

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product Name: Foam-in-a-Can
Synonyms: Foam Sealant/Adhesvie

Company Identification

ER Systems
6900 Bleck Drive
Rockford, MN 55373
1-800-403-7747 (For product information)
1-800-535-5053 Infotrac (For emergencies)

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT LISTING:

<u>Chemical Name</u>	<u>Amount</u>	<u>CAS Number</u>
Confidential Ingredient A	37.0 - 47.0 %	Trade Secret
POLYMETHYLENE POLYPHENYL ISOCYANATE	10.0 - 25.0 %	9016-87-9
4,4'-DIPHENYLMETHANE ISOCYANATE	6.0 - 12.0 %	101-68-8
1,1,1,2-TETRAFLUOROETHANE	25.0 - 35.0 %	811-97-2

(See Section 8 for exposure guidelines)

(See Section 15 for regulatory information)

HAZARDS DISCLOSURE

This product contains hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200.

As defined under Sara 311 and 312, this product contains materials that are acute, chronic, pressure hazards.



3. HAZARDS IDENTIFICATION

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***** EMERGENCY OVERVIEW *****
*
*                               CAUTION                               *
*
* Caution: Contents under Pressure. Do not store in                *
* temperatures in excess of 110 F (43 C). May cause                  *
* sensitization, allergic reaction, or frostbite.                   *
* Vapours reduce oxygen available for breathing and                  *
* are heavier than air. Routes of entry: Eye , skin                  *
* contact, inhalation, ingestion.                                     *
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HMIS Rating - Health: 2*
Flammability: 1
Reactivity: 1

NFPA Rating - Health: 2
Flammability: 2
Reactivity: 1

POTENTIAL HEALTH EFFECTS

EYE:
Moderately irritating to the eyes.

SKIN:
Prolonged exposure may cause skin irritation. May cause allergic skin reaction in susceptible individuals. Animal studies have shown that skin contact with diisocyanates may play a role in respiratory sensitization. May cause stain to skin. Single prolonged exposure is not likely to result in the material being absorbed in harmful amounts.



(section 3 continued)

INHALATION:

Gross overexposure to fluorocarbons may effect the central nervous system with dizziness, confusion, incoordination, drowsiness or unconsciousness. Irregular heart beat with a strange sensation in the chest, heart thumping, apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Suffocation, if air is displaced by vapour. At room temperature, vapours are minimal due to low vapor pressure. Certain operations may generate vapor or aerosol concentration sufficient to cause irritation or other adverse effects. Excessive exposure may cause irritation to upper respiratory tract and lungs, and pulmonary edema (fluid in the lungs). May cause respiratory sensitization in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Effects may be delayed. Decreased lung function has been associated with overexposure to isocyanates.

INGESTION:

Single dose oral toxicity is considered to be low. Small amounts swallowed incidental during normal handling operations are not likely to cause injury; swallowing amounts larger than that may cause injury.

CHRONIC EFFECTS:

Tissue injury in the upper respiratory tract and lungs has been seen in laboratory animals after repeated excessive exposure to MDI/polymeric MDI aerosols. Excessive exposure to fluorocarbons may effect the central nervous system and produce anesthetic and narcotic like symptoms.

REPRODUCTIVE HAZARDS:

In laboratory animals, MDI/polymeric MDI did not cause birth defects, other fetal effects occurred only at high doses which were toxic to the mother.

CARCINOGENICITY INFORMATION:

Tumors of the lung have been observed in laboratory animals exposed to aerosol droplets of MDI/ polymeric MDI (6mg/m³) for their lifetime. Tumors occurred concurrently with respiratory irritation and lung injury. Current exposure guidelines are expected to protect against these effects reported for MDI.



4. FIRST AID MEASURES

EYE CONTACT FIRST AID:

After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Consult medical personnel.

SKIN CONTACT FIRST AID:

Wash affected area immediately with large amounts of soap and water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. An MDI skin decontamination study demonstrated that a polyglycol-based skin cleanser of corn oil may be more effective than soap and water.

INHALATION FIRST AID:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, administer oxygen by trained personnel. Call a physician or transport to a medical facility.

INGESTION FIRST AID:

If swallowed, get medical attention immediately. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN:

No specific antidote. Provide supportive care. Treatment based on judgment of the physician in response to reaction of the patient. May cause respiratory sensitization or asthma-like symptoms. Bronchodilators, expectorants, and antitussives may be of help. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed for 24-48 hours for signs of respiratory distress.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

TCC Flash Point: > 204.4 C (> 399.9 F)
Autoignition Temperature: > 600 C (> 1112.0 F)

FLAMMABLE LIMITS IN AIR

LEL: N/A
UEL: N/A



(section 5 continued)

EXTINGUISHING MEDIA:

Use carbon dioxide, dry chemical, foam, waterfog of fine spray, alcohol resistant foams (ATC type) are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but much less effective. Do not use direct water streams which can spread fire.

