

## 1. Identification of Substance:

|                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name:</b> GreenTuff FR A-Component<br><b>Product Use:</b> Polyurea isocyanate component<br><br><b>Field of Application:</b> building and metal industry<br><br><b>Identified uses:</b> Industrial/Professional use<br>. | <b>Company Details:</b><br><b>UltraTite Solutions</b><br><br><b>Address:</b><br>403 Century Plaza Dr. Ste 400<br>Houston, Texas 770973<br><br><b>Telephone:</b><br>(832)827-2925<br><b>24-Hr. Emergency Phone Number:</b><br>CHEMTREC (800) 424-9300 |
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## 2. Hazards Identification

### GHS Ratings:

|                               |              |                                                                                                                                                                                                                                                        |
|-------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inhalation Toxicity           | Acute Tox. 4 | Gases>2500+<=5000ppm, Vapors>10+<=20mg/l, Dusts&mists>1+<=5mg/l                                                                                                                                                                                        |
| Skin corrosive                | 2            | Reversible adverse effects in dermal tissue, Draize score: >= 2.3 < 4.0 or persistent inflammation                                                                                                                                                     |
| Eye corrosive                 | 2A           | Eye irritant: Subcategory 2A, Reversible in 21 days                                                                                                                                                                                                    |
| Respiratory sensitizer        | 1            | Skin sensitizer<br>Transient target organ effects- Narcotic effects-                                                                                                                                                                                   |
| Organ toxin single exposure   | 3            | Respiratory tract irritation                                                                                                                                                                                                                           |
| Organ toxin repeated exposure | 1            | Significant toxicity in humans- Reliable, good quality human case studies or epidemiological studies Presumed significant toxicity in humans- Animal studies with significant and/or severe toxic effects relevant to humans at generally low exposure |

### GHS Hazards

|      |                                                                           |
|------|---------------------------------------------------------------------------|
| H315 | Causes skin irritation                                                    |
| H317 | May cause an allergic skin reaction                                       |
| H319 | Causes serious eye irritation                                             |
| H332 | Harmful if inhaled                                                        |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled |
| H335 | May cause respiratory irritation                                          |
| H336 | May cause drowsiness or dizziness                                         |
| H372 | Causes damage to organs through prolonged or repeated exposure            |

## GHS Precautions

|                    |                                                                                                                                      |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| P260               | Do not breathe dust/fume/gas/mist/vapors/spray                                                                                       |
| P261               | Avoid breathing dust/fume/gas/mist/vapors/spray                                                                                      |
| P264               | Wash hands thoroughly after handling                                                                                                 |
| P270               | Do not eat, drink or smoke when using this product                                                                                   |
| P271               | Use only outdoors or in a well-ventilated area                                                                                       |
| P272               | Contaminated work clothing should not be allowed out of the workplace                                                                |
| P280               | Wear protective gloves/protective clothing/eye protection/face protection                                                            |
| P285               | In case of inadequate ventilation wear respiratory protection                                                                        |
| P312               | Call a POISON CENTER or doctor/physician if you feel unwell                                                                          |
| P314               | Get Medical advice/attention if you feel unwell                                                                                      |
| P321               | Specific treatment is urgent (see Section 4 First Aid measures)                                                                      |
| P362               | Take off contaminated clothing and wash before reuse                                                                                 |
| P363               | Wash contaminated clothing before reuse                                                                                              |
| P302+P352          | IF ON SKIN: Wash with soap and water                                                                                                 |
| P304+P340          | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing                                      |
| P304+P341          | IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing           |
| P305+P351<br>+P338 | IF IN EYES: Rinse continuously with water for several minutes.<br>Remove contact lenses if present and easy to do – continue rinsing |
| P332+P313          | If skin irritation occurs: Get medical advice/attention                                                                              |
| P333+P313          | If skin irritation or a rash occurs: Get medical advice/attention                                                                    |
| P337+P313          | Get medical advice/attention                                                                                                         |
| P342+P311          | Call a POISON CENTER or doctor/physician                                                                                             |
| P405               | Store locked up                                                                                                                      |
| P403+P233          | Store in a well ventilated place. Keep container tightly closed                                                                      |
| P501               | Dispose of contents/container in accordance with<br>existing federal, state, and local environmental control laws.                   |

