

MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product identifier : **BATTERY TERMINAL CLEANER**

Product Use : Cleans battery terminals, connectors, battery tray, and holder bolts and brackets.

Chemical Family : Mixture.

Manufacturer part no. : BTC4C; BTC6C

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)

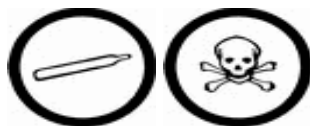
24 Hr. Emergency Tel # : 613-996-6666 (CANUTEC)

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 A (Pressurized containers);
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 : Foamy spray. White. Mild odour.
Warning!
Contents under pressure. Container may explode if heated. POISON! May be fatal if inhaled. Harmful if absorbed through the skin. 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. If product is sprayed directly on skin, symptoms of frostbite may be experienced including numbness, pricking and itching.
- Eyes* : Causes severe eye irritation. May cause burning sensation, redness and tearing (watering). If product is sprayed directly into the eyes, could cause freezing of the eye.
- 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. Chronic overexposure to 2-butoxyethanol may cause liver, kidney and blood damage, based on animal data. 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.%
Butane	106-97-8	1.00 - 5.00
2-butoxyethanol	111-76-2	1.00 - 3.00
Propane	74-98-6	1.00 - 3.00

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. Wash off immediately 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. Get medical attention.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms persist.
- Notes For Physician** : Treat symptomatically.

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

- : Non-flammable aerosol. Closed containers are contained under pressure and may explode if exposed to excess heat for a prolonged period of time.

Oxidizing properties

- : None known.

Explosion data: Sensitivity to mechanical impact / static discharge

- : Aerosols are sensitive to mechanical impact. Contents under pressure. Will not accumulate static charge.

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. Shield personnel to protect from venting or rupturing containers.

Hazardous combustion products

- : Carbon oxides; 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

- : None known.

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 heat and flame. Do not puncture, incinerate or expose to heat even when empty. Avoid contact with incompatible materials. Wash thoroughly after handling. Always replace cap after 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.
- Incompatible materials** : Bases; Strong oxidizing agents; Halogenated compounds.
- 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>
Butane	1000 ppm (Butane, all isomers)	N/Av	800 ppm (final rule limit)	N/Av
2-butoxyethanol	20 ppm	N/Av	50 ppm (240 mg/m ³) (skin)	N/Av
Propane	N/Av	N/Av	1000 ppm (1800 mg/m ³)	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.

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. Wash contaminated clothing before reuse. Wash hands thoroughly after using this product, and before eating, drinking or smoking. Do not eat, drink, smoke or use cosmetics while working with this product.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid aerosol.	Appearance	: Foamy spray.
Odour	: Mild odour.	Odour threshold	: N/Av
pH	: 7.5 - 8.5		
Boiling point	: 100°C	Specific gravity	: 0.86
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)	: < 1
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: 9.9%
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	: None.	Flashback observed	: NO
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.

- 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.
- Materials To Avoid And Incompatibility**
: Bases; Oxidizing agents; Halogenated compounds.
- Hazardous decomposition products**
: None known, refer to hazardous combustion products in Section 5.

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** : May cause moderate to severe skin irritation. Severe 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>	<u>LC₅₀ (4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Butane	276 000 ppm	N/Ap (gas)	N/Ap (gas)
2-butoxyethanol	450 ppm (2.175 mg/L) (vapour)	530 mg/kg	400 - 500 mg/kg
Propane	N/Av	N/Ap (gas)	N/Ap (gas)

- 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** : No information available.
- 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>	<u>CAS No</u>	<u>Toxicity to Fish</u>		
		<u>LC50 / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Butane	106-97-8	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	1490 mg/L (Bluegill sunfish)	> 100 mg/L (Zebra fish)	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Butane	106-97-8	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	835 mg/L (Daphnia magna)	100 mg/L	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Butane	106-97-8	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	911 mg/L/72hr (Green algae)	286 mg/L/72hr	None.
Propane	74-98-6	N/Ap	N/Ap	N/Ap

- Mobility** : No data is available on the product itself.
- Persistence** : No data is available on the product itself. Contains: 2-butoxyethanol. 2-Butoxyethanol is considered to be readily biodegradable (OECD).
- 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>
Butane (CAS 106-97-8)	2.89 (estimated)	33 (estimated)
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. Do not puncture or incinerate containers.
- 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	UN1950	AEROSOLS	2.2	None	
TDG Additional information	May be shipped as LIMITED QUANTITY when transported in containers no larger than 1.0 Litre, in packages not exceeding 30 kg gross mass. Under the TDGR, refer to Section 1.17 for additional exemption information, if shipping under this exemption.				

SECTION 15 - REGULATORY INFORMATION

Labelling:

Warning! Contents under pressure. Container may explode if heated. POISON! May be fatal if inhaled. Harmful if absorbed through the skin. 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.

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 heat, sparks and open flames. Do not puncture, incinerate or expose to heat even when empty. Avoid contact with incompatible materials. Wash thoroughly after handling. Store in a cool, dry, well ventilated area, away from heat and ignition sources.

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

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
 NTP: National Toxicology Program
 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.

<p><u>Prepared for:</u> Radiator Specialty Co. of Canada 1711 Aimco Blvd. Mississauga, ON, Canada, L4W 1H7 Telephone: 905-625-9117 (Mon. - Fri., 8 AM - 4 PM) Please direct all enquiries to Radiator Specialty.</p>	
<p><u>Prepared by:</u> ICC The Compliance Center Inc. http://www.thecompliancecenter.com</p>	

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: (M)SDS sections updated:
12. ECOLOGICAL INFORMATION.

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