

MATERIAL SAFETY DATA SHEET**SECTION 1: IDENTIFICATION**

Product identifier : **PUNCTURE SEAL NON-FLAMMABLE**

Product Use : Tire sealant

Chemical Family : Mixture.

Manufacturer part no. : M1115C, M1120C, M1128C, M1120/12C

Supplier's name and address: **Manufacturer's name and address:**
Radiator Specialty Co., of Canada Refer to Supplier
 1711 Aimco Blvd.
 Mississauga, ON, Canada
 L4W 1H7

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 : Liquid aerosol. Milky, white liquid. Ammonia odour.
 DANGER! Contents under pressure. Containers may explode if heated.
 POISON! May be fatal if inhaled. Harmful or fatal if swallowed or absorbed through the skin. May cause nausea, vomiting, headache and other central nervous system effects. May cause respiratory irritation. Causes skin irritation. Could cause eye damage. Can cause kidney damage. Prolonged or repeated overexposure could cause adverse liver effects. Contains material which may cause adverse blood system effects. Contains material which may cause cancer, based on animal data. Possible birth defect hazard - contains material that may cause birth defects, 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. In extremely high concentrations, product may act as an asphyxiant and cause increased breathing and pulse rates, fatigue and unconsciousness.

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 : Direct eye contact may produce severe irritation with possible eye damage. 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. Symptoms may include pain, headache, nausea, vomiting, dizziness, drowsiness and other central nervous system effects. Could cause cyanosis (bluish discoloration of the skin due to deficient oxygenation of the blood). May potentially result in lethal kidney damage. Could also cause convulsions, coma, respiratory arrest and death.

Effects of long-term (chronic) exposure

: Repeated absorption may cause disorder of central nervous system, liver, kidneys and blood. Prolonged or repeated contact may cause drying, cracking and defatting of the skin.

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

Additional health hazards : May cause birth defects. See TOXICOLOGICAL INFORMATION, Section 11.

Potential environmental effects

: See ECOLOGICAL INFORMATION, Section 12.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	Wt.%
1,1,1,2-Tetrafluoroethane	811-97-2	15.00 - 40.00
2-butoxyethanol	111-76-2	10.00 - 30.00
Ethylene glycol	107-21-1	3.00 - 7.00
Ammonium hydroxide	1336-21-6	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. Wash exposed area thoroughly with soap and 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.

SECTION 5 - FIRE FIGHTING MEASURES

Fire hazards/conditions of flammability

: Not flammable under normal conditions of use. Non-flammable aerosol. Closed containers are contained under pressure and may explode if exposed to excess heat for a prolonged period of time. Vapours are heavier than air and collect in confined and low-lying areas.

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.

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; Hydrogen fluoride; Ammonia; formaldehyde; Nitrogen oxides (NOx); Halogenated compounds; Other unidentified organic compounds.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions : All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus. 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. 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. Do not puncture or incinerate. Wash thoroughly after handling. Keep out of the reach of children.
- 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. Keep containers tightly closed when not in use. Inspect periodically for damage or leaks.
- Incompatible materials** : Oxidizing agents; Bases; Acids; Reactive metals.
- 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>
1,1,1,2-Tetrafluoroethane	N/Av	N/Av	N/Av	N/Av
2-butoxyethanol	20 ppm	N/Av	50 ppm (Skin)	N/Av
Ethylene glycol	100 mg/m ³ (aerosol) (Ceiling)	N/Av	50 ppm (Ceiling) (final rule limit)	N/Av
Ammonium hydroxide	25 ppm (Ammonia)	35 ppm (Ammonia)	50 ppm (Ammonia)	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. Depending on conditions of use, an impervious apron should be worn.

Eye / face protection

- : Chemical splash goggles must be worn when handling this material. 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. 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 | : Milky, white liquid. |
| Odour | : Ammonia odour. | Odour threshold | : N/Av |
| pH | : 11 ± 0.5 | | |
| 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) | : > 1 | Evaporation rate (n-Butyl acetate = 1) | : 0.2 |

- Volatile organic Compounds (VOC's)** : N/Av
- Flash point** : N/Av
- Flash point Method** : N/Av
- Lower flammable limit (% by vol.)** : N/Av
- Flame Projection Length** : N/Av
- Absolute pressure of container** : N/Av
- General Information** : No additional information.
- Volatiles (% by weight)** : 15.64%
- Auto-ignition temperature** : N/Av
- Upper flammable limit (% by vol.)** : N/Av
- Flashback observed** : N/Av
- Viscosity** : N/Av

