Section 1. Chemical Name and Manufacturer

Product Name: Spray Foam Insulation Part A
Application: Two Component Spray Foam Insulation
Chemical Description: Isocyanate Blend
Mixture/Substance: Mixture
CAS #: Not Available (Mixture)
Composition: 100%

Quadrant Chemical Corporation
200 Industrial Blvd. McKinney, Texas 75069
Phone: 972-542-0072  Fax: 972-562-1771
Emergency Contact: Infotrac 800-535-5053

Section 2. Hazard(s) Identification

This product is classified as an irritant and sensitization hazard.
Wear Personal Protective Equipment recommended to minimize exposure. See SECTION 8.
Use this product only in the manner or application that it was intended for.

HMIS RATING:

<table>
<thead>
<tr>
<th>Health</th>
<th>Fire</th>
<th>Reactivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Warning

Section 3. Composition / Information on Ingredients

The specific chemical identity of this material is considered to be Confidential Business Information.

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS #</th>
<th>Amount %</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’Diphenylmethane diisocyanate (MDI)</td>
<td>101-68-8</td>
<td>35 - 45</td>
</tr>
<tr>
<td>Diphenylmethane diisocyanate (2.2.2.4)</td>
<td>26447-40-5</td>
<td>1 - 5</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate</td>
<td>9016-87-9</td>
<td>40 - 55</td>
</tr>
</tbody>
</table>

Section 4. First Aid Measures

Inhalation: Move subject to fresh air. Give artificial respiration if breathing has stopped. With any difficulty IMMEDIATELY see a physician. Asthmatic symptoms may develop and may be immediate or delayed up to several hours. Extreme Asthmatic reactions may be life threatening.

Ingestion: If swallowed, give 2 glasses of water to drink. IMMEDIATELY see a physician. Never give anything by mouth to an unconscious person. Careful gastric lavage may be indicated. Do induce vomiting.

Skin: Immediately wash affected skin areas thoroughly with soap and water. Remove contaminated clothing and shoes. See a physician if irritation develops or persists. Wash Contaminated clothing and shoes before reuse.

Eye: IMMEDIATELY flush eyes with a large amount of water for at least 15 minutes. Lift upper and lower lids and rinse well under them. Get medical attention, preferably from an ophthalmologist.

NOTE TO PHYSICIAN: EYES: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision.

SKIN: This compound is a known skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burns. If burned, treat as thermal burn.

INGESTION: There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of this compound.

RESPIRATORY: This compound is a known pulmonary sensitizer. Treatment is essentially symptomatic. An individual having a skin or pulmonary sensitization reaction to this material should be removed from exposure to any isocyanate.
Section 5. Fire Fighting Measures and Properties

Unusual Hazards:
Down-wind personnel must be evacuated
Do not reseal contaminated containers as pressure build-up may rupture them. People who are fighting isocyanate fires must be protected against nitrogen oxide fumes and isocyanate vapors by wearing positive pressure self-contained breathing apparatus and protective clothing.

Extinguishing Media:
Use the following extinguishing media when fighting fires with this material:
- Halon 1211 foam - water spray - carbon dioxide - dry chemical.
If water is used, it should be used in very large quantity. The reaction with water and hot isocyanate may be vigorous.

Personal Protective Equipment:
Wear self-contained breathing apparatus (pressure-demand MSHA / NIOSH approved or equivalent) and full protective gear.

Special Procedures:
Use water spray to cool closed (SEALED) containers exposed to fire and heat to minimize the possibility of rupture. Avoid water contamination in closed containers or containers in confined areas (CO2 evolved). High temperatures in a fire may cause excess pressure build-up in closed containers. Explosive rupture is possible. Therefore, use cold water to cool fire-exposed containers.

Hazardous Decomposition Products:
CO, Benzene, Toluene, NOX, HCN, and Acetaldehyde

Section 6. Accidental Release Measures

Personal Protection:
Evacuate area. Properly protected personnel should contain the spill. Wear a MSHA / NIOSH approved (or equivalent) full-face piece air-purifying respirator. Wear full protective equipment including: gloves and boots, chemical splash goggles and face shield (ANSI Z87.1 or an approved equivalent). Do not take clothing home to be laundered. If exposed to material during clean-up operations IMMEDIATELY remove all contaminated clothing and wash all exposed skin areas with soap and water.

Procedures:
Major spill: If temporary control of isocyanate vapor is required a blanket of protein foam (available at most fire departments) may be placed over the spill. Large quantities may be pumped into closed but not sealed containers.

