MATERIAL SAFETY DATA SHEET

SECTION 01 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION:

Chemical Name:	**UltraSeal® PF-200 / PF-600 "A" Component, Class 1, CCMC # 13520-L***
Manufacturer:	**RIVENCO INDUSTRIES LTD.** **150 Curtis Drive** **Guelph, Ontario N1K 1N5** **Tel: 519-822-0544** **Fax: 519-822-0543** **Infotrac 24 Hour Emergency Tel: (800)-535-5053**
Date:	**March 25, 2015**
Prepared by:	**Technical Services Department**
WHMIS Classification:	**A, D2A, D2B**
Product Use:	**A-Component for Two-Component Polyurethane Foam System**
***CCMC #13520-L:**	**CAN/ULC-S711.2-05, Standard for Thermal Insulation - Bead-Applied Two-Component Polyurethane Air Sealant Foam**

SECTION 02 – COMPOSITION / INFORMATION ON INGREDIENTS:

Ingredients	CAS No.	%	LD50 (Oral-Rat)	LC50 (Inhalation-Rat)
1,1,1,2-Tetrafluoroethane (Non-Flammable Compressed Gas, HFC, Fluorocarbon, 134a)	811-97-2	5.0 – 10.0	Not available	>500,000 ppm, 4 hr
4,4'-Diphenylmethane Diisocyanate (MDI)	101-68-8	30.0 – 60.0	15 mg/kg	490 mg/m^3, 4 hr
Higher Oligomers of MDI (Polymeric MDI)	9016-87-9	30.0 – 60.0	Not available	Not available

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555 or 29 CFR 1910.1200

SECTION 03 – HAZARDS INDENTIFICATION:

ROUTES OF ENTRY INTO THE BODY (ACUTE EFFECTS):

Eyes:	**May be irritating to eyes. Symptoms of irritation include reddening, tearing, swelling or stinging. May cause temporary corneal injury. Chronic overexposure may cause conjunctivitus.**
Skin:	**May cause localized irritation, reddening or swelling. May cause an allergic reaction. Prolonged or repeated exposure may lead to sensitization and / or contact dermatitis.**
Inhalation:	**May irritate mucous membranes. Can cause tightness in chest, coughing or allergic asthma-like sensitivity. Prolonged overexposure can lead to respiratory symptoms like bronchitis, bronchial spasm and pulmonary edema. These symtoms could be immediate or delayed up to several hours after exposure. These effects are usually reversible, but increased lung sensitivity can persist for a longer period of time.**
Ingestion:	**May cause irritation of mucous membranes in the mouth and digestive tract. Symptoms may include abdominal pain, nausea, vomiting and diarrhea. Small amounts are unlikely to cause symptoms or injury.**

WHMIS HAZARD SYMBOL(S):

DANGER: TANK CONTENTS UNDER PRESSURE. DO NOT HEAT ABOVE 120°F (49°C), PUNCTURE OR INCINERATE.

SECTION 04 - FIRST AID MEASURES:

Eyes:	**Flush with copious quantities of lukewarm water. Seek medical attention immediately.**
Skin:	**Use a rag to remove liquid from skin and remove contaminated clothing. Cured material may be physically removed by persistent washing with water and a non-abrasive soap. If irritation develops, use mild cream. If it persists, seek medical attention.**
Inhalation:	**Remove to fresh air if breathing difficulty is experienced. If necessary, provide oxygen or artificial respiration by trained personnel and obtain medical attention.**
Ingestion:	**Do not induce vomiting. Drink 1 to 3 glasses of water. Consult physician. Do not give anything orally to an unconscious person.**

SECTION 05 - FIRE FIGHTING MEASURES:

Flammable Conditions:	**MDI and Polymeric MDI are organic and can burn in the presence of sufficient heat, oxygen and an ignition source.**
Extinguishing Media:	**Carbon dioxide, dry chemical, or chemical foam. Water can be used to cool fire exposed containers to prevent pressure build-up and possible explosion.**
Fire Fighting Measures:	**Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan.**
Flash Point:	**MDI: 390°F (199°C)**
Flammability Limits:	**Lower Explosion Limit - Not available** **Upper Explosion Limit – Not available**
Autoignition Temperature:	**Not available**
Hazardous Decomposition Products:	**Carbon oxides, nitrogen oxides, isocyanates, traces of incompletely burned carbon products, hydrogen fluoride, hydrogen cyanide and hydrochloric acid.**
Sensitivity - Impact:	**Contents are not known to be sensitive to mechanical impact.**
Static:	**Contents are not known to be sensitive to static discharge.**

