and lower backache.
Eye Contact:	May cause temporary eye irritation (e.g., redness and tearing).
Skin Contact:	**Acute:** Skin contact may mildly to moderately irritate contaminated skin. **Chronic:** Prolonged or repeated skin contact may cause dermatitis (dry, red skin).
Skin Absorption:	The Ethylene Glycol component of this product may be absorbed through damaged skin. Absorption over a large area of damaged skin for a prolonged time period may cause headache, dizziness, and nausea.
Sensitization Potential	The components of this product are not known to be human respiratory or skin sensitizers.
Ingestion:	**Acute:** If swallowed, this product may irritate the mouth, throat, esophagus, and digestive system. Symptoms include central nervous system stimulation followed by depression, dizziness, drunkenness, stupor, convulsions, coma, and kidney damage. **Chronic:** Chronic ingestion of this product may cause bladder stones, kidney stones, and kidney damage.
Injection:	Accidental injection (for example, by puncture with a contaminated object) causes pain and irritation in addition to the wound.
Target Organs:	**Acute:** Skin, eyes, central nervous system, kidneys. **Chronic:** Skin, central nervous system, bladder, kidneys.
Carcinogenicity:	**NTP:** Not listed **IARC:** Not listed **OSHA:** Not listed

4. First Aid Measures

RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS EXPOSED TO THIS PRODUCT WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. Victims should receive medical attention if adverse effects occur after exposure. Rescuers should receive medical attention if necessary. Take a copy of MSDS to physician or health professional with the contaminated individual.

Inhalation:	Remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Seek medical attention if adverse effects continue.
Eye Contact:	Remove contact lenses at once. Immediately flush eyes with plenty of water for at least 15 minutes. Separate eyelids with sterile fingers to assure adequate flushing. Have victim "roll" eyes. Seek medical attention if adverse effects continue after rinsing eyes.
Skin Contact:	Remove contaminated clothes and shoes. Rinse skin with plenty of water or shower for at least 15 minutes. Take care not to contaminate eyes. Seek medical attention if adverse effects continue after rinsing.
Ingestion:	If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING unless directed by medical personnel. Have victim rinse mouth with water. Never induce vomiting or give diluents (milk or water) to someone who is **unconscious, having convulsions, or unable to swallow**. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. If contaminated individual is convulsing, maintain an open airway and obtain medical attention immediately.
Medical Conditions Aggravated by Exposure:	Acute or prolonged exposure can aggravate dermatitis, skin disorders, and central nervous system disorders.
Recommendations to Physicians:	No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. Fire Fighting Measures

Flash Point:	> 110°C (230°F)
Flammable (Explosive) Limits:	Not established.
Autoignition Temperature:	Not established.
Extinguishing Media:	Water fog, carbon dioxide, alcohol foam or dry chemical. Do not use direct water stream.
Fire and Explosion Hazards:	Class IIIB Combustible Liquid. May ignite if heated above 110°C (230°F). Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure build-up which could cause container rupture. Fight fire from maximum distance. Always stay away from ends of containers due to explosive potential.
Special Fire Fighting Instructions:	Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Chemical resistant clothing may be necessary. Use water spray to cool fire-exposed containers. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas. If necessary, decontaminate fire-response equipment with soapy water and rinse with water before returning equipment to service.
NFPA Rating:	**Health (blue): 1 Flammability (red): 1 Instability (yellow): 0**