**Signal Word:** Danger



## Acute Health Effects:

**Eyes:** Severe irritation, tearing, swelling, and possible damage to cornea.

**Skin:** Irritation, redness, swelling, skin sensitization, rash, scaling, and blistering.

**Inhalation:** Mucous membrane and respiratory tract irritation, tightness of chest, isocyanate sensitization.

**Ingestion:** Irritating and corrosive to mouth, stomach, and digestive tract.

**Conditions Aggravated by Exposure:** Asthma, respiratory disorders, skin disorders, and eye disorders.

**Chronic Health Effects:** Isocyanates may cause skin and respiratory sensitivity in some individuals. Sensitized individuals may react to very low levels diisocyanates below the PEL. Sensitized people who continue to work with diisocyanates may develop symptoms sooner after each exposure. Limited evidence of possible carcinogenic effects. Possible other harmful target organ effects.

### 3. Composition/information on ingredients:

| Chemical Name                       | CAS number | Weight Concentration % |
|-------------------------------------|------------|------------------------|
| 4,4'-Methylenediphenyl diisocyanate | 101-68-8   | 30.00% - 40.00%        |

### 4. First Aid Measures:

**After Inhalation:** May cause severe irritation to upper respiratory tract and lungs, respiratory sensitization, decreased lung capacity.

Remove from exposure area to fresh air. Administer oxygen or artificial respiration as needed. Obtain medical attention.

**After Eye Contact:** Rinse opened eye for at least 15 minutes under running water.

Remove contact lenses if present and easy to do so, and continue rinsing. If irritation persists contact physician

**After Skin Contact:** Remove contaminated clothing. Clean affected area with soap and plenty of water. Call a physician if irritation or rash develops.

**After Swallowing:** Do not induce vomiting. If conscious, give 1 to 2 cups of milk or water to drink. Consult a physician at once.

**Notes to Physician:** Treat symptomatically. Following severe exposure the patient should be kept under medical observation for a least 48 hours.

### 5. Firefighting measures

**Flash Point:** N/A

**LEL:** N/A

**UEL:** N/A

Upper and lower explosive limits listed if known.

**Suitable Extinguishing Agents:** Water spray, CO<sub>2</sub>, Foam, Dry chemical

**Information about Protection against Explosions and Fires:** During the incipient stage of a fire, containers should be kept cool by spraying with water (i.e., water suppression system) on the outside of container. Water spray will help prevent containers from overheating. Use cold-water spray to cool fire-exposed containers to minimize risk of rupture. Large fires can be extinguished with high volumes of water, such as from a fire hose applied from a safe distance. Closed containers may rupture when exposed to extreme heat due to build-up of pressure from thermal degradation and/or carbon dioxide generation

**Dangerous Products of Decomposition:** Oxides of carbon, oxides of nitrogen, isocyanates, and traces of HCN.

**Protective Equipment:** Full emergency equipment with self-contained breathing apparatus and full protective clothing should be worn by firefighters.

## 6. Accidental release measures

**Person-Related Safety Precautions:** Evacuate all non-essential personnel. Avoid contact with skin. Do not breathe aerosols or vapors.

**Measures for Environmental Protection:** Cover and contain spill with absorbent material. Place waste in open container. Remove to well ventilated area and dilute with ammonia solution (water 90%, concentrated ammonia 8%, detergent 2%). Collect for proper disposal according to local, state, and federal regulations.

**Small Spills:** Absorb with earth, sand or other absorbent material and transfer to containers for later disposal. Wipe up with absorbent material (e.g. cloth, fleece) clean surface thoroughly to remove residual contamination.

**Large Spills:** Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Use an absorbent material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

## 7. Handling and Storage

**Information for Safe Handling:** Do not breathe fumes, vapors or mists. Use only with adequate ventilation. Avoid contact with skin or eyes. Immediately report spills or leaks.

**Storage Requirements:** Store containers in a dry, well ventilated area. Keep containers tightly closed and prevent moisture contamination. Do not re-seal the container if contamination is suspected. Store between 60°F and 100°F.

