

ONE-COMPONENT POLYURETHANE FOAM ADHESIVE (HFO-1234ze)

(EPS Adhesive & Cylinder Adhesive)

MSDS # A16317

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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. IDENTIFICATION

Chemical Product

One-Component Polyurethane Foam Sealant/Adhesive

Manufacturer

FOMO PRODUCTS, INC.

P. O. Box 1078

Norton, Ohio 44203

Emergency Overview

Product Information: 1-800-321-5585. In Ohio and outside the United States call (330) 753-4585

Transportation Emergency: CHEMTREC 1-800-424-9300. One-Component Polyurethane Foam Adhesive (HFO-1234Ze) is registered by the manufacturer, FOMO PRODUCTS, INC.

International Transportation Emergency: CHEMTREC (703) 527-3887

Product is a liquid urethane prepolymer mixture that is packaged under pressure (Non-Flammable Compressed Gas).

Containers should not be heated above 120°F (49°C) to avoid excessive pressure build-up.

2. COMPOSITION

<u>Chemical Name (common names)</u>	<u>CAS Number</u>	<u>Percentage</u>	<u>LD₅₀</u>	<u>LC₅₀</u>
trans-1,1,1,3- Tetrafluoropropene (Non-Flammable Compressed Gas, HFC, Fluorocarbon) HFO-1234ze	1645-83-6	10 to 30 percent	NA	NA
4,4' - Diphenylmethane Diisocyanate (MDI)	101-68-8	5 to 10 percent	NA	NA
Higher Oligomers of MDI (Polymeric MDI)	9016-87-9	5 to 10 percent	NA	NA
Urethane Pre-polymer Blend (Non-Hazardous Proprietary Blend)	Not Available This Section	60 to 100 percent	NA	NA

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

3. HAZARDS IDENTIFICATION

Physical Hazards

Since the containers are pressurized, storage temperature should not exceed 120°F (49°C) in order to avoid excessive pressure build-up and possible container rupture. Also, the product has strong adhesive-like characteristics and will adhere aggressively to skin and other surfaces. If accidental contact occurs, follow the appropriate first-aid procedure described in Section 4 of this MSDS.

Potential Health Effects

The primary adverse health effects of this product are related to the Polymeric Isocyanate (MDI) component, and, to a lesser degree, the Fluorocarbon (HFO-1234ze) component. Therefore, adequate ventilation should be provided to avoid exceeding the exposure limits of these components (See Section 8). The likelihood of exceeding these limits are low due to the low concentration of vapor produced during normal use. However, if used indoors, mechanical ventilation or exhaust should be provided during use and until product is cured.

Entry Route: Effects of Overexposure

- Inhalation:** May irritate mucous membranes with tightness in chest, coughing, or allergic asthma-like sensitivity. Extensive overexposure can lead to respiratory symptoms like bronchitis and pulmonary edema. These effects are usually reversible. Overexposure to trans-1,1,1,3 - Tetrafluoropropene may cause lightheadedness, headaches, or lethargy. Persons with cardiac arrhythmia may be at increased risk in severe exposure.
- Eyes:** May be irritating to eyes. Foam contact can cause physical damage due to adhesive character.
- Skin:** May cause localized irritation, reddening or swelling. Prolonged or repeated exposure may lead to sensitization and/or contact dermatitis.
- Ingestion:** May cause irritation of mucous membranes in the mouth and digestive tract.

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 excess foam from skin and remove contaminated clothing. Use of a solvent, such as acetone (nail polish remover) or mineral spirits, may help in removing uncured foam residue from clothing or other surfaces (avoid eye contact). Cured foam may be physically removed by persistent washing with soap and water. If irritation develops, use mild skin cream. If irritation persists, obtain medical attention.
- Ingestion:** Drink 1 to 3 glasses of water and seek immediate medical attention. Never give anything orally to an unconscious person.

5. FIRE FIGHTING MEASURES

High temperatures will raise the pressure in the containers, which may lead to rupturing. Extinguishing media include: dry chemical, carbon dioxide, Halon 1211, chemical foam, or water spray if used in large quantities (water contamination will produce carbon dioxide). Wear self-contained breathing apparatus to protect against toxic decomposition by-products, including CO, CO₂, NO, and traces of HCN. 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

Read all product instructions before using. Personal protective equipment should include (impervious gloves, protective eye wear and suitable work clothes). Uncured product is very sticky, so carefully remove the bulk of the foam by scraping it up and then immediately remove residue with a rag and solvent such as polyurethane cleaner, mineral spirits, acetone (nail polish remover), paint thinner, etc. Once the product has cured, it can only be removed physically by scraping, buffing, etc. Dispose as plastic waste (foam plastic) in accordance with all applicable guidelines and regulations.

Before disposing of containers, relieve container of any remaining foam and pressure. Allow product to fully cure before disposing. Never discard in a liquid state.

7. HANDLING AND STORAGE

Store in a cool, dry place. Ideal storage temperature is 60°F to 80°F (15.5°C to 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 chemicals are not warmed before using. Protect containers from physical abuse. Protect unused product from freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Read all product instructions before using. Personal protective equipment should include impervious gloves, protective eye wear and suitable work clothes. Adequate ventilation should also be employed so that vapor levels do not exceed recommended guidelines. If vapor levels are expected to exceed these guidelines, use NIOSH approved, positive pressure, supplied air respirator or a negative pressure half mask with organic vapor cartridges and dust/mist pre-filters. Exercise good personal hygiene, wash thoroughly after each use.

<u>Exposure Guidelines</u>	<u>OSHA</u>	<u>ACGIH</u>
4,4' – Diphenylmethane Diisocyanate (MDI)	0.020 ppm ceiling 0.200 mg/m ³ ceiling	0.005 ppm TWA 0.051 mg/m ³ TWA
Higher Oligomers of MDI	None Established	None Established
trans-1,1,1,3 - Tetrafluoropropene (Non-Flammable Compressed Gas, HFC Fluorocarbon HFO-1234 Ze)	None Established	None Established

(None of the components in this product are listed by IARC, NTP, OSHA or ACGIH as a carcinogen).

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance	:	Viscous liquid which foams upon release from container as an off-white to yellowish froth (Note: Appearance may differ with the introduction of a dye or colorant).
Odor	:	Slight fluorocarbon odor during curing stage
Specific Gravity	:	Approximately 1.2 (H ₂ O = 1)
Boiling Point	:	trans-1,1,1,3 - Tetrafluoropropene (Non-Flammable Compressed Gas, HFC Fluorocarbon HFO- 1234Ze boils at -2.2°F (-19°C). Other components boil at temperatures greater than 200°F (93.3°C).
Flash Point	:	Product flash point has been tested at approximately 800°F (426.6°C).
Vapor Pressure	:	Contents under pressure have vapor pressure greater than 50 psig / 345 kPa. After release from container, vapor pressure is very low (not determined).
Solubility in Water	:	Insoluble, reacts slowly with water during cure; liberating traces of CO ₂ .
Explosion Data	:	Contents are not known to be sensitive to mechanical impact or static discharge.

10. STABILITY AND REACTIVITY

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). Avoid alcohols, strong bases or amines and metal compounds (such as small particle metal catalysts).

11. TRANSPORTATION

Shipping Information

<i>Ground</i>	Containers Greater Than 1000 cu. cm. (1 liter) UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-Flammable Gas Label)
<i>Air</i>	UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2 (Non-flammable Gas Label)
<i>Water</i>	UN1956 Compressed Gas n.o.s. (Fluorocarbon) 2.2
<i>Exceptions</i>	N/A
<i>Note</i>	Emergency Response Guide Numbers - For Compressed Gas # 126.

12. REGULATORY

Toxic Substances Control Act (TSCA)/Domestic Substances List (DSL):

All ingredients are not currently listed on the TSCA inventory, nor on the Canadian Domestic Substances List.

SARA Title III:

Contains Diphenylmethane Diisocyanate (CAS #101-68-8) subject to the reporting requirements of SARA Title III. Applicability must be determined by the end user.

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.

V.O.C. Content:

Based on the current EPA definition of volatile organic compound, this product does not have any V.O.C. content.

13. OTHER

NFPA: Fire 1; Health 2; Reactivity 1
HMIS: Flammability 1; Health 2; Reactivity 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.

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APPROVED BY : T. EBERLING
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