FIRE & EXPLOSION HAZARDS:

Product reacts with water. Reaction may produce heat and or gases. Reaction may be violent. Container may rupture form pressure generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

FIRE FIGHTING INSTRUCTIONS:

Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water is not recommended but may be applied in very large quantities as a fine spray when other extinguishing agents are not available. Contain fire water run-off if possible. Do not use direct water stream. May spread fire. Fight fire from protected location or a safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire exposed containers and fire affected zone until fire is out. Immediately withdraw all personal from area in case of rising sound from venting safety devices or discoloration of the containers. Move containers from fire area if this is possible without hazard.

COMBUSTION PRODUCTS:

Smoke may contain the original materials in addition to unidentified toxic and or irritating compounds. Hazardous combustion products may include but are not limited to: nitrogen oxides, isocyanate, hydrogen cyanide, carbon monoxide, and carbon dioxide. Additionally, combustion products may contain ammonia, hydrochloric acid, hydrofluoric acid, chlorine, fluorine, phosgene and phosphorous oxides.

MISCELLANEOUS:

Protective Equipment: Wear SCBA and protective fire fighting clothing (fire fighting helmet, coat, pants, boots, and gloves).

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL):

Provide adequate ventilation. Wear suitable personal protective clothing and equipment.



(section 6 continued)

INITIAL CONTAINMENT:

Provide adequate ventilation. Contain spilled material. Scrape up the bulk of the spill and put into suitable waste receptacle. Avoid spreading the spill to other surfaces. Absorb with material such as vermiculite, sawdust, Milsorb. Cleanup floor area, and place sweepings into waste receptacle. Dispose of waste material in accordance with local, state, and federal requirements.

LARGE SPILLS PROCEDURE:

Isolate area. Provide adequate ventilation. Wear suitable protective clothing and equipment. Contain spill, absorb spill with inert material (e g, dry sand or earth), then place in a chemical waste container. Dispose of waste material in accordance with all local, state, and federal requirements.

SMALL SPILLS PROCEDURE:

Provide adequate ventilation. Wear suitable protective clothing and equipment. Absorb spills with inert material. Dispose of waste material in accordance with all local, state, and federal requirements.

7. HANDLING AND STORAGE

RECOMMENDED STORAGE TEMPERATURE

Minimum: 4.4 C (39.9 F)
Maximum: 32.2 C (90.0 F)

HANDLING (PERSONNEL):

Avoid contact of this product with water at all times during handling and storage. Use with adequate ventilation. Avoid contact with skin and eyes. Keep equipment clean; use disposable equipment when possible. Do not eat, drink or smoke in working area. Contents under pressure.

STORAGE PRECAUTIONS:

Store in a cool dry place. Recommended storage temperature is between 40-90F (4.4-32C). Keep containers closed when not in use. Protect containers from physical damage. Avoid direct sunlight, or heat. Do not pierce container. Do not incinerate can.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Use only in well-ventilated areas. In areas of poor ventilation, or where potential exists to exceed the TLV, either increase ventilation or wear self-contained breathing apparatus.

EYE / FACE PROTECTION REQUIREMENTS:

Chemical goggles are recommended to avoid contact with eyes.

SKIN PROTECTION REQUIREMENTS:

Wear protective gloves to minimize skin contamination. Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation. Wash hands thoroughly after handling.

RESPIRATORY PROTECTION REQUIREMENTS:

Atmospheric levels should be maintained below the exposure guideline.

EXPOSURE GUIDELINES:

No Information Available.

MISCELLANEOUS:

Exposure Guidelines: Methylene bisphenyl isocyanate (MDI) ACGIH TLV is 0.005 ppm TWA and OSHA PEL is 0.02 ppm ceiling. 1,1,1 Tetrafluoroethane ACGIH TLV is 1000 ppm TWA 8 & 12 hrs.

9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid
COLOR: Brown
ODOR: Slight Musty
BOILING POINT: 410 F @ 5 mm Hg
VAPOR PRESSURE: <1 x 10⁽⁻⁵⁾ mm Hg
VAPOR DENSITY: 8.5 (Air = 1)
SOLUBILITY IN WATER ...: Insoluble, reacts with water and generates CO₂
SPECIFIC GRAVITY: 1.23 (Water = 1)

10. STABILITY AND REACTIVITY

STABILITY:

Stable under recommended conditions.