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. Avoid contact with incompatible materials.
- Materials To Avoid And Incompatibility** : Oxidizing agents; Bases; Acids; Reactive metals.
- 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** : Moderate to severe skin irritant. Possible severe eye irritation and tissue damage.
- 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>LD₅₀</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
1,1,1,2-Tetrafluoroethane	1500 g/m3	N/Av (gas)	N/Av (gas)
2-butoxyethanol	450 ppm (2.175 mg/L)	530 mg/kg	400 - 500 mg/kg
Ethylene glycol	N/Av	4000 mg/kg	9530 µL/kg
Ammonium hydroxide	3670 ppm (rat); 2115 ppm (mouse)	350 mg/kg	N/Av

- Carcinogenic status** : This product contains 2-Butoxyethanol, an ACGIH Group A3 carcinogen. No other components are classified as carcinogenic by IARC, ACGIH, OSHA or NTP.
- Reproductive effects** : Not expected to have other reproductive effects.
- Teratogenicity** : May cause birth defects. Contains ethylene glycol, which may cause teratogenic effects at doses which are not maternally toxic, based on animal data.
- 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** : None known or reported by the manufacturer.
- Conditions aggravated by overexposure** : Pre-existing eye, skin, respiratory, liver, kidney and central nervous system disorders.

SECTION 12 - ECOLOGICAL INFORMATION

- Ecotoxicity** : The ecological characteristics of this product have not been fully investigated. 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. Note: Contains: Ammonium hydroxide . Toxicity is primarily associated with pH.

Ecotoxicity data:

<u>Ingredients</u>	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
1,1,1,2-Tetrafluoroethane	811-97-2	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	1490 mg/L (Bluegill sunfish)	> 100 mg/L (zebra fish)	None.
Ethylene glycol	107-21-1	22 810 mg/L (Rainbow trout)	N/Av	None.
Ammonium hydroxide	1336-21-6	8.2 mg/L (Fathead minnow)	N/Av	None.

<u>Ingredients</u>	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
1,1,1,2-Tetrafluoroethane	811-97-2	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	835 mg/L [Daphnia magna (Water flea)]	100 mg/L	None.
Ethylene glycol	107-21-1	46 300 mg/L [Daphnia magna (Water flea)]	N/Av	None.
Ammonium hydroxide	1336-21-6	0.66 mg/L [Daphnia magna (Water flea)]	N/Av	None.


<u>Ingredients</u>	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
1,1,1,2-Tetrafluoroethane	811-97-2	N/Ap	N/Ap	N/Ap
2-butoxyethanol	111-76-2	911 mg/L/72hr (Green algae)	286 mg/L/72hr	None.
Ethylene glycol	107-21-1	10 940 mg/L/96hr (Green algae)	N/Av	None.
Ammonium hydroxide	1336-21-6	N/Av	N/Av	None.

- Mobility** : No data is available on the product itself.
- Persistence** : No data is available on the product itself.
- Bioaccumulation potential** : No data is available on the product itself.
- Other Adverse Environmental effects** : No data is available on the product itself.

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:**

Danger. Contents under pressure. Container may explode if heated. POISON! May be fatal if inhaled. Harmful or fatal if swallowed or absorbed through the skin. May cause nausea, vomiting, headache and other central nervous system effects. May cause respiratory irritation. Causes skin irritation. Possible severe eye irritation and tissue damage. Can cause kidney damage. Prolonged or repeated overexposure could cause adverse liver effects. Contains material which may cause adverse blood system effects. Contains material which may cause cancer, based on animal data. Possible birth defect hazard - contains material that may cause birth defects, 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. Do not puncture or incinerate containers. 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 stopped, begin artificial respiration. If breathing stopped, begin artificial respiration. For skin contact, immediately remove contaminated clothing then wash thoroughly with soap and water for at least 15 minutes. 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).

Canadian WHMIS Classification: 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
 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 2013.
 2. International Agency for Research on Cancer Monographs, searched 2013.
 3. Canadian Centre for Occupational Health and Safety, CCIInfoWeb databases, 2013 (Chempendium, HSDB and RTECs).
 4. Material Safety Data Sheets from manufacturer.
 5. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2013.

<p>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.</p>	
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MSDS Preparation Date (mm/dd/yyyy) : 05/07/2007

MSDS Revision Date (mm/dd/yyyy) : 06/21/2013

Revision No. : 3

Revision Information : (M)SDS sections updated:
2. HAZARDS IDENTIFICATION (Eye irritation);
7. HANDLING AND STORAGE (Incompatible materials);
10. STABILITY AND REACTIVITY (Incompatible materials);
12. ECOLOGICAL INFORMATION (Ecotoxicity).

END OF DOCUMENT