SECTION 06 – ACCIDENTAL RELEASE MEASURES:

Containment / Clean Up:	**Restrict access to the area of the spill. Provide ventilation, NIOSH / MSHA approved respirator and protective clothing. Soak up material with absorbent and place in chemical waste container. Loosely cover container and remove from work area to stand for a couple of days. Decontaminate waste and spill area with a solution of 0.2 to 0.5% liquid detergent and 5 to 10% sodium bicarbonate in water. Use 10 parts of solution for each area of the spill and allow to react for at least 10 minutes. Local, state, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup.**

SECTION 07 – HANDLING AND STORAGE:

Handling and Storage:	**Store under dry conditions, between 60°F (15.5°C) and 80°F (26.6°C). Storage above 90°F (32.2°C) will shorten the shelf life. Storage below 55°F (12.7°C) may affect foam quality if the chemicals are not warmed prior to use. Protect unused product from FREEZING. Use only in well ventilated area.**

SECTION 08 – EXPOSURE CONTROL / PERSONAL PROTECTION:

Component Exposure Limits:	**1,1,1,2-Tetrafluoroethane (CAS# 811-97-2): Provide adequate ventilation to control exposures within the following exposure guidelines: WEEL: 1,000 ppm.** **4,4'-Diphenyl Diisocyanate (MDI) (CAS# 101-68-8): Provide adequate ventilation to control exposures within the following exposure guidelines: ACGIH TLV: 0.005 ppm (TWA) and OSHA: 0.020 ppm (Ceiling).** **Higher Oligomers of MDI (Polymeric MDI) (CAS# 9016-87-9): Provide adequate ventilation to control exposures within the following exposure guidelines: Not established.**

Respiratory:	**If vapor levels are expected to exceed exposure guidelines, wear a NIOSH / MSHA approved, positive pressure, supplied air respirator.**
Ventilation:	**In indoor applications, passive ventilation (opening of doors and windows) is recommended. Local exhaust as necessary to keep exposure levels within guidelines.**
Personal Protective Equipment:	**Safety glasses with side-protection, impermeable gloves (e.g., neoprene, nitrile, silver shield (R)), coveralls or apron are important in preventing contamination of eyes, skin and clothing. Wash thoroughly after handling. Facilties storing or utilizing this product should be equipped with an eyewash facility and a safety shower.**

SECTION 09 - PHYSICAL AND CHEMICAL PROPERTIES:

Physical State:	**Amber to dark brown liquid. Froths to an off-white to yellowish color when released from container.**
Odor and Appearance:	**Slight musty odor**
Odor Threshold:	**Not available**
Specific Gravity: **1.2**	
Vapor Pressure:	**Contents under pressure have a vapor pressure greater than 50 psig (345 kPa). For MDI liquid, the pressure is less than 10 mm Hg at 77°F (25°C).**
Vapor Density:	**Not available**
Evaporation Rate:	**Not available**
Boiling Point:	**1,1,1,2-Tetrafluoroethane (Non-Flammable Compressed Gas, HFC, Fluorocarbon, 134a) boils at -15°F (-26.2°C). MDI boils at 406°F (208°C).**
Freezing Point:	**Not available**
pH:	**Not available**
Coeff. Oil/Water Distribution:	**Not available**

SECTION 10 – STABILITY AND REACTIVITY:

Chemical Stability:	**Stable under normal conditions of use.**
Incompatible Materials:	**Strong oxidizing agents, bases, amines, alcohols, small particle metal catalysts, ammonia and water.**
Reactive Conditions:	**Heat, sparks and open flame.**
Hazardous Polymerization:	**Should not occur unless container is heated above 120°F (49°C).**

SECTION 11 - TOXICOLOGICAL INFORMATION:

Effects of overexposure:	**Exposure to individuals with asthma, eczema or allergies may aggravate existing conditions. Symptoms may include: coughing, wheezing and shortness of breath. Overexposure to fluorocarbon may cause lightheadedness, headaches or lethargy. Persons with cardiac arrhythmia may be at increased risk in severe exposure. Prolonged overexposure can lead to respiratory symptoms like bronchitis, bronchial spasm and pulmonary edema.**
Sensitization:	**May cause sensitization by skin contact and inhalation.**
Carcinogenicity:	**4,4'-Diphenyl Diisocyanate (MDI) (CAS# 101-68-8): Rat, 6.3 mg/m^3 (high level of exposure, 2 years, 6 hrs/day, 5 days/week). Lung tumors observed.**
Reproductive Toxicity:	**4,4'-Diphenyl Diisocyanate (MDI) (CAS# 101-68-8): Rat, female, 6 hrs/day, 12 mg/m^3, days 6 - 15 (gestation period); 4 mg/m^3 (maternal/fetotoxicity)**
Teratogenicity:	**No known applicable information.**
Mutagenicity:	**No known applicable information.**
Synergistic Products:	**No known applicable information.**

SECTION 12 – ECOLOGICAL INFORMATION:

Air:	**Complete information is not yet available.**
Water:	**<u>1,1,1,2-Tetrafluoroethane (CAS# 811-97-2)</u>: Accumulation in aquatic organisms is unlikely.** **<u>4,4'-Diphenyl Diisocyanate (MDI) (CAS# 101-68-8)</u>: Acute Toxicity to Fish: LC50: >500 mg/l brachydanio rerio (zebra fish), 24 hour exposure. Acute Toxicity to Aquatic Invertebrates: EC50: >500 mg/l Daphnia magna (water flea), 24 hr.** **<u>Higher Oligomers of MDI (Polymeric MDI) (CAS# 9016-87-9)</u>: Biodegradation: Expected to have a short half-life. Bioaccumulation: Oncorhynchus mykiss (rainbow trout), 112 day exposure, <1 BCF. Does**

	not bioaccumulate. Acute Toxicity to Fish: LC50: >1,000 mg/l brachydanio rerio (zebra fish), 96 hour exposure. Acute Toxicity to Aquatic Invertebrates: EC50: >1,000 mg/l Daphnia magna (water flea), 24 hr. Toxicity to Microorganisms: EC50: >100 mg/l, activated sludge, 3 hr.
Soil:	**Complete information is not yet available.**

SECTION 13 – DISPOSAL CONSIDERATIONS:

Waste Disposal:	**Relieve all pressure prior to disposal using the precautions provided in SECTION – 8. Remove the hoses and with tank inverted, slowly open tank valve, point tank away from face and allow pressure to completely vent. Do not incinerate. Dispose in accordance with Federal, State / Provincial and local regulations.**

SECTION 14 - TRANSPORT INFORMATION:

Shipping Information:	**For containers greater than 1 liter:** **GROUND TRANSPORT: UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-Flammable Gas Label).** **AIR TRANSPORT: UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-Flammable Gas Label). Packing Instruction (Cargo & Passenger) 200.** **MARITIME TRANSPORT: UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-Flammable Gas Label).** **Emergency Response Guide Numbers – Consumer Commodity #171, for Aerosols and Compressed Gas #126.**

SECTION 15 - REGULATORY INFORMATION:

TSCA Inventory Status:	**Chemical components listed on TSCA inventory except as exempted.**
NFPA Profile:	**Health 2, Flammability 1, Reactivity 1**
SARA TITLE III Chemical Listings:	**Section 302 Extremely Hazardous Substances (40 CFR 355): Not known** **Section 304 CERCLA Hazardous Substances (40 CFR 302): Not known** **Section 311/312 Hazard Class (40 CFR 370): Acute: Yes; Chronic: Yes; Fire: No; Pressure: Yes; Reactive: Yes** **Section 313 Toxic Chemicals (40 CFR 372): This product contains the following toxic chemicals which are subject to reporting under Section 313 (40 CFR Part 372): 4,4'-Diphenylmethane Diisocyanate (CAS# 101-68-8); and Higher Oligomers of MDI (Polymeric MDI) (CAS# 9016-87-9).**
State Substance List:	**This product contains a listed substance(s) that appears on one or more of the Substance Lists for Pennsylvania, Massachusetts and New Jersey: 4,4'-Diphenylmethane Diisocyanate (CAS# 101-68-8).**
California Proposition 65 List:	**No known applicable information.**
Volatile Organic Content:	**0% VOC minus exempt compounds.**
Domestic Substance List:	**Chemical components listed on DSL except as exempted.**

SECTION 16 - OTHER INFORMATION:

The information herein is given in good faith, but no warranty, express or implied, is made. Product users should make independent judgements of the suitability of this information to ensure proper use and to protect the health and safety of employees.