

MATERIAL SAFETY DATA SHEET**SECTION 1: IDENTIFICATION****Product identifier** : 10 MINUTE FLUSH**Product Use** : Cooling system additive.**Chemical Family** : Mixture.**Manufacturer part no.** : C1412C**Supplier's name and address:****Radiator Specialty Co., of Canada**1711 Aimco Blvd.
Mississauga, ON, Canada
L4W 1H7**Manufacturer's name and address:**

Refer to Supplier

Information Telephone # : (905) 625-9117 (Monday - Friday, 8 AM - 4 PM)**24 Hr. Emergency Tel #** : 613-996-6666 (CANUTEC)**SECTION 2 - HAZARDS IDENTIFICATION**

Classification : WHMIS information: This product is a WHMIS Controlled Product. It meets one or more of the criteria for a controlled product provided in Part IV of the Canadian Controlled Products Regulations (CPR). WHMIS classification:
Class D1A (Materials Causing Immediate and Serious Toxic Effects, Very Toxic Material);
Class D2A (Materials Causing Other Toxic Effects, Very Toxic Material);
Class D2B (Materials Causing Other Toxic Effects, Toxic Material).

Labelling: Phrases recommended to appear on a supplier label, can be found in Section 15.

WHMIS symbols required on a supplier label:



Emergency Overview : Clear, yellow-green liquid. Hydrocarbon odour.
Warning!
POISON! May be fatal if inhaled. Harmful or fatal if absorbed through the skin. Harmful if swallowed. May cause nausea, vomiting, headache and other central nervous system effects. Causes skin and eye irritation. May cause respiratory irritation. Contains material which can cause damage to the blood system, the liver and the kidneys. Contains material which may cause cancer, based on animal data.

POTENTIAL HEALTH EFFECTS:**Signs and symptoms of short-term (acute) exposure**

Inhalation : May cause irritation to the nose, throat and upper respiratory tract. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Inhalation in very high concentrations may result in blood system effects, such as red blood cell fragility. May result in unconsciousness and possibly death.

Skin : May cause moderate to severe skin irritation. May be absorbed and cause symptoms similar to those for inhalation.

Eyes : Causes severe eye irritation. May cause burning sensation, redness and tearing (watering).

Ingestion : May cause severe irritation to the mouth, throat and stomach. Ingestion may cause symptoms similar to inhalation.

Effects of long-term (chronic) exposure

: Prolonged or repeated contact may cause drying, cracking and defatting of the skin.
Contains: 2-butoxyethanol. 2-Butoxyethanol has been reported to cause blood disorders resulting in kidney, liver, and spleen damage to laboratory animals in long-range studies. Humans are less sensitive to these effects. Effects appear to be species specific.

Carcinogenic status : Possible cancer hazard. See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt. %
2-butoxyethanol	111-76-2	3.00 - 7.00
Tetrapotassium pyrophosphate	7320-34-5	0.10 - 1.00

SECTION 4 - FIRST AID MEASURES

- Inhalation** : Immediately remove person to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. Seek immediate medical attention/advice.
- Skin contact** : Remove/Take off immediately all contaminated clothing. In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.
- Eye contact** : Immediately flush eyes with plenty of water for at least 15 minutes. Seek immediate medical attention/advice.
- Ingestion** : Seek immediate medical attention/advice. Do not induce vomiting. Never give anything by mouth to an unconscious person.
- Notes For Physician** : Treat symptomatically. This product is a CNS depressant.

SECTION 5 - FIRE FIGHTING MEASURES**Fire hazards/conditions of flammability**

- : Not flammable under normal conditions of use. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.

Oxidizing properties

- : None known.

Explosion data: Sensitivity to mechanical impact / static discharge

- : Not expected to be sensitive to mechanical impact or static discharge.

Suitable extinguishing media

- : Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Special fire-fighting procedures/equipment

- : Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

Hazardous combustion products

- : Carbon oxides; Phosphorus compounds; Other unidentified organic compounds.

SECTION 6 - ACCIDENTAL RELEASE MEASURES**Personal precautions**

- : All persons dealing with the clean-up should wear the appropriate personal protective equipment. Keep all other personnel upwind and away from the spill/release. Restrict access to area until completion of clean-up. Refer to protective measures listed in sections 7 and 8.