6. Accidental Release Measures

Spill and Leak Response:	For incidental spills (for example, less than 1 liter of liquid from a bottle), wear rubber gloves, splash goggles, and appropriate body protection. Trained personnel following pre-planned procedures should handle larger releases (for example, 10 L of liquid leaking from a crate of several containers). Eliminate all ignition sources before clean-up begins. Use non-sparking tools. For larger spills, clear the area and protect individuals. Minimum personal protective equipment required for larger spills is rubber gloves, rubber boots, face shield, and Tyvek suit.
Spill and Leak Response:	If oxygen level is below 19.5% or unknown, Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hardhat, and Self-Contained Breathing Apparatus are required. Monitor area for combustible vapor levels. The level of combustible vapors must be 10% below the LEL (see Section 5, Fire-Fighting Measures) before personnel are allowed into the spill area. Monitoring must show that exposure levels are below those in *Section 8, Exposure Guidelines*, and oxygen levels are above 19.5% before anyone is permitted in the area without Self-Contained Breathing Apparatus. Absorb spilled liquid with suitable materials. Decontaminate area thoroughly.
Waste Disposal Method:	Place all spill residue in an appropriate container and seal. Dispose of according to applicable Federal, State, provincial and local regulations or procedures (see *Section 13, Disposal Considerations*).

7. Handling and Storage

Work and Hygiene Practices:	Wash hands thoroughly after handling. Do not eat, drink, smoke, or apply cosmetics while handling. Avoid breathing vapors, mists, or sprays. Use in a well-ventilated area. Remove contaminated clothing immediately. All work practices should minimize product release. Work areas should have eyewash stations and safety showers.
Storage and Handling Practices:	Train all employees how to handle this product safely. Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight and sources of intense heat or cold. Store original containers in secondary containers or in a diked area as appropriate. Store containers away from incompatible chemicals (see *Section 10, Stability and Reactivity*). Inspect all incoming containers for proper labeling and damage before storing. Handle empty containers with care because they can contain residual liquid or vapors. Storage areas should be made of fire resistant materials. Post warning and “NO SMOKING” signs in storage and work areas, as appropriate. Have appropriate extinguishing equipment in the storage area (for example, sprinkler system, portable fire extinguishers). Refer to NFPA 30,

Flammable and Combustible Liquids Code, for additional information on storage. Never weld, cut, solder, drill, or perform hot work on empty containers or piping until all liquid, vapors, and residue are cleared.

Protective Practices During Maintenance of Contaminated Equipment: Follow practices indicated in *Section 6, Accidental Release Measures*. Disconnect all electrical cords during decontamination to avoid electrocution. Collect all rinsates and dispose of according to applicable regional procedures or regulations.

8. Exposure Controls and Personal Protection

Engineering Controls: Use with adequate ventilation to ensure exposures are below limits in *Exposure Guidelines* below. Use a non-sparking, grounded, explosion-proof ventilation system separate from other exhaust ventilation systems. If necessary, vent material to outside, taking appropriate precautions to prevent environmental contamination. Ensure eyewash/safety shower stations are available near work areas.

Ventilation:
Local exhaust: Preferable
Mechanical: Adequate

Personal Protection:
Eyes: Wear splash goggles or safety glasses if exposure to vapors or sprays can occur. Refer to relevant regional standards for personal protective equipment

Skin: Wear butyl rubber gloves. Check gloves for leaks Use body protection appropriate for task (for example, rubber apron when cleaning equipment, Tyvek suit and rubber boots for large spills). Use foot protection if injury hazard exists due to falling, rolling, sharp, or electrical objects. Refer to relevant regional standards for personal protective equipment.
Respiratory System: Use only authorized and properly maintained equipment. Refer to relevant regional standards for personal protective equipment. Oxygen levels below 19.5% are considered Immediately Dangerous to Life or Health. In such conditions, using a full-facepiece pressure/demand Self Contained Breathing Apparatus, or a full facepiece supplied air respirator with auxiliary self-contained air supply, is required.

Exposure Guidelines:

Ethylene Glycol CAS # 107-21-1

Jurisdiction	Limit	Value	Year
Germany	DFG MAK	TWA = 26 (skin) [ceiling] PEAK = 2•MAK 15 min, average value, 1-hr interval	
U.S.A.	ACGIH® TLV®	STEL = 100 (aerosol) [ceiling]	2003
U.S.A.	OSHA PEL	STEL = 125 ceiling (vacated 1989 PEL)	2003
U.S.A.	NIOSH	*NE	

*NE = Not Established.

