MATERIAL SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product identifier : **LIQUID WRENCH PENETRANT**

Product Use : Multi-purpose penetrating oil (aerosol).

Chemical Family : Mixture.

Manufacturer part no. : L106C, L112C, L112/6C

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 - 4PM)

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 B5 (Flammable Aerosols).

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 to yellow liquid, contained in a pressurized aerosol can. Pleasant odour.
WARNING!
Flammable aerosol. Contents under pressure. May be harmful if swallowed. May be an aspiration hazard. May be harmful if inhaled. Inhalation of mist causes irritation of respiratory system. If mists are inhaled, may cause pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Prolonged or repeated skin contact may cause drying and irritation.

POTENTIAL HEALTH EFFECTS:

Signs and symptoms of short-term (acute) exposure

Inhalation : Inhalation of mist causes irritation of respiratory system. If mists are inhaled, may cause pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness.

Skin : May cause mild skin irritation. Prolonged contact, may be more irritating. If product is sprayed directly on skin, symptoms of frostbite may be experienced including numbness, prickling and itching.

Eyes : May cause mild eye irritation. If product is sprayed directly into the eyes, could cause freezing of the eye.

Ingestion : Not an expected route of entry under normal conditions of use. However, if the product is sprayed directly into mouth and large amounts of the liquid concentrate are swallowed, it may cause irritation to the mouth, throat and stomach. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. 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 skin contact may cause dermatitis (rash), characterized by red, dry, itching skin. Repeated or prolonged exposure may result in kidney effects.

Carcinogenic status : See TOXICOLOGICAL INFORMATION, Section 11.

Additional health hazards : See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: May cause long lasting harmful effects to aquatic life. See Section 12 for more environmental information.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%
Hydrotreated light petroleum distillates	64742-47-8	60.00 - 100.00
Tripropylene glycol methyl ether	25498-49-1	7.00 - 13.00
Carbon dioxide	124-38-9	1.00 - 5.00

SECTION 4 - FIRST AID MEASURES

Inhalation : Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. If symptoms develop, seek medical attention.

Skin contact : For skin contact, wash with soap and water while removing contaminated clothing. If irritation persists, seek prompt medical attention. Wash contaminated clothing before reuse.

Eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists, seek prompt medical attention.

Ingestion : Seek immediate medical attention/advice. Do not induce vomiting. Never give anything by mouth to an unconscious person.

Notes For Physician : Treat symptomatically. Immediate medical attention is required. Aspiration may cause pulmonary oedema and pneumonitis.

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

: Flammable aerosol. Will ignite when exposed to heat, flame and other sources of ignition. Closed containers are contained under pressure and may explode if exposed to excess heat for a prolonged period of time. Material will float on water and can be re-ignited at the water's surface.

Oxidizing properties : None known.

Explosion data: Sensitivity to mechanical impact / static discharge

: Aerosols are sensitive to mechanical impact. Vapours in the flammable range may be ignited by a static discharge of sufficient energy.

Suitable extinguishing media : Dry chemical, foam, carbon dioxide and water fog.

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. Shield personnel to protect from venting or rupturing containers. Water spray may be useful in cooling equipment exposed to heat and flame.

Hazardous combustion products

: Carbon oxides; Nitrogen oxides (NOx); Boron oxides.; Aldehydes; Hydrocarbons.; Hydrogen fluoride; Fluorinated products.; 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.

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. Use only non-sparking tools and equipment in the clean-up process. 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 heat and flame. No sparking tools should be used. Avoid contact with incompatible materials. Do not puncture or incinerate. Wash thoroughly after handling.

Storage requirements : Store in a cool, dry, well-ventilated area. Keep away from 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 : Strong oxidizing agents; Bases; 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

Ingredients	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Hydrotreated light petroleum distillates	200 mg/m³ (skin)	N/Av	N/Av	N/Av
Tripropylene glycol methyl ether	N/Av	N/Av	N/Av	N/Av
Carbon dioxide	5000 ppm	30 000 ppm	5000 ppm	N/Av

Ventilation and engineering measures

: Use in a well-ventilated area. 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. A respiratory protection program that meets CSA Z94.4-02 requirements must be followed whenever workplace conditions warrant use of a respirator.

Skin protection : Gloves impervious to the material are recommended. Advice should be sought from glove suppliers. Depending on conditions of use, an impervious apron should be worn.

Eye / face protection : Chemical splash goggles are recommended. Refer to CSA Z94.3 or other appropriate standards.

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. Wash hands thoroughly after using this product, and before eating, drinking or smoking. Remove and wash contaminated clothing before re-use.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquid aerosol.

Appearance : Clear to yellow liquid, contained in a pressurized aerosol can.

Odour : Pleasant odour.