Environmental precautions

- : Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Spill response/cleanup

- : Ventilate area of release. Remove all sources of ignition. Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand), then place absorbent material into a container for later disposal (see Section 13). Notify the appropriate authorities as required.

Prohibited materials

- : Do not use combustible absorbents, such as sawdust.

SECTION 7 - HANDLING AND STORAGE**Safe Handling procedures**

- : Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Wash thoroughly after handling. Keep containers tightly closed when not in use.

Storage requirements

- : Store in a cool, dry, well-ventilated area. Store away from incompatibles and out of direct sunlight. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials : Bases; Strong oxidizing agents; Acids.

Special packaging materials : Always keep in containers made of the same materials as the supply container.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits

<u>Ingredients</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>PEL</u>	<u>STEL</u>
2-butoxyethanol	20 ppm	N/Av	50 ppm (240 mg/m ³) (skin)	N/Av
Tetrapotassium pyrophosphate	N/Av	N/Av	N/Av	N/Av

Ventilation and engineering measures

- : Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection : If the TLV is exceeded, a NIOSH/MSHA-approved respirator is advised. Advice should be sought from respiratory protection specialists.

Skin protection : Impervious gloves must be worn when using this product. Advice should be sought from glove suppliers. Wear resistant clothing and boots.

Eye / face protection : Chemical splash goggles are recommended. A full face shield may also be necessary.

Other protective equipment : An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations

- : Handle in accordance with good industrial hygiene and safety practice. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Do not eat, drink, smoke or use cosmetics while working with this product. Wash contaminated clothing before reuse. Wash hands thoroughly after using this product, and before eating, drinking or smoking.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid	Appearance	: Greenish-yellow
Odour	: characteristic	Odour threshold	: N/Av
pH	: N/Av		
Boiling point	: 100°C	Specific gravity	: 1.0
Melting/Freezing point	: N/Av	Coefficient of water/oil distribution	: N/Av
Vapour pressure (mmHg @ 20° C / 68° F)	: N/Av	Solubility in water	: Soluble
Vapour density (Air = 1)	: N/Av	Evaporation rate (n-Butyl acetate = 1)	: N/Av
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: 3.49%
Flash point	: N/Av		
Flash point Method	: N/Av	Auto-ignition temperature	: N/Av
Lower flammable limit (% by vol.)	: N/Av	Upper flammable limit (% by vol.)	: N/Av
Flame Projection Length	: N/Av	Flashback observed	: N/Av
Absolute pressure of container	: N/Av	Viscosity	: N/Av
General Information	: No additional information.		

Section 10: STABILITY AND REACTIVITY

Stability and reactivity	: Stable under the recommended storage and handling conditions prescribed. After prolonged storage, may release explosive peroxides in the presence of air. Exposure to sunlight accelerates decomposition.
Hazardous polymerization	: Hazardous polymerization does not occur.
Conditions to avoid	: Avoid heat and open flame. Keep away from direct sunlight. Ensure adequate ventilation, especially in confined areas. Avoid contact with incompatible materials.

Materials To Avoid And Incompatibility

: Acids; Strong oxidizing agents; Bases.

Hazardous decomposition products

: Peroxides Refer to Section 5 for additional 'Hazardous combustion products'.

SECTION 11 - TOXICOLOGICAL INFORMATION

Target organs : Eyes, skin, respiratory system, central nervous system, blood system, liver, brain and kidneys.

Routes of exposure : *Inhalation:* YES *Skin Absorption:* YES *Skin & Eyes:* YES *Ingestion:* YES

Irritancy : Severe skin and eye irritant.

Toxicological data : There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

<u>Ingredients</u>	LC₅₀ (4hr) <u>inh, rat</u>	LD₅₀	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
2-butoxyethanol	450 ppm (2.175 mg/L) (vapour)	530 mg/kg	400 - 500 mg/kg
Tetrapotassium pyrophosphate	> 1.1 mg/L (dust)	2440 mg/kg	> 4640 mg/kg

Carcinogenic status : Contains the following chemicals listed as confirmed animal carcinogens (A3) by ACGIH: 2-butoxyethanol.
No other components are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.

Reproductive effects : Not expected to cause reproductive effects.