9. Physical and Chemical Properties

Appearance and Odor: Clear, pink liquid with an ether odour (objectionable above 100ppm)
Freezing Point: < 0°C (32°F)
Boiling Range: > 100°C (212°F)
Specific Gravity (water = 1): > 1
Odor Threshold: Not established.
Vapor Pressure: Not established.
Vapor Density: Not established.
Evaporation Rate (*n*-BuAc = 1): Not established.
pH: Not established.
Solubility in Water: Soluble
Coefficient of Water/Oil Not established.

Distribution:

Viscosity: Not established.

10. Stability and Reactivity

Chemical Stability: Stable

Conditions to Avoid: Excessive heat, open flames and all sources of ignition.

Incompatibility (Materials to Avoid): Strong oxidizers, strong bases, chromium trioxide, potassium permanganate, sodium peroxide, chlorosulfonic acid, dimethyl terephthalate, oleum, phosphorus pentasulfide, sodium hydroxide, sulfuric acid, titanium butoxide, and perchloric acid.

Hazardous Decomposition Products: Ignition will generate carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur

11. Toxicology Information

Where available, this MSDS provides human toxicological data, LD_{50} oral-rat and LC_{50} inhalation-rat for the components of this product present in greater than 1% concentration. Additional toxicological data for the components of this product are available if needed. Please contact Creo for further information.

RTECS number: Ethylene Glycol - KW2975000

Acute toxicity Data:

ETHYLENE GLYCOL:

LDLo (oral, human) = 786 mg/kg; Behavioral: convulsions or effect on seizure threshold, coma; Gastrointestinal: hypermotility, diarrhea

LDLo (oral, human) = 398 mg/kg; Behavioral: headache; Gastrointestinal: nausea or vomiting; Liver: other changes

TDLo (oral, man) = 15 g/kg; Peripheral Nerve and Sensation: sensory change involving peripheral nerve; Gastrointestinal: ulceration or bleeding from small intestine; Kidney, Ureter, Bladder: renal function tests depressed

TDLo (oral, man) = 1195 mg/kg; Peripheral Nerve and Sensation: sensory change involving peripheral nerve; Kidney, Ureter, Bladder: renal function tests depressed

TDLo (oral, man) = 16 g/kg; Behavioral: coma; Kidney, Ureter, Bladder: renal function tests depressed; Nutritional and Gross Metabolic: metabolic acidosis

TDLo (oral, child) = 5500 mg/kg; Behavioral: general anesthetic; Lungs, Thorax, or Respiration: respiratory stimulation; Kidney, Ureter, Bladder: other changes

TCLo (inhalation, human) = 10000 mg/m^3; Sense Organs and Special Senses (Eye): lacrimation; Lungs, Thorax, or Respiration: cough, other changes

LD_{50} (oral, rat) = 4700 mg/kg

LC_{50} (inhalation, rat) > 200 mg/m^3/4 hours

Irritation Data: Animal data available, but not listed in this MSDS.

Mutation Data:

ETHYLENE GLYCOL:

DNA Inhibition (lymphocyte, human) = 320 mmol/L

Reproductive Effects Data: Animal data available, but not listed in this MSDS.

Carcinogenicity Data: The ACGIH has concluded that Ethylene Glycol is Not Classifiable as a Human Carcinogen. The remaining components of this product are not found on the following lists: FEDERAL OSHA Z LIST, NTP, CAL/OSHA, and therefore are neither considered to be nor suspected to be cancer causing agents by these agencies.

Biological Exposure Indices: Currently, no Biological Exposure Indices (BEIs) are established for the components of this product.

12. Ecological Information

Environmental Stability: This product is relatively stable under ambient environmental conditions. Additional environmental data for the components of this product are provided as follows:

ETHYLENE GLYCOL:

Biological Oxygen Demand = 0.47 g oxygen/ g ethylene glycol

Chemical Oxygen Demand = 1.29 g oxygen/ g ethylene glycol

Mobility: Based on a Log Koc of 4, determined from the Log Kow of 1.36, it is expected that Ethylene Glycol will be highly mobile in the soil.

