

# Firestone Building Products Company

## Material Safety Data Sheet

July 15, 2008

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### SECTION 1: PRODUCT IDENTIFICATION

|                          |  |
|--------------------------|--|
| Product Name:            | I.S.O. FIX™ II   |
| Chemical Name / Synonym: | One component polyurethane adhesive                      |
| Chemical Family:         | Mixture  |
| 24-Hour Emergency Phone: | (800) 424-9300 CHEMTREC                                  |
| Manufacturer's Name:     | Firestone Building Products Company                      |
| Manufacturer's Address:  | 250 West 96 <sup>th</sup> Street, Indianapolis, IN 46260 |
| NFPA Hazard Rating:      | Health 2, Flammability 1, Reactivity 1                   |
| HMS Hazard Rating:       | Health 2, Flammability 1, Reactivity 1                   |

### SECTION 2: CHEMICAL COMPOSITION

| Chemical Name:                                      | Common Name:                | CAS #:     | % (by wt) | Exposure Limits: |
|---|-----------------------------|------------|-----------|------------------|
| Prepolymer of MDI and Polyether Polyol Blend        | None                        | 53862-89-8 | 30-60     | None Established |
| Isocyanic acid, polymethylene polyphenylene ester** | Polymeric MDI               | 9016-87-9  | 10-30     | None Established |
| Chlorodifluoromethane                               | Freon 22                    | 75-45-6    | 10-30     | TLV 1000 ppm     |
| Morpholine, 4,4'-(oxydi-2,1-ethanediyl)bis-         | Bis(morpholino ethyl) ether | 6425-39-4  | 1-5       | None Established |

\*\*This constituent contains 40-50% 4-4'-methylene bisphenyl isocyanates (cas # 101-68-8). The ACGIH TLV is 0.005 ppm-8 hour TWA and the OSHA PEL is 0.02 ppm-ceiling.

### SECTION 3: HAZARD IDENTIFICATION

|  |   |
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| Primary Route of Exposure:                 | Inhalation, skin or eye contact.  |
| Signs and Symptoms of Exposure:            | This material may irritate the eyes and skin following contact. Material may stain the skin. Vapors and aerosols can irritate eyes, nose and respiratory passages. The onset of respiratory symptoms may be delayed for several hours after exposure. May cause respiratory sensitization in susceptible individuals. MDI concentrations below the exposure guidelines may cause allergic respiratory reactions in individuals already sensitized. Severe overexposure via inhalation may lead to pulmonary edema. Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion. |
| Medical Conditions Aggravated by Exposure: | Individuals who are sensitized to Isocyanates may experience allergic respiratory reactions, including coughing, difficult breathing and a feeling of tightness in the chest. Effects may be delayed. Exposure may aggravate conditions within those with pre-existing lung diseases or conditions, including non-specific bronchial hyperactivity or asthma. Medical supervision for all employees who handle or come in contact with respiratory sensitizers is recommended. Persons with recurrent skin eczema or skin allergies should be evaluated for their suitability.                              |

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| Chronic Effects:           | for working with this product. Chlorodifluoromethane, a component of this mixture, was cited as causing an elevated risk of heart palpitations in people exposed to concentrations at 300 ppm and higher.<br>Skin sensitization and/or irritation may develop after repeated and/or prolonged contact with skin. MDI can induce respiratory sensitization with asthma-like symptoms, including chronic cough, tightness of chest with difficulty in breathing. These symptoms may be immediate or delayed up to several hours after exposure. Animal studies suggest that the greater the amount of MDI skin exposure, the greater the risk of developing respiratory sensitization. There are reports that chronic exposures may result in permanent decreases in lung function. |
| Carcinogenicity:           | The ingredients of this product are not classified as carcinogenic by ACGIH or IARC, not regulated as carcinogens by OSHA, and not listed as carcinogens by NTP. Results from a lifetime inhalation study of rats indicate that respirable polymeric MDI aerosol showed a significant incidence of benign tumor of the lung (adenoma) and malignant tumor (adenocarcinoma) at 6 mg/m <sup>3</sup> , the highest dose tested. This is well above the recommended TLV. Only irritation was noted at the lower concentrations of 0.2 and 1 mg/m <sup>3</sup> .   |
| Toxicological Information: | The LD <sub>50</sub> for skin absorption of MDI in rabbits is >2000 mg/kg. The oral LD <sub>50</sub> for MDI in rats is >10,000 mg/kg.  |

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### SECTION 4: FIRST AID MEASURES

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| First Aid Procedures: | Eyes: Flush immediately with gentle stream of water for at least 15 minutes, preferably at eye wash fountain.<br>Skin contact: Clean with soap and water. An MDI skin decontamination study demonstrated that cleaning very soon after exposure is important, and that a polyglycol-based skin cleanser or corn oil may be more effective than soap and water. Remove contaminated clothing and wash prior to reuse.<br>Inhalation: Remove to fresh uncontaminated air. Keep person warm and give oxygen if breathing is labored and artificial respiration if breathing has stopped. Get medical attention immediately. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress.<br>Ingestion: Seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. |
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### SECTION 5: FIRE FIGHTING PROCEDURES

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| Suitable Extinguishing Media:  | Carbon dioxide, dry chemical, foam, water fog or fine spray. Alcohol resistant foams (ATC type) are preferred if available. Direct water stream is discouraged as it may spread fire. If water is used, use in very large quantities. The reaction between water and hot isocyanate may be vigorous. Contain run-off water with temporary barriers. |
| Hazardous Combustion Products: | Carbon monoxide, carbon dioxide, nitrogen oxides, ammonia, fumes of fluoride and chlorine, phosgene, phosphorous oxides, isocyanates, and trace amounts of hydrogen cyanide.  |

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Recommended Fire Fighting Procedures:

Keep people away. Use water spray to cool fire-exposed containers until surrounding fire is out, or remove containers from fire area if this can be safely done. Wear self-contained breathing apparatus with full-face piece and protective fire-fighting clothing. If chemical contact is likely, wear full chemical resistant clothing. Immediately withdraw all personnel from area in case of rising sound from venting safety devices, discoloration of the containers, or other signs of eminent container eruption.