Minor spill: Absorb isocyanate with sawdust or other absorbent, shovel into suitable unsealed containers, transport to well-ventilated area (outside) and treat with neutralizing solution consisting of a mixture of water and 3 - 8 % concentrated ammonium hydroxide 5 - 10% sodium carbonate. Add about 10 parts of neutralizer per part of isocyanate with mixing. Allow to stand for 48 hours letting CO2 to escape.

Clean-up: Decontaminate floor using water/ammonia solution with 1 - 2 % added detergent letting stand over affected area for at least 10 minutes. Cover mops and brooms used for this with plastic and dispose of properly (often by incineration). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. See SECTION 13 for information regarding the disposal of contained spills. Do not allow material to seep into sewers, rivers, creeks, or any other open bodies of water.

Section 7. Handling and Storage

Storage Conditions:
Protect from freezing. Store in a well ventilated area at a temperature of 64-86 °F. Store away from excessive heat (e.g. steam pipes, radiators) and from reactive materials. Keep container tightly closed when not in use. Do not reseal if contamination is suspected. MDI reacts slowly with water to form CO2 gas. This gas can cause sealed containers to expand and possibly rupture.

Handling procedures:
See the PERSONAL PROTECTION MEASURES Section prior to handling. May cause allergic skin reaction. Aspiration may cause lung damage. Do not get in eyes, on skin, on clothing. Do not swallow. Avoid breathing vapor. Use with adequate ventilation. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent chronic overexposure from inhalation. This material can produce asthmatic sensitization upon either a single inhalation exposure to a relatively high concentration or upon repeated inhalation exposures to lower concentrations. Exposure to vapors of heated MDI can be extremely dangerous. Employee education and training in the safe use and handling of this compound are required under the OSHA Hazard Communication Standard.

Other:
CONTAINER MAY BE HAZARDOUS WHEN EMPTY.
Since emptied containers retain product residue (vapors and / or liquid) follow all MSDS and label warnings even after container is emptied. DO NOT cut, drill, grind, braze, weld on or near container.

Incompatibility:
Avoid all contact with incompatible materials such as strong acids, bases, alcohols, and water. Mixing with incompatible materials may result in a dangerous situation. A high exothermic reaction may take place and containers may build pressure sufficient enough to rupture.
Section 8. Exposure Controls / Personal Protection

### Personal Protection Measures

**Respiratory Protection:** Atmospheric levels should be maintained below the exposure limit. Air-purifying respirators should be equipped with organic vapor cartridges. Concentrations greater than the TLV can occur when MDI is heated or used in a poorly ventilated area. A positive pressure supplied-air respirator or a self-contained breathing apparatus is recommended. If sprayed, airborne concentrations greater than the TLV or PEL will require as a minimum an Air Purifying Respirator with an end of service indicator certified by NIOSH or a change out schedule based on objective information or data that will ensure the cartridges are changed out prior to the end of their service life must be developed and implemented. The basis of this change out schedule must be described in a written respirator program. If an Air Purifying Respirator is selected, the airborne concentration must not be greater than 10 times the TLV or PEL. The recommended Air Purifying Respirator is an organic vapor / particulate filter combination cartridge (OV/P100).

**Eye Protection:** Use chemical splash goggles and face shield (ANSI Z78.1 or an approved equivalent). Eye protection worn must be compatible with the respiratory system employed. Vapor resistant goggles should be utilized when contact lenses are worn.

**Hand Protection:** The gloves listed below may provide protection against permeation. Gloves of other chemically resistant materials may not provide adequate protection.
- butyl rubber
- VITON (registered Trademark of E.I. Dupont)

**Other Protection:** Where splashing is possible, full chemically resistant protective clothing (e.g. acid suit) and boots are suggested.

### FACILITY CONTROL MEASURES

**Ventilation**
Local exhaust should be used to maintain levels below the TLV whenever MDI is processed, heated or sprayed.

*Refer to the current edition of*

*Industrial Ventilation: A Manual of Recommended Practice*

*published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use and maintenance of exhaust systems.*
Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Educate and train employees in the safe use of product. Follow all label instructions and precautions.

**Monitoring**
Isocyanate exposure levels must be monitored. Monitoring of airborne isocyanates in the breathing zone of individuals should become part of the overall employee exposure characterization program. Monitoring techniques have been developed by OSHA.

