

TWO-COMPONENT LOW PRESSURE B-COMPONENT

(Silent Seal NA)

MSDS # 16177B

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M A T E R I A L S A F E T Y D A T A S H E E T

1. PRODUCT & COMPANY IDENTIFICATION

Chemical Product

B-Component for Two-Component Low Pressure Polyurethane Foam System for Professional Use Only in Mining Applications

Manufacturer

FOMO PRODUCTS, INC.
P. O. Box 1078
Norton, Ohio 44203

Emergency Overview

Product Information: 1-800-321-5585 (Monday-Friday 8:00am-5:00pm). In Ohio and outside the United States call (330) 753-4585

Transportation Emergency: CHEMTREC 1-800-424-9300 (24 hours). Two-Component B-Component is registered by the manufacturer, FOMO PRODUCTS, INC.

International Transportation Emergency: CHEMTREC (703) 527-3887

Product is a urethane foam component that contains a liquified compressed gas blowing agent (Non-Flammable Compressed Gas). Containers should not be heated above 120°F (49°C) to avoid excessive pressure build-up.

2. HAZARDS IDENTIFICATION

Emergency Overview

WARNING! EYE, SKIN, LUNG IRRITANT. May be harmful if inhaled. Vapor reduces oxygen available for breathing. May cause lung injury. Respiratory sensitizer. May cause central nervous system effects. May cause liver damage. Toxic gases/fumes may be given off during burning. Pressurized Container: storage temperature should not exceed 120°F (49°C) in order to avoid excessive pressure build-up and possible release of contents. May cause a temporary fogging of the eyes.

Potential Health Effects

The primary adverse health effects of this product are related to the individual components that make-up the mixture, and the Fluorocarbon (134a) component.

Entry Route: Effects of Overexposure

Inhalation: Tris (1-chloro-2-propyl) phosphate: Existing medical conditions such as asthma and pulmonary diseases may be aggravated by prolonged exposure. This material is a weak cholinesterase inhibitor. Excessive exposure may result in these symptoms: salivation, sweating, headache, nausea, muscle twitching, incoordination, diarrhea, blurred vision, abdominal cramps, tears, tremor, and chest discomfort.

Tertiary Amine: Can cause severe eye, skin, and respiratory tract burns. May cause nose, throat, and lung irritation. Inhalation of vapors in high concentration may cause irritation of respiratory system.

1,1,1,2-Tetrafluoroethane: Gas reduces oxygen available for breathing. Causes asphyxiation in high concentrations. May cause central nervous system effects. May cause cardiac arrhythmia. Vapors may cause drowsiness and dizziness.

Diethylene glycol: May cause nose, throat, and lung irritation. Vapors in high concentrations may cause irritation of respiratory system.

Eyes: **Tris (1-chloro-2-propyl) phosphate:** May cause eye irritation.

Tertiary Amine: Can cause severe eye, skin, and respiratory tract burns. .

1,1,1,2- Tetrafluoroethane: Can cause severe irritation, redness, tearing, and blurred vision.

Diethylene glycol: May cause irritation to the eyes.

Skin: **Tris (1-chloro-2-propyl) phosphate:** Prolonged exposure is unlikely to result in absorption of harmful amounts.

Tertiary Amine: Can cause severe eye, skin, and respiratory tract burns. May cause nose, throat, and lung irritation. Inhalation of vapors in high concentration may cause irritation of respiratory system.

1,1,1,2- Tetrafluoroethane: Irritating to skin, may cause redness, may cause frostbite.

Diethylene glycol: May cause irritation to the skin.

Ingestion: **Tris (1-chloro-2-propyl) phosphate:** Existing medical conditions such as asthma and pulmonary diseases may be aggravated by prolonged exposure. This material is a weak cholinesterase inhibitor. Excessive exposure may result in these symptoms: salivation, sweating, headache, nausea, muscle twitching, incoordination, diarrhea, blurred vision, abdominal cramps, tears, tremor, and chest discomfort.

Tertiary Amine: Can cause severe eye, skin, and respiratory tract burns. Harmful if swallowed.

1,1,1,2- Tetrafluoroethane: Unlikely route of exposure. May cause gastrointestinal discomfort.

Diethylene glycol: Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

If accidental contact occurs, follow the appropriate first aid procedure described in Section 4 of this MSDS.