Teratogenicity : Not expected to be a teratogen.

Mutagenicity : Not expected to be mutagenic in humans.

Epidemiology : None known or reported by the manufacturer.

Sensitization to material : Not expected to be a skin or respiratory sensitizer.

Synergistic materials : None known or reported by the manufacturer.

other important hazards : CNS depression may result from extreme exposures.

Conditions aggravated by overexposure : Pre-existing skin, eye, respiratory or blood system disorders.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity : No data is available on the product itself. The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.
See the following tables for individual ingredient ecotoxicity data.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
2-butoxyethanol	111-76-2	1490 mg/L (Bluegill sunfish)	> 100 mg/L (Zebra fish)	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L (Rainbow trout) (Read-across)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
2-butoxyethanol	111-76-2	835 mg/L (Daphnia magna)	100 mg/L	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L (Daphnia magna)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
2-butoxyethanol	111-76-2	911 mg/L/72hr (Green algae)	286 mg/L/72hr	None.
Tetrapotassium pyrophosphate	7320-34-5	> 100 mg/L/72hr (Green algae) (Read-across)	> 100 mg/L/72hr (Read-across)	None.

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself.
Contains the following chemicals which are not readily biodegradable: Tetrapotassium pyrophosphate.
The following ingredients are considered to be readily biodegradable: 2-butoxyethanol.

Bioaccumulation potential : No data is available on the product itself. See the following data for ingredient information.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
2-butoxyethanol (CAS 111-76-2)	0.8	0.97

Other Adverse Environmental effects

: No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13 - DISPOSAL CONSIDERATIONS

Handling for Disposal : Handle waste according to recommendations in Section 7. Empty containers retain residue (liquid and/or vapour) and can be dangerous.

Methods of Disposal : Dispose of in accordance with federal, provincial and local hazardous waste laws.

SECTION 14: TRANSPORT INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	None	Not regulated.	Not regulated	None	
TDG Additional information	None.				

SECTION 15 - REGULATORY INFORMATION

Labelling:

Warning! POISON! May be fatal if inhaled. Harmful or fatal if absorbed through the skin. Harmful if swallowed. May cause headache, nausea, dizziness and other symptoms of central nervous system depression. May cause respiratory irritation. Causes skin and eye irritation. Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Contains material which may cause cancer, based on animal data.

Precautions: Use in a well-ventilated area. Wear suitable protective equipment during handling. Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Wash thoroughly after handling. Store in a cool, dry, well-ventilated area away from sources of heat, ignition and sunlight.

FIRST AID: If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stops, provide artificial respiration. For skin contact, flush with water for at least 15 minutes, while removing contaminated clothing. For eye contact, flush with running water for at least 15 minutes. If ingested, do not induce vomiting. Never give anything by mouth to an unconscious person. For all cases, obtain medical attention immediately.

Refer To Material Safety Data Sheet for further information.

Canadian Information:

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

SECTION 16 - OTHER INFORMATION

Legend	: ACGIH: American Conference of Governmental Industrial Hygienists CAS: Chemical Abstract Services CNS: Central Nervous System HSDB: Hazardous Substances Data Bank IARC: International Agency for Research on Cancer Inh: Inhalation LC: Lethal Concentration LD: Lethal Dose MSHA: Mine Safety and Health Administration N/Ap: Not Applicable N/Av: Not Available NIOSH: National Institute of Occupational Safety and Health NOEC: No observable effect concentration NTP: National Toxicology Program OECD: Organisation for Economic Co-operation and Development OSHA: Occupational Safety and Health Administration PEL: Permissible exposure limit RTECS: Registry of Toxic Effects of Chemical Substances STEL: Short Term Exposure Limit TDG: Canadian Transportation of Dangerous Goods Act & Regulations TLV: Threshold Limit Values TWA: Time Weighted Average WHMIS: Workplace Hazardous Materials Identification System
References	: 1. ACGIH, Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices for 2016. 2. International Agency for Research on Cancer Monographs, searched 2016. 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2016 (Chempendium, HSDB and RTECs). 4. Material Safety Data Sheets from manufacturer. 5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2016.

Prepared for:

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12. ECOLOGICAL INFORMATION.**END OF DOCUMENT**