Odour threshold : N/Av

pH : N/Av

Boiling point : 160°C (concentrate)

Specific gravity : 0.89

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) : < 1

Flash point : 93.3°C (concentrate)

Flash point Method : Tag closed cup

Auto-ignition temperature : Not available.

Lower flammable limit (% by vol.) : 0.7%

Upper flammable limit (% by vol.) : 5%

Flame Projection Length : > 45.7 cm, < 100 cm

Flashback observed : NO

Absolute pressure of container : N/Av

Viscosity : N/Av

General Informatioln : Chemical heat of combustion: 33.98 kJ/g

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. Do not use in areas without adequate ventilation.

Materials To Avoid And Incompatibility : Strong oxidizing agents; Bases; Acids.

Hazardous decomposition products : None known, refer to hazardous combustion products in Section 5.

SECTION 11 - TOXICOLOGICAL INFORMATION

Target organs : Eyes, skin, respiratory system, digestive system, central nervous system.

Routes of exposure : *Inhalation:* YES *Skin Absorption:* NO *Skin & Eyes:* YES *Ingestion:* YES

Irritancy : Mild eye irritant. Mild skin irritant.

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

Ingredients	LC_{50}(4hr) inh, rat	LD_{50} (Oral, rat)	LD_{50} (Rabbit, dermal)
Hydrotreated light petroleum distillates	N/Av	> 5000 mg/kg (mouse)	> 2000 mg/kg (No mortality)
Tripropylene glycol methyl ether	> 200 mg/L/1H	3184 mg/kg	15 440 mg/kg
Carbon dioxide	N/Av	N/Ap (gas)	N/Ap (gas)

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

Reproductive effects : Not expected to have other 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 : May cause central nervous system effects.

Conditions aggravated by overexposure : None known or reported by the manufacturer.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity : May cause long lasting harmful effects to aquatic life. 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:

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Hydrotreated light petroleum distillates	64742-47-8	N/Av	N/Av	None.
Tripropylene glycol methyl ether	25498-49-1	11 619 mg/L (Fathead minnow)	N/Av	None.
Carbon dioxide	124-38-9	N/Ap	N/Ap	N/Ap

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Hydrotreated light petroleum distillates	64742-47-8	N/Av	N/Av	None.
Tripropylene glycol methyl ether	25498-49-1	> 10 000 mg/L (Daphnia magna)	N/Av	None.
Carbon dioxide	124-38-9	N/Ap	N/Ap	N/Ap

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Hydrotreated light petroleum distillates	64742-47-8	N/Av	N/Av	None.
Tripropylene glycol methyl ether	25498-49-1	21 010 mg/L/96hr (Green algae)	N/Av	None.
Carbon dioxide	124-38-9	N/Ap	N/Ap	N/Ap

Mobility : No data is available on the product itself.

Persistence : No data is available on the product itself.
The following ingredients are considered to be readily biodegradable: Distillates (petroleum), hydrotreated light; Tripropylene glycol monomethyl ether.
Distillates (petroleum), hydrotreated light is considered readily biodegradable, but failing the 10 day window (OECD).

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

Components	Partition coefficient n-octanol/water (log Kow)	Bioconcentration factor (BCF)
Hydrotreated light petroleum distillates (CAS 64742-47-8)	5.1 - 8.8	N/Av
Tripropylene glycol methyl ether (CAS 25498-49-1)	0.309	3.16

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: TRANPORT INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	UN1950	AEROSOLS	2.1	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, is shipping under this exemption.				

SECTION 15 - REGULATORY INFORMATION

Labelling:

WARNING! Flammable aerosol. Contents under pressure. May be harmful if swallowed. May be an aspiration hazard. May be harmful if inhaled. Inhalation of mist causes irritation of respiratory system. If mists are inhaled, may cause pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Prolonged or repeated skin contact may cause drying and irritation.

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 and flame. No sparking tools should be used. Avoid contact with incompatible materials. Do not puncture or incinerate containers. 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 stops, provide artificial respiration. If breathing is difficult, give oxygen by qualified medical personnel only. If symptoms develop, seek medical attention. For skin contact, wash with soap and water while removing contaminated clothing. If irritation persists, seek prompt medical attention. For eye contact, flush with running water for at least 15 minutes. If irritation persists, seek prompt medical attention. If ingested, do not induce vomiting. Never give anything by mouth to an unconscious person. 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
CSA: Canadian Standards Association
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
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 2015.
2. International Agency for Research on Cancer Monographs, searched 2016.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb 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: 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.	
Prepared by: ICC The Compliance Center Inc. http://www.thecompliancecenter.com	

DISCLAIMER OF LIABILITY

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12. ECOLOGICAL INFORMATION

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