Unusual Fire and Explosion Hazards:

Contents under pressure. Containers may burst under intense heat. Product will react with water to produce heat and/or gases. Do not reseal contaminated containers as pressure buildup may rupture them. Reaction may be violent. Container may rupture from gas generation in a fire situation.

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### SECTION 6: PRECAUTIONS FOR SAFE HANDLING AND USE

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Steps to Be Taken in Case Material is Released or Spilled:

Evacuate the area. Clean-up should only be performed by trained personnel. People dealing with major spills should wear full protective clothing including a full face supplied air respirator. Prevent further leakage, spillage or entry into drains.

Absorb with material such as vermiculite, dirt, sand or clay. Collect material in suitable open container. Do not seal container until the material has been neutralized as it may react and build up pressure.

Wash the spillage area clean with liquid decontaminate. Test atmosphere for MDI. Remove and properly dispose of residues.

Precautions to Be Taken in Handling and Storing:

Avoid contact of this product with water at all times during storage and handling. Store in dry place between 32° F and 90° F. Keep containers tightly closed when not in use. Protect containers from physical abuse. Avoid direct sunlight.

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### SECTION 7: EXPOSURE CONTROLS / PERSONAL PROTECTION

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Ventilation:

Use in well-ventilated area. If needed, use local exhaust to keep airborne concentrations below applicable exposure limits.

Respiratory Protection:

If airborne concentrations exceed the established exposure limits based on employer determined exposure monitoring or if chemical concentrations are unknown, use a NIOSH approved respirator.

Eye Protection:

Use chemical tight goggles; full-face shield in addition if splashing is possible.

Skin Protection:

Neoprene, nitrile or butyl rubber gloves are recommended for general chemical handling conditions. If needed (as determined by employer), use additional skin protection, such as apron, arm covers, or full body suit, to minimize skin contact.

Other:

None, other than employer-determined requirements based upon usage and needs.

Work / Hygienic Practices:

Eyewash and safety shower in work area.

Wash exposed skin prior to eating, drinking or smoking and at the end of each shift. Wash contaminated clothing prior to reuse.

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SECTION 8: PHYSICAL AND CHEMICAL PROPERTIES

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|                      |   |                        |                  |
|----------------------|---|------------------------|------------------|
| Appearance and Odor: | Brown liquid with a slightly musty odor.            |                        |                  |
| Flash Point:         | >400° F   | Lower Explosive Limit: | Not Applicable   |
| Method Used:         | Closed Cup  | Upper Explosive Limit: | Not Applicable   |
| Evaporation Rate:    | Unknown   | Boiling Point:         | 410° F @ 5 mm Hg |
| pH:                  | Not Applicable                                      | Melting Point:         | Not Applicable   |
| Solubility in Water: | Insoluble; Reacts with evolution of CO <sub>2</sub> | Specific Gravity:      | 1.24 @ 68° F     |
| Vapor Density:       | 8.5 (air=1)   | Percent Volatile:      | Unknown          |
| Vapor Pressure:      | <0.0001 mm Hg @77 F°                                |                        |                  |

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SECTION 9: STABILITY AND REACTIVITY

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|---------------------------|---|
| Thermal Stability:        | Stable under recommended storage conditions.  |
| Hazardous Polymerization: | May occur. Polymerization can be catalyzed by strong bases and water. Can react with itself at temperatures above 320°F.  |
| Conditions to Avoid:      | Avoid temperatures above 105° F and below 75° F. Avoid contact with moisture, alcohol, ammonia, amines, strong oxidizers, alkalies, acids, moist organic absorbents, and metal compounds. Avoid unintended contact with polyols, as this may generate heat. The reactions that can occur upon contact with the above listed materials to avoid are slower at lower temperatures, but accelerated at higher temperatures. Some reactions can be violent.<br><br>Possible evolution of carbon dioxide gas may rupture closed systems or containers. |

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SECTION 10: TRANSPORTATION

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|------------------------|---|
| Regulatory Agency:     | DOT, IMO/IMDG, IATA   |
| Proper Shipping Name:  | Compressed Gases, N.O.S. (Nitrogen, Chlorodifluoromethane)                                      |
| Hazard Classification: | 2.2   |
| Identification Number: | UN1956  |
| Labels Required:       | Non-Flammable Gas   |
| Other Requirements:    | 49 CFR 172.10 Compressed Gas, N.O.S., UN1956, IMDG Class 2.2 Pg. 93 Vol. 2, Flash Point >100° C |

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SECTION 11: MISCELLANEOUS INFORMATION

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|--|------------------------------|
| Additional Comments:                         | None                         |
| Date of Previous MSDS:                       | February 19, 2007            |
| Changes Since Previous MSDS:                 | Address change in section 1. |
| Telephone Number for Additional Information: | (317) 575-7190               |

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### DISCLAIMER

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