Bioconcentration: The bioconcentration factor of Ethylene Glycol in fish was reported to be 10 after 3 days of exposure; this suggests that it will not bioconcentrate in fish.

Persistence: If released to soil, Ethylene glycol should not adsorb to soil or sediments. Complete biodegradation can occur within one to twenty-nine days, depending on soil type and moisture content. If released to water, Ethylene Glycol is not expected to volatilize, and should biodegrade within 5-78 days. If released to the atmosphere, Ethylene Glycol will exist in vapor phase. Vapor-phase Ethylene Glycol is degraded in the atmosphere by reaction with photochemically produced hydroxy radicals. The half-life for this reaction in air is estimated to be about 50 hours.

Effect of Material on Plants or Animals: Harmful or fatal to contaminated plant and animal life, especially if released in large quantities.

Effect of Material on Aquatic Life: Harmful or fatal to contaminated aquatic plant and animal life, especially if released in large quantities. The following aquatic toxicity data are available for the components of this product:

ETHYLENE GLYCOL:

LD_{50} (*Carassius auratus* (goldfish) 24 hours = > 5,000 mg/L, modified ASTM D 1345
LC_{50} (*Poecilia reticulata* Guppies) 7 days = 49,300 ppm conditions of bioassay not specified
LC_{50} (Rainbow trout) 96 hours = 18,500 mg/L, conditions of bioassay not specified)
LC_{50} (Rainbow trout) 96 hours = 41,000 mg/L at 20°C, conditions of bioassay not specified
LC_{50} (*Crangon crangon* Brown shrimp) 48 hours = > 100 mg/L aerated salt water
LC_{50} (Goldfish given) 24 hours = 5000 mg/L 20°C, static conditions
Toxicity Threshold (cell multiplication inhibition test) [*Pseudomonas putida*] = 10,000 mg/L
Toxicity Threshold (cell multiplication inhibition test) [*Entosiphon sulcatum*] and [*Uronema parduczi* Chatton-Lwoff)] = >10,000 mg/L
Toxicity Threshold (cell multiplication inhibition test) [*Microcystis aeruginosa*] 2,000 mg/L; Green algae (*Scenedesmus quandricauda*) = > 10,000 mg/L

Degradability:

ETHYLENE GLYCOL:

Biodegradation: Biodegradation of Ethylene Glycol is expected to be a major fate process. Complete biodegradation has been shown to be 97% within one to twenty-nine days.

Log Octanol/Water Partition Coefficient

ETHYLENE GLYCOL:

Log K_{ow} = 1.36
Estimated Log Koc: Log Koc = 4

13. Disposal Considerations

Preparing Wastes for Disposal: Waste disposal must be in accordance with appropriate Federal, State, provincial and local regulations or procedures. This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.

EWC Code: Not applicable.

EPA Waste Number: Not applicable.

14. Transport Information

	U.S. DOT	Canadian TC	IATA	IMDG	Australia Road/Rail*	UN ADR/RID
Goods Class:	Not Regulated	Not Regulated as Dangerous Goods				

* Australian Federal Office of Road Safety Code For The Transportation of Dangerous Goods by Road or Rail

15. Regulatory Information

United States

Product components are not subject to the reporting requirements of:

SARA 302 (40 CFR 355, Appendix A): Sections 302 of Title III of the Superfund Amendments and Reauthorization Act.

EPA - CERCLA/Superfund, 40CFR 302.4: Sections 304 of Title III of the Superfund Amendments and Reauthorization Act.

SARA Title III, 313 Chemicals: Sections 313 of Title III of the Superfund Amendments and Reauthorization Act.

EPA TSCA Inventory: Product components are listed on the TSCA Inventory.

California Proposition 65: Product components are not on the State of California Proposition 65 lists of

chemicals known to cause cancer, birth defects, or other reproductive harm.