3. COMPOSITION

<u>Chemical Name (common names)</u>	<u>CAS Number</u>	<u>Percentage</u>
Non-Hazardous Polyol Blend	Not Available	30 to 60 percent
Tris (1-chloro-2-propyl) phosphate	13674-84-5	15 to 45 percent
1,1,1,2- Tetrafluoroethane	811-97-2	10 to 30 percent
Tertiary Amine	3030-47-5	1 to 5 percent
Diethylene glycol	111-46-6	1 to 5 percent
Surfactants	Not Available	1 to 5 percent

(NOTE: See Section 8 of this MSDS for Exposure Guidelines)

(NOTE: See Section 11 of this MSDS for Toxicological Information- LC₅₀ and LD₅₀)

4. FIRST AID

- Inhalation:** If breathing difficulty is experienced, move to area free of exposure. Provide fresh air. If necessary, provide oxygen or artificial respiration by trained personnel and obtain medical attention.
- Eye Contact:** Flush with clean water for at least 15 minutes and obtain medical attention.
- Skin Contact:** Use a rag to remove liquid from skin and remove contaminated clothing. May cause mild irritation or temporary darkening of skin. Persistent washing with soap and water will eventually remove all residues. If irritation persists, obtain medical attention.
- Ingestion:** Drink 1 to 3 glasses of water and seek immediate medical attention. Do not induce vomiting. Never give anything orally to an unconscious person.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical, carbon dioxide, Halon 1211, chemical foams, or water spray (if used in large quantities).

Firefighting Procedures: Isolate area. Stay upwind. Water is not recommended unless used in large quantities as a fine spray when other extinguishing agents are not available. The product is equipped with a pressure relief valve which can activate in a high temperature situation. Remove all personnel from the area at the first sound of releasing pressure. Protective equipment: Wear self-contained breathing apparatus to protect against toxic decomposition by-products, including Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen fluoride and traces of Hydrogen cyanide. Wear all turn out gear (boots, trousers, helmet, gloves, and hood).

Unusual Fire/Explosion Hazards: High temperatures will raise the pressure in the containers, which may lead to rupturing. Cured foam is organic and, therefore, will burn in the presence of sufficient heat, oxygen and an ignition source. Main hazards associated with burning foam are similar to burning of other organic materials (wood, paper, cotton, etc.) and precautions against exposure should be taken accordingly. Avoid welding or other "hot work" in the vicinity of exposed cured foam.

6. ACCIDENTAL RELEASE MEASURES/DISPOSAL CONSIDERATIONS

Personal Precautions: Evacuate all unnecessary personnel; contain the area if possible. Wear skin and eye protection equipment (See section 8). Ventilate the area.

Environmental Precautions: Containment should include preventing the spill from entering drains, sewers, waterways, groundwater, or soil.

Clean Up Procedures/Neutralization: Soak up material with sawdust or vermiculite and dispose of in accordance with all applicable federal, state, and local regulations. Wash spill area thoroughly with soap and water. Avoid uncontrolled reactions with isocyanates.

7. HANDLING AND STORAGE

Handling: Use only in a well ventilated area. . Wear protective glasses or goggles, nitrile gloves, and clothing that protects from dermal exposure. Contents are under pressure. Do not puncture or incinerate.

Storage: Store in a dry place. Ideal storage temperature for disposable kits is 60°F to 80°F (15.5°C to 26.6°C). Store refillable tanks at 75°F to 85°F (24°C to 29°C). Storage at less than ideal temperatures can cause delays in production until the product is warmed/cooled to temperature. Do not expose the tanks/kits to open flame or temperatures above 120°F (49°C). Excessive heat can cause premature aging of components resulting in a shorter shelf life. Protect unused product from freezing. Storage below 55°F (12.7°C) may affect foam quality if chemicals are not warmed to room temperature before using. Protect containers from physical abuse. Always store containers upright. KEEP OUT OF REACH OF CHILDREN.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Read all product instructions before using.

Exposure Guidelines

1,1,1,2 - Tetrafluoroethane	<u>WEEL</u>	1,000 ppm	4,240 mg/m ³
Diethylene glycol	<u>WEEL</u>		10 mg/m ³

Personal Protective Equipment in Ventilated Underground Applications

Silent Seal NA has been found suitable according to MSHA Standard 30 CFR 75.333 (Ventilation Controls). Based on studies conducted by MSHA PSHTC, Silent Seal Foam (Suitability Number: S10/00 MSHA) does not create a harmful environment for workers when applied within 24 inches of the structure being sealed. It is not necessary for applicators to wear respiratory protection. Ventilation controls must be in place.

Note: In applications other than underground mining please contact Fomo Products Inc (1.800.321.5585) for guidance. A respirator with organic cartridges may be required.

