## 1. Identification of Substance:

Product Name: TyrFil Hevi-Duty ISO Component  
**Supplier Identification:**  
Carlisle TyrFil  
**Address:**  
140 Sheldon Road  
Berea, OH 44017

**Telephone:**  
(440) 260-9830

24-Hr. Emergency Phone Number:  
CHEMTREC (800) 424-9300  
INTERNATIONAL: +1-(703) 527-3887

Product Use: Polyurethane isocyanate component

## 2. Hazards Identification:

### GHS Ratings:

<table>
<thead>
<tr>
<th>Hazard Type</th>
<th>GHS Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation Toxicity</td>
<td>Acute Tox. 2</td>
<td>Gases &gt; 100 ppm, Vapors &gt; 0.5 mg/l, Dusts &amp; Mists &gt; 0.05 mg/l</td>
</tr>
<tr>
<td>Skin corrosive</td>
<td>2</td>
<td>Reversible adverse effects in dermal tissue, Draize score: &gt;= 2.3 &lt; 4.0 or persistent inflammation</td>
</tr>
<tr>
<td>Eye corrosive</td>
<td>2A</td>
<td>Eye irritant: Subcategory 2A, Reversible in 21 days</td>
</tr>
<tr>
<td>Respiratory sensitizer</td>
<td>1</td>
<td>Respiratory sensitizer</td>
</tr>
<tr>
<td>Skin sensitizer</td>
<td>1</td>
<td>Skin sensitizer</td>
</tr>
<tr>
<td>Mutagen</td>
<td>1B</td>
<td>Known to produce heritable mutations in human germ cells Category 1B, Positive results: In vivo heritable germ cell tests in mammals, Human germ cell tests, In vivo somatic mutagenicity tests, combined with some evidence of germ cell mutagenicity</td>
</tr>
<tr>
<td>Carcinogen</td>
<td>1B</td>
<td>Presumed Human Carcinogen, Based on demonstrated animal carcinogenicity</td>
</tr>
<tr>
<td>Reproductive toxin</td>
<td>1B</td>
<td>Presumed, Based on experimental animals</td>
</tr>
<tr>
<td>Organ toxin single exposure</td>
<td>2</td>
<td>Presumed to be harmful to human health- Animal studies with significant toxic effects relevant to humans at generally moderate exposure (guidance) - Human evidence in exceptional cases</td>
</tr>
<tr>
<td>Organ toxin repeated exposure</td>
<td>1</td>
<td>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</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>1</td>
<td>Aspiration Toxicity Category 1: Known (regarded)- human evidence - hydrocarbons with kinematic viscosity ≤ 20.5 mm2/s at 40° C</td>
</tr>
</tbody>
</table>

### GHS Hazards

- H304: May be fatal if swallowed and enters airways
- H315: Causes skin irritation
- H317: May cause an allergic skin reaction
Causes serious eye irritation
H319

Fatal if inhaled
H330

May cause allergy or asthma symptoms or breathing difficulties if inhaled
H334

May cause genetic defects
H340

May cause cancer
H350

May damage fertility or the unborn child
H360

May cause damage to organs
H371

Causes damage to organs through prolonged or repeated exposure
H372

GHS Precautions

P201  Obtain special instructions before use
P202  Do not handle until all safety precautions have been read and understood
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
P281  Use personal protective equipment as required
P285  In case of inadequate ventilation wear respiratory protection
P311  Call a POISON CENTER or doctor/physician
P314  Get Medical advice/attention if you