

MATERIAL SAFETY DATA SHEET**SECTION 1: IDENTIFICATION****Product identifier** : **LIQ WRENCH PENETRANT****Product Use** : Multi-use penetrant.**Chemical Family** : Mixture.**Manufacturer part no.** : L104C**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**

: Dark liquid. Petroleum odour.
Warning! POISON! May be fatal if inhaled. Harmful or fatal if absorbed through the skin. May be harmful or fatal if swallowed. May cause nausea, vomiting, headache and other central nervous system effects. Causes skin and eye irritation. May cause respiratory irritation. May be an aspiration hazard. Can enter the lungs and cause damage. 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. May be an aspiration hazard. Aspiration into the lungs during swallowing or subsequent vomiting may cause chemical pneumonitis, which can be fatal.

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. %
Natural methyl ester	67762-38-3	40.00 - 70.00
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	7.00 - 13.00
2-butoxyethanol	111-76-2	3.00 - 7.00

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 soap and plenty of water. 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. However, may ignite if exposed to extreme heat and flame. Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure. Product may float, and be re-ignited at the water's surface.

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 : Dry chemical, foam, carbon dioxide and water fog. Do not use water jet, as this may spread burning material.

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; Sulphur oxides; Nitrogen oxides (NOx); Hydrocarbons; Polycyclic aromatic hydrocarbons; 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. Stop the spill at source if it is safe to do so. 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. Contaminated absorbent material may pose the same hazards as the spilled product.

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 heat, sparks and open flames. Avoid contact with incompatible materials. Wash thoroughly after handling. Keep container 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; Strong 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>
Natural methyl ester	N/Av	N/Av	N/Av	N/Av
Distillates (petroleum), hydrotreated heavy naphthenic	5 mg/m ³ (As 'Oil mist, mineral') (inhalable)	N/Av	5 mg/m ³ (As 'Oil mist, mineral')	N/Av
2-butoxyethanol	20 ppm	N/Av	50 ppm (240 mg/m ³) (skin)	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. 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	: Dark liquid.
Odour	: Petroleum odour.	Odour threshold	: N/Av
pH	: N/Av		
Boiling point	: 160°C	Specific gravity	: 0.897
Melting/Freezing point	: N/Av	Coefficient of water/oil distribution	: N/Av
Vapour pressure (mmHg @ 20° C / 68° F)	: N/Av	Solubility in water	: insoluble
Vapour density (Air = 1)	: N/Av	Evaporation rate (n-Butyl acetate = 1)	: N/Av
Volatile organic Compounds (VOC's)	: N/Av	Volatiles (% by weight)	: 8.5
Flash point	: > 93.3°C		
Flash point Method	: Tag closed cup	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** : Strong oxidizing agents; Strong acids; Strong 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>	<u>LC₅₀ (4hr)</u> <u>inh, rat</u>	<u>LD₅₀</u>	
		<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Natural methyl ester	N/Av	> 5000 mg/kg	> 2000 mg/kg
Distillates (petroleum), hydrotreated heavy naphthenic	> 5 mg/L (mist)	> 5000 mg/kg	> 2000 mg/kg
2-butoxyethanol	450 ppm (2.175 mg/L) (vapour)	530 mg/kg	400 - 500 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>	<u>CAS No</u>	<u>Toxicity to Fish</u>		
		<u>LC50 / 96h</u>	<u>NOEC / 21 day</u>	<u>M Factor</u>
Natural methyl ester	67762-38-3	> 1000 mg/L (Read-across)	N/Av	None.
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	> 5000 mg/L (Rainbow trout)	N/Av	None.
2-butoxyethanol	111-76-2	1490 mg/L (Bluegill sunfish)	> 100 mg/L (Zebra fish)	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Natural methyl ester	67762-38-3	800 - 5243 mg/L (Daphnia magna) (Read-across)	N/Av	None.
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	> 1000 mg/L (Daphnia magna)	N/Av	None.
2-butoxyethanol	111-76-2	835 mg/L (Daphnia magna)	100 mg/L	None.

<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Natural methyl ester	67762-38-3	N/Av	N/Av	None.
Distillates (petroleum), hydrotreated heavy naphthenic	64742-52-5	> 1000 mg/L/96hr (Green algae)	N/Av	None.
2-butoxyethanol	111-76-2	911 mg/L/72hr (Green algae)	286 mg/L/72hr	None.

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself. Contains: Distillates (petroleum), hydrotreated heavy naphthenic.
Distillates (petroleum), hydrotreated heavy naphthenic is not considered readily biodegradable and is insoluble in water. The substance may persist in the environment.

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>
Natural methyl ester (CAS 67762-38-3)	> 6.2	N/Av
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	> 20	N/Av
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. May be harmful or fatal if swallowed. May cause respiratory irritation. May cause headache, nausea, dizziness and other symptoms of central nervous system depression. May be an aspiration hazard. Can enter the lungs and cause damage. 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. Wash thoroughly after handling. Keep away from extreme heat and flame. Avoid contact with incompatible materials. Keep containers closed when not in use. Store in a cool, dry, well ventilated area, away from heat and ignition sources.

FIRST AID: If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing stopped, begin artificial respiration. For skin contact, wash with soap and water 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.

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