**Regulatory Requirements:** Store according to all local, state, and federal regulations.

## 8. Exposure Controls and Personal Protection:

| Chemical Name / CAS No.                                                    | OSHA Exposure Limits           | ACGIH Exposure Limits                                                | Other Exposure Limits                                                                                                                                                      |
|----------------------------------------------------------------------------|--------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4,4'-Methylenediphenyl diisocyanate<br>101-68-8                            | 0.005 ppm TWA<br>0.02 ppm STEL | 0.005 ppm TWA<br>(listed under Methylene bisphenyl isocyanate (MDI)) | NIOSH: 0.005 ppm TWA<br>(listed under Methylene bisphenyl isocyanate); 0.05 mg/m <sup>3</sup> TWA<br>0.020 ppm Ceiling (10 min);<br>0.2 mg/m <sup>3</sup> Ceiling (10 min) |
| Isocyanic acid,<br>polymethylenepolyphenylene<br>ester<br>9016-87-9        | Not Established                | Not Established                                                      | Not Established                                                                                                                                                            |
| Benzene, 1-isocyanato-2-<br>[(4-isocyanatophenyl)<br>methyl]-<br>5873-54-1 | Not Established                | Not Established                                                      | Not Established                                                                                                                                                            |

**Engineering Controls:** Use local exhaust ventilation to maintain airborne concentrations below the TLV, especially if heating or spraying. Use only in a well ventilated area to keep vapors below exposure limits. Use local exhaust ventilation if necessary.

**General Protective and Hygienic Measures:** Usual precautionary measures should be adhered to when handling chemicals.

**Personal Protective Equipment:**

**Respiratory Protection:** Do not inhale vapors. Use NIOSH approved respiratory protection if TLV/PEL is exceeded. Do not enter storage area unless adequately ventilated.

**Hand Protection:** Protective butyl rubber or nitrile rubber gloves.

**Eye Protection:** Chemical safety goggles.

**Body Protection:** Impervious protective work clothing. Launder separately.

**Contaminated Gear:** Observe local requirements. Dispose of in accordance with local/state/federal regulations.

## 9. Physical and Chemical Properties:

Physical properties listed where known.

|                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Appearance:</b> Amber liquid</p> <p><b>Vapor Pressure:</b> N/A</p> <p><b>Vapor Density:</b> N/A</p> <p><b>Specific Gravity:</b> 1.00</p> <p><b>Freezing point:</b> N/A</p> <p><b>Boiling range:</b> N/A</p> <p><b>Evaporation rate:</b> N/A</p> <p><b>Explosive Limits:</b> N/A</p> <p><b>Autoignition temperature:</b> 240°C</p> | <p><b>Odor:</b> Musty</p> <p><b>Odor threshold:</b> N/A</p> <p><b>pH:</b> N/A</p> <p><b>Melting point:</b> N/A</p> <p><b>Solubility:</b> N/A</p> <p><b>Flash point:</b> 446°F, 230°C</p> <p><b>Flammability:</b> N/A</p> <p><b>Partition coefficient</b> N/A<br/>(n-octanol/water):</p> <p><b>Decomposition temperature:</b> N/A</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 10. Stability and Reactivity:

**Chemical Incompatible Materials:** MDI will react with a wide range of common chemicals. During use of this product in the work environment, protect the product from contamination such as inadvertent contact with water, amines, strong bases and alcohols. For example, allowing water inside an MDI container will lead to the generation of carbon dioxide gas and result in the development of excess pressure if the container is tightly re-sealed.

**Hazardous Polymerization:** Not expected to occur under normal conditions.

**Dangerous Products of Decomposition:** Oxides of carbon, oxides of nitrogen, hydrocarbons, isocyanates, and traces of HCN.

## 11. Toxicological Information:

### Mixture Toxicity

Inhalation Toxicity LC50: 4mg/L

### Component Toxicity

101-68-8                      4,4'-Methylenediphenyl diisocyanate  
Dermal LD50: 1 mg/L (Rat) Inhalation LC50: 369 mg/m3 (Rat)

### Individual Toxicity Values Listed if Known

#### Acute Toxicity:

**Eyes:** Severe irritation, tearing, swelling, and possible damage to cornea.

**Skin:** Irritation, redness, swelling, skin sensitization, rash, scaling, and blistering.

**Inhalation:** Mucous membrane and respiratory tract irritation, tightness of chest, isocyanate sensitization.

**Ingestion:** Irritating and corrosive to mouth, stomach, and digestive tract.

**Chronic Effects:** Isocyanates may cause skin and respiratory sensitivity in some individuals. Sensitized individuals may react to very low levels diisocyanates below the PEL. Sensitized people who continue to work with diisocyanates may develop symptoms sooner after each exposure. Limited evidence of possible carcinogenic effects.