Hand Protection: Use chemically resistant gloves. Nitrile/butadiene rubber, Butyl Rubber, polyethylene, PVC (vinyl), or neoprene gloves are also effective. Glove selection should take into account potential body reactions to certain materials and manufacturer's instructions for use.

Eye Protection: Use safety glasses or goggles. An eye wash station or portable eye wash bottle should be in the area.

Skin Protection: Avoid contact with skin. Use clothing that protects against dermal exposure.

General Hygiene: Do not eat, drink, or smoke while handling this product. Always use in a well ventilated area. Wash after handling. Do not breathe vapors. Avoid contact with skin and hands.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light yellow to amber colored liquid. Froths to an off white to yellowish color when released from the container. (Note: Appearance may differ with the introduction of a dye/colorant.)
Odor:	Slight fluorocarbon and amine odor
pH:	Not available
Melting/Freezing Point:	Not available
Boiling Point:	1,1,1,2 - Tetrafluoroethane (Non-Flammable Compressed Gas, HFC Fluorocarbon 134a) boils at -15°F (-26°C). Other components boil at temperatures greater than 200°F (93.3°C).
Flash Point:	1,1,1,2 - Tetrafluoroethane (HFC 134a); none. Other components- not determined.
Specific Gravity:	Approximately 1.2 (H ₂ O = 1) at 25°C
Solubility:	Water: Partly soluble, does not react.
Partition Coefficient N-octanol/water:	Not available
Auto-ignition Temperature:	Not available
Decomposition Temperature:	Not available
Odor Threshold:	Not available
Evaporation Rate:	Not available
Flammability:	Non flammable propellant
Flammability Limits:	Not available
Vapor Pressure:	Contents under pressure have vapor pressure greater than 50 psig/345 kPa.
Vapor Density:	Not available

10. STABILITY AND REACTIVITY

Stability: This product is considered stable under normal and anticipated storage and handling conditions. Do not store above 120°F (49°C). For longest shelf life, avoid storage above 90°F (32.2°C).

Materials to Avoid: Alcohols, strong bases or amines, metal compounds, ammonia, strong oxidizers.

Conditions to Avoid: High temperatures will raise the pressure in the containers, which may lead to rupturing. Product use is temperature sensitive. Avoid temperatures below 40°F (5°C) or temperatures above 95°F (35°C).

Thermal Decomposition: Toxic decomposition by-products, including Carbon monoxide, Carbon dioxide, Nitrogen oxides, Hydrogen fluoride and traces of Hydrogen cyanide can be released in instances of fire.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity for Tris (1-chloro-2-propyl) phosphate:

Ingestion: LD50: 2,800 mg/kg (rat, male/female)

Skin: LD50: >5,000 mg/kg, rat

Inhalation: LC50: >4.6 mg/l, rat

Acute Toxicity for Diethylene glycol:

Ingestion: LD50: 12,565 mg/kg, rat

Skin: LD50: >1,000 mg/kg, rabbit

Acute Toxicity for Tertiary amine:

Ingestion: LD50: 1630 mg/kg, rat

Skin: LD50: 280 mg/kg, rabbit

Inhalation: LC50: 290ppm, rat, 6h

Acute Toxicity for 1,1,1,2-Tetrafluoroethane:

Inhalation: LC50 >500,000 ppm, rat, 4h

Repeated Dose Toxicity:

Tris (1-chloro-2-propyl) phosphate which is reported to be a weak organophosphate-type cholinesterase inhibitor. Excessive exposure may produce organophosphate type cholinesterase inhibition. Symptoms may include salivation, sweating, headache, nausea, muscle twitching, incoordination, diarrhea, blurred vision, abdominal cramps, tears, tremors, and chest discomfort. Target organs: kidney, liver, and or sternal bone marrow.

Diethylene glycol (minor component) has been reported to cause effects on human organs: gastrointestinal tract and kidney.

1,1,1,2-Tetrafluoroethane: NOEL 40000ppm, rat

Tertiary Amine: 12ppm, rat, 2 week inhalation, observed corneal opacities. 48ppm, rat, 2week inhalation, cloudy corneas, skin and respiratory tract irritation.

Mixture contains components which have been reported to cause effects on the following animal organs: liver, central nervous system, and bladder.

Chronic Toxicity/ Carcinogenicity: Components did not cause cancer in laboratory animals.

Developmental Toxicity: Diethylene glycol has caused toxicity to the fetus and some birth defects at maternally toxic, high doses in animals.

Genetic Toxicity In vitro: In vitro studies were negative.

12. ECOLOGICAL INFORMATION

Ecological Data for Tris (1-chloro-2-propyl) phosphate:

Acute Toxicity to Fish: LC50: 84mg/l *Lepomis macrochirus* (bluegill), 96 hour exposure

Acute Toxicity to Aquatic Invertebrates: EC50 63 mg/l *Daphnia magna* (water flea), 48h

Toxicity to Microorganisms: EC50: 784 mg/l, activated sludge, 3h

Ecological Data for Diethylene glycol:

Material is practically non toxic on the acute basis.

Acute Toxicity to Fish: LC50: >1,000mg/l *Oncorhynchus mykiss* (rainbow trout), 96h

Acute Toxicity to Aquatic Invertebrates: EC50: >48,900 mg/l *Daphnia magna* (water flea), 48h

Ecological Data for Tertiary amine:

Acute Toxicity to Fish: LC50: 220mg/l *Leuciscus idus* (golden orfe), 96h

Ecological Data for 1,1,1,2-Tetrafluoroethane

Accumulation in aquatic organisms is unlikely.

13. DISPOSAL CONSIDERATIONS**Disposable Cylinders:****1. DO NOT INCINERATE TANKS**

2. After tanks are empty, the hose must be removed and the tanks must be vented. CAUTION: Tanks will still be under pressure. Turn valves to the off position before removing the hoses. Safety glasses or goggles, nitrile gloves, clothing that protects against dermal exposure, and a certified respirator must be worn during this procedure. With tank inverted, slowly open tank valve, point tank away from face and allow pressure to completely vent. CAUTION: Empty tank could contain potential vapor toxicity hazard. Dispose Cylinders in a well ventilated area with certified respiratory protection.

3. DISPOSE OF EMPTY CYLINDERS ACCORDING TO APPLICABLE FEDERAL, STATE, PROVINCIAL AND LOCAL REGULATIONS. CHECK WITH YOUR LOCAL WASTE DISPOSAL SERVICE FOR GUIDANCE.

Refillable Tanks:

THESE TANKS ARE RETURNABLE.

The tanks are shipped back to Fomo Products, Inc to be cleaned, refilled, and redistributed. Return instructions are included in the collar of the refill tanks.

14. TRANSPORTATION**Shipping Information**

	Containers Less Than 1000 cu. cm. (1 liter)	Containers Greater Than 1000 cu. cm. (1 liter)
<i>Ground DOT</i>	Consumer Commodity ORM-D (On Shipper Carton) Consumer Commodity Two-Component B-Component (On Shipping Document)	UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-Flammable Gas Label)
<i>Air IATA</i>	UN1950 Aerosols, Non-Flammable 2.2 (Non-flammable Gas Label) LIMITED QUANTITY Packing Instruction (Cargo & Passenger) 203	UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-flammable Gas Label) Packing Instruction (Cargo & Passenger) 200
<i>Water IMDG</i>	UN1950 Aerosols, Non-Flammable 2.2 LIMITED QUANTITY	UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-flammable Gas Label)
Note	Emergency Response Guide Numbers - Consumer Commodity # 171. For Aerosols and Compressed Gas # 126.	

15. REGULATORY

OSHA Hazcom Standard Rating:

Hazardous

WHMIS Classification:A
D2BToxic Substances Control Act (TSCA)/Domestic Substances List (DSL):

All ingredients are listed on the TSCA inventory, as well as the Canadian Domestic Substances List.

SARA Title III: Section 311/312:

Acute Health Hazard, Chronic Health Hazard, Sudden Release of Pressure Hazard

SARA Title III: Section 313: Does not contain chemicals which require reporting requirements of SARA Title III. Applicability must be determined by end user.State Right-To Know Information: Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

<u>Chemical Name (common names)</u>	<u>CAS Number</u>	<u>Percentage</u>
Diethylene glycol	111-46-6	1% to 5 %

California Proposition 65:

Based on information currently available, this product is not known to contain detectable amounts of any chemicals currently listed under California Proposition 65.

16. OTHER

NFPA: Health Hazard 2; Flammability 1; Reactivity 1
HMIS III: Health Hazard 2; Flammability 1; Physical Hazard 1

The information and recommendations set forth herein are presented in good faith and believed to be correct as of the date hereof. The manufacturer makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving it will make their own determination as to its suitability for their purposes prior to use. In no event will the manufacturer be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. No representations or warranties, either expressed or implied, of merchantability or fitness for a particular use are made hereunder with respect to this information or the product to which information refers.

Information contained herein is deemed to be reliable, conservative and accurate. Fomo Products, Inc. reserves the right to change the design, specifications or any other features at any time and without notice, while otherwise maintaining regulatory compliance.

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