Canada

DSL/NDSL Inventory:	Product components are listed on the Canadian DSL or NDSL inventory or are exempt.
WHMIS Classification:	Class D2B (Materials Causing Other Toxic Effects)
CPR Statement:	This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Australia

Inventory of Chemical Substances (AICS):	Product components given in Section 2 are listed on the AICS.
List of Designated Substances:	Ethylene Glycol is on the List of Designated Substances.
Standard for the Uniform Scheduling of Drugs and Poisons:	Schedule 6

Europe

EINECS/ELINCS Inventory Status:	Product components given in Section 2 are listed on the European EINECS/ELINCS.
EINECS Number:	Ethylene Glycol: 203-473-3 Potassium Phosphate Dibasic: 231-834-5 [Listed in Sec 2, why repeat?]
EU Classification and Labeling:	This product meets the criteria of Harmful [Xn], according to current European Community Guidelines.[reference?]

Japan

ENCS Numbers:	Ethylene Glycol: 2-230 Potassium Phosphate Dibasic: 1-452X
Poisonous and Deleterious Substances Control Law:	No product component is specified as a Poisonous Substance.

Korea

ECL Numbers:	Ethylene Glycol: KE-13169 Potassium Phosphate Dibasic: KE-12167

Harmonized Labeling, Risk Phrases, and Safety Phrases

Region:	**Europe**	**Australia**	**Korea**	**Japan**
Guideline/Regulation:	2001/59/EC	NOHSC: 10005 (1994)		
Symbol:				
Classification:	Harmful [Xn].			
Risk Phrases:	R 22	Harmful if swallowed.		
Safety Phrases:	S 2	Keep out of reach of children.		
	S 35	This material and its container must be disposed of in a safe way.		
	S 46	If swallowed, seek medical advice immediately and show this container or label.		

16. Other Information

NFPA Rating Key

Health (Blue): 4 – Danger (May be fatal on short exposure. Specialized protective equipment required); 3 – Warning (Corrosive or toxic. Avoid skin contact or inhalation); 2 – Warning (May be harmful if inhaled or absorbed); 1 – Caution (May be irritating); 0 – No unusual hazard.

Flammability (Red): 4 – Danger (Flammable gas or extremely flammable liquid); 3 – Warning (Flammable liquid flash point below 100° F); 2 – Caution (Combustible liquid flash point of 100° to 200° F); 1 – Combustible if heated; 0 – Not combustible.

Instability (Yellow): 4 – Danger (Explosive material at room temperature); 3 – Danger (May be explosive if shocked, heated under confinement or mixed with water); 2 – Warning (Unstable or may react violently if mixed with water); 1 – Caution (May react if heated or mixed with water but not violently); 0 – Stable (Not reactive when mixed with water).

Special Notice Key (White): W – Water Reactive; OX – Oxidizing Agent.

HMIS RATING: Health Hazard: 1 Flammability Hazard: 1 Physical Hazard: 0

HMIS Rating Key: 0 = Insignificant; 1 = Slight; 2 = Moderate; 3 = High; 4 = Extreme.

MSDS was prepared by Chemical Safety Associates Inc. PO BOX 3519, La Mesa, CA 91944-3519, USA..

MSDS Creation Date: 2004/04/01 **Last Revision:** 2005/06/03

This MSDS has been prepared in accordance with the criteria set out in U.S. Federal OSHA Hazard Communication Standard 29 CFR 1910.1200, Canadian Controlled Products Regulations (CPR), European Community Directives, and the Japanese Industrial Standard JIS Z 7250:2000. The product described in this MSDS should not be used for purposes other than those described in Section 1. As the specific conditions of use of the product described in this MSDS are outside of our control, you are solely responsible for ensuring that you comply with the requirements of all relevant legislation.

The information contained in this MSDS is based on the present state of knowledge and current legislation. Its sole purpose is to provide guidance on health, safety and environmental aspects of the product described in this MSDS and should not be construed as any guarantee of technical performance or suitability for particular applications.

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