**Routes of Entry:** Inhalation, Ingestion, skin contact, eye contact.

**Target Organs:** Eyes, skin, respiratory system, reproductive system.

### Chemicals with Known or Possible Carcinogenic Effects:

| CAS Number | Description                                               | % Weight     | Carcinogen Rating |
|------------|-----------------------------------------------------------|--------------|-------------------|
| 101-68-8   | 4,4'-Methylenediphenyl diisocyanate                       | 30.00-40.00% |                   |
| 5873-54-1  | Benzene, 1-isocyanato-2-<br>[(4-isocyanatophenyl)methyl]- | 5.00-10.00%  |                   |

## 12. Ecological Information:

**General Information:** Based on experience, no adverse effects are to be expected if correct disposal procedures have been followed as indicated in section 13.

Individual component ecotoxicity listed if known.

### Component Ecotoxicity

4,4'-Methylenediphenyl diisocyanate                      24 Hr LC50 Brachydanio rerio: >500 mg/L  
24 Hr EC50 Daphnia magna: >500 mg/L

## 13. Disposal considerations

**Recommendation:** Observe local requirements. Dispose of in accordance with local/state/federal regulations.

**Empty Container Precautions:** Empty containers retain product residue; observe all precautions for product. Do not heat or cut empty container with electric or gas torch because highly toxic vapors and gases are formed. Do not reuse without thorough commercial cleaning and reconditioning. If container is to be disposed, ensure all product residues are removed and container is empty prior to disposal. Contact the Reusable Industrial Packaging Association (RIPA) at 301-577-3786 to find a drum re-conditioner in North America ([www.reusablepackaging.org](http://www.reusablepackaging.org)).

## 14. Transport Information

### DOT Regulated Components:

This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods unless specifically cited below:

4,4' Methylene Diphenyl Diisocyanate  
Reportable Quantity: 5000 lbs

When in individual containers of less than the substance RQ, this material ships as non-regulated. Containers above RQ ship as:

| Agency | Proper Shipping Name                                                      | UN Number | Packing Group | Hazard Class |
|--------|---------------------------------------------------------------------------|-----------|---------------|--------------|
| DOT    | Other Regulated Substance, N.O.S. (Contains Diphenylmethane Diisocyanate) | 3082      | III           | 9            |

## 15. Regulatory Information:

**OSHA HAZARD COMMUNICATION STANDARD:** This material is classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**SARA 311/312 Hazard Categories:** Acute health hazard, chronic health hazard

**WARNING:** This product can expose you to chemicals listed below, which are known to the State of California to cause cancer, birth defects, or reproductive harm. For more information, visit [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

- None

### Massachusetts Right To Know List:

4,4'-Methylenediphenyl diisocyanate 101-68-8 20 to 30 %

### New Jersey Right To Know List:

None

**Pennsylvania Right To Know List:**

4,4'-Methylenediphenyl diisocyanate 101-68-8 20 to 30 %

**SARA 302 Extremely Hazardous Substances:**

- None

**Chemicals subject to SARA 313 Reporting:**

4,4'-Methylenediphenyl diisocyanate 101-68-8 20 to 30 % Emissions

| <u>Country</u> | <u>Regulation</u>            | <u>All Components Listed</u> |
|----------------|------------------------------|------------------------------|
| Canada         | Canada DSL                   | Yes                          |
| US             | Toxic Substances Control Act | Yes                          |

## 16. Other Information:

Safety Data Sheet issued by Product Safety Department

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Ultratite Solutions. The data on these sheets relates only to the specific material designated herein. Ultratite Solutions assumes no legal responsibility for use or reliance upon this data. It is the user's responsibility to ensure that their activities comply with federal, state, or local laws