**Medical**
Medical supervision of all employees who handle or come in contact with isocyanates is recommended. These should include preemployment and periodic medical examinations with pulmonary function tests (FEV, FVC as a minimum). Persons with asthmatic type conditions, chronic bronchitis, other chronic respiratory diseases or recurrent skin eczema or sensitization should be excluded from working with isocyanates. Once a person is diagnosed as sensitized to an isocyanate, no further exposure can be permitted.
## Section 9. Physical and Chemical Properties

**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance (physical State, color)</td>
<td>Amber / Brown Liquid</td>
</tr>
<tr>
<td>Upper Flammability or explosive limits</td>
<td>Not Available</td>
</tr>
<tr>
<td>Lower Flammability or explosive limits</td>
<td>Not Available</td>
</tr>
<tr>
<td>Flash Point COC</td>
<td>&gt; 400 °F</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Auto Ignition Temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not Available</td>
</tr>
<tr>
<td>Odor</td>
<td>Musty / Aromatic</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not Available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>&lt;1 x 10-5 mm Hg @ 77 °F</td>
</tr>
<tr>
<td>Vapor Density (Air = 1)</td>
<td>8.6</td>
</tr>
<tr>
<td>pH</td>
<td>Not Available</td>
</tr>
<tr>
<td>Density</td>
<td>1.24</td>
</tr>
<tr>
<td>Melting Point / Freezing Point</td>
<td>Not Available</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>Reacts</td>
</tr>
<tr>
<td>Boiling Point °C</td>
<td>&gt; 375 °F</td>
</tr>
<tr>
<td>Evaporation Rate (Bac = 1)</td>
<td>Not Available</td>
</tr>
<tr>
<td>Partition Coefficient : n-octanol / water</td>
<td>Not Available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>&lt; 300 cps @ 77 °F</td>
</tr>
</tbody>
</table>

## Section 10. Stability and Reactivity

**Chemical Stability**: This material is considered stable under the specified conditions of storage, shipment, and/or use.

**Hazardous Polymerization**: Will not occur under normal use.

**Incompatibility**: Avoid all contact with incompatible materials such as strong acids, bases, alcohols, and water. Mixing with incompatible materials may result in a dangerous situation. A high exothermic reaction may occur and containers may build pressure sufficient enough to rupture the container.

**Hazardous Decomposition Products**: CO, Benzene, Toluene, NOX, HCN, & Acetaldehyde

## Section 11. Toxicological Information

**Routes of Exposure**: Inhalation, Ingestion, Skin Contact, Eye Contact

**Acute Inhalation**: Inhalation of vapor or mist can cause the following: MDI vapors or mist at concentrations above the TLV can irritate the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function. May cause respiratory sensitization in susceptible individuals. At room temperature, vapors are minimal due to low vapor pressure. If heated, excessive concentrations are attainable that could be hazardous on single exposure. Effects may be delayed. Decreased ventilatory capacity has been associated with similar isocyanates; it is possible that exposure to MDI may cause similar impairment of lung function. Persons with a preexisting, nonspecific bronchial hyperactivity can respond to concentrations below the TLV with similar symptoms as well as asthma. Exposure well below the TLV may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in the lungs). These effects are usually reversible. Chemical or hypersensitive (pneumonitis, with flu-like symptoms (e.g., fever, chills) has been reported. Symptoms can be delayed several hours after exposure.

**Chronic Inhalation**: As a result of previous repeated overexposures or a single large dose, certain individuals develop isocyanate sensitization (chemical asthma) which will cause them to react to a later exposure to isocyanate at levels well below the TLV. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthma attack, could be immediate or delayed (up to several hours). Similar to many non-specific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air, or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for years. Overexposure to isocyanates has been reported to cause lung damage (including reduced lung function). Sensitization may be temporary or permanent.

**Acute Eye**: Liquid, aerosols or vapors are irritating and can cause tearing, reddening and swelling. If left untreated, corneal
damage can occur and injury is slow to heal. However, damage is usually reversible.

Acute Skin: Isocyanates react with skin protein and moisture and can cause irritation which may include the following symptoms: reddening, swelling, rash, scaling, blistering, discoloration and may be difficult to remove.

Chronic Skin: Prolonged contact can cause reddening, swelling, rash, scaling, blistering, and in some cases, skin sensitization. Individuals who have skin sensitization can develop these symptoms from contact with liquid or vapors. Animal tests have indicated that respiratory sensitization can result from skin contact with MDI.

Acute Ingestion: Can result in irritation and corrosive action in the mouth, stomach tissue and digestive tract. Symptoms can include sore throat, abdominal pain, nausea, vomiting and diarrhea.

<table>
<thead>
<tr>
<th></th>
<th>Dermal LD 50 Rabbit</th>
<th>Oral LD 50 Rat</th>
<th>Inhalation LD 50 Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,4’Diphenylmethane diisocyanate (MDI)</td>
<td>&gt; 7,900 mg / Kg</td>
<td>15,800 mg / Kg</td>
<td>370 - 490 mg / Kg</td>
</tr>
<tr>
<td>Diphenylmethane diisocyanate (2.2.2.4)</td>
<td>N / A</td>
<td>N / A</td>
<td>N / A</td>
</tr>
<tr>
<td>Polymethylene polyphenyl isocyanate</td>
<td>N / A</td>
<td>N / A</td>
<td>N / A</td>
</tr>
</tbody>
</table>

Eye Effects: Slightly irritating. A maximum primary eye irritation score for polymeric MDI of 12.0/110 (24 hr.) was obtained. This score is fairly typical for a number of MDI products.

Skin Effects: Slight to moderate irritant. Primary dermal irritation scores are typically below 3.4/8.0 (Draize).

Sensitization: MDI has been shown to produce dermal sensitization in several species (guinea pigs, mice, rabbits, and dogs). Intradermal or topical application followed by inhalation challenge have resulted in a respiratory sensitization response in guinea pigs. In addition, there is some evidence to suggest that cross-sensitization between different diisocyanates may occur.

Chronic Toxicity: In a chronic inhalation exposure study, rats were exposed to an aerosol of polymeric MDI for 6 hours per day, 5 days per week for a period of two years. The exposure concentrations were 0, 0.2, 1.0, and 6 mg / m3. Microscopic examination of tissues revealed the effects of irritation in the nasal cavity and lungs in animals exposed to 1.0 and 6.0 mg / m3. The NOEL was 0.2 mg / m3.

Carcinogenity: The occurrence of pulmonary adenomas (benign tumors) and a single pulmonary adenocarcinoma (malignant tumor) were considered to be related exposure at the high concentration of 6.0 mg / m3.

Section 12. Ecological Information

This product as purchased has not been tested to determine the actual LC50 and EC50, but is expected to be moderately toxic to aquatic organisms on an acute basis. This determination was based on information provided for some of the individual components in this mixture. Use appropriate precautions to prevent any release into the environment when that release may result in contamination of rivers, streams, or bodies of water.

Section 13. Disposal Considerations

Waste Disposal: Under RCRA, it is the responsibility of the user of products to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because product uses, transformations, mixtures, and processes may render the resulting material hazardous.

Product as purchased may be disposed of by incineration. Most states prohibit disposal of liquids in landfills. For disposal purposes, waste must be tested in accordance with applicable Federal, State, and Local regulations where the waste material is generated, treated, and/or disposed of to verify the appropriate classification.

Other: See SECTION 6 and SECTION 8 for any supplemental information.
Section 14. Transport Information

Transport Classification: See bill of lading for proper shipping classification

Section 15. Regulatory Information

Work Place Classification: The product is considered hazardous under the OSHA Hazard Communication Standard (29CFR 1910.1200)

Section 311 / 312 (40CFR 370): This product is considered an:

- Immediate and Delayed Health Hazard

Section 313 Information (40 CFR 372): Toxic Chemicals

- 4,4'-Diphenylmethane Diisocyanate, CAS # 101-68-8; Upper bound 45%

CERCLA Information (40CFR 302.4): This material does not a reportable quantity under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

CAS NUMBER STATE CODE

- 101-68-8 PA1, FL, IL, MA, RI, NJ1, NJ4, CN2
- 26447-40-5 PA3, NJ4
- 9016-87-9 PA3, NJ4

FL = Florida Substance List
IL = Illinois Toxic Substances List
MA = Mass. Hazardous Substance List
PA1 = Pennsylvania hazardous Substance List
PA3 = Pennsylvania Non-hazardous present @ 3% more
CN2 = Canada WHMIS Ingredient Disclosure List > 1%

CHEMICAL CONTROL LAW STATUS

All components of this product are listed or are excluded from listing on the U.S. Toxic Substance Control Act (TSCA) Chemical Substance Inventory.

Section 16. Other Information

Preparation Date: January 30, 2013 Supersedes: April 14, 2011

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof. Quadrant Chemical Corporation assumes no responsibility for personal injury or property damage to vendees, users or third parties caused by the material. Such vendees or users assume all risks associated with the use of the material. As the user has the responsibility to provide a safe workplace, all aspects of an individual operation should be examined to determine if, or where, precautions, in addition to those described herein, are required. It is your responsibility to utilize the information we have supplied to develop work practice guidelines and employee instructional programs for the individual operation,