(section 10 continued)

POLYMERIZATION:

Can occur. Polymerization can be catalyzed by strong bases and water. Can react with itself at temperatures above 320F.

INCOMPATIBILITY WITH OTHER MATERIALS:

Avoid contact with acids, water, alcohols, amines, ammonia, bases, moist air, and strong oxidizers. Avoid contact with metals such as aluminum, brass, copper, galvanized metals, tin, and zinc. Reaction with water will generate carbon dioxide and heat. Generation of gas can cause pressure buildup in closed system. Diisocyanates react with many materials and the rate of reaction increases with temperature as well as increased contact.

DECOMPOSITION:

Hazardous decomposition products depend upon temperature, air supply and the presence of other material. Gases are released during decomposition. Hydrogen cyanide, carbon dioxide (CO₂), carbon monoxide (CO), oxides of nitrogen (NO_x), dense black smoke, isocyanate, isocyanic acid, other undetermined compounds. Are all present during thermal decomposition.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:

Irritates eyes. Contact with eyes may cause cornea damage.

SKIN EFFECTS:

MDI; The LD 50 for skin absorption in rabbits is > 2000 mg/kg.

ACUTE ORAL EFFECTS:

MDI: the oral LD 50 for rats is > 2,000 mg/kg.

ACUTE INHALATION EFFECTS:

1,1,1,2-tetrafluoroethane may cause depression of central nervous system, or asphyxiation. MDI LC50: 490 mg/m³, vapor, 4 hours (rat).

REPRODUCTION AND BIRTH EFFECTS:

MDI: Mutagenicity data on MDI are inconclusive. MDI was weakly positive in some in-vitro studies; others in-vitro studies were negative. A mutagenicity study in animals was negative.



12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:

Based on information for MDI and polymeric MDI. The measured ecotoxicity is that of the hydrolzed product, generally under condition maximizing production of soluble species. Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50 >100mg/L in most sensitive species). The LC50 in earthworm *Eisenia foetida* is > 1000mg/kg.

ENVIRONMENTAL FATE:

Based on the information for MDI and polymeric MDI. The measured ecotoxicity is that of the hydrolzed product, generally under conditions maximizing productions of soluble species. Material is practically non-toxic to aquatic organisms. Information based on MDI and poymeric MDI. In terrestrial and aquatic environment, material reacts with water to form predominantly insoluble polyureas which appear to be stable.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements.

CONTAINER DISPOSAL:

Before disposal of containers, relieve any remaining foam and pressure.

14. TRANSPORTATION INFORMATION

PRODUCT LABEL: Foam-in-a-Can
D.O.T. SHIPPING NAME ...: Expanding Foam/Adhesive
D.O.T. HAZARD CLASS: 2.2
UN NUMBER: UN 1956
D.O.T. LABEL: Nonflammable Gas (1,1,1,2-tetrafluoroethane, nitrogen)



15. REGULATORY INFORMATION

REGULATORY DISCLOSURES:

The information herein is presented in good faith and believed to accurate as of the effective date shown. however, no warranty, expressed or implied is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its actiities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with the numerous federal, state or provincial, and local laws and regulations. See other sections for health and safety information.

Canadian Disclosure List

4,4'-DIPHENYLMETHANE ISOCYANATE (101-68-8)

Title V

4,4'-DIPHENYLMETHANE ISOCYANATE (101-68-8)

SC Toxic Air Pollutants List

4,4'-DIPHENYLMETHANE ISOCYANATE (101-68-8)

MISCELLANEOUS INFORMATION:

This material or all of its components are listed on the Inventory of Existing Chemical Substances under the Toxic Substance Control Act (TSCA).

16. OTHER INFORMATION

PREPARED BY: Chemist
APPROVED BY: Laura Vollenweider
TITLE: Chemist
APPROVAL DATE: August 13, 2008
SUPERCEDES DATE ...: New
RTN NUMBER: 00000150 (Official Copy)

ADDITIONAL INFORMATION:

The data in this Material Safety Data Sheet relates only to the specific material designated herein.



To the best of our knowledge, the information contained in this MSDS is accurate. It is intended to assist the user in his evaluation of the product's hazards, and safety precautions to be taken in its use. The data in this MSDS relate only to the specific material designated herein. We do not assume liability for the use of, or reliance on this information, nor do we guarantee its accuracy or completeness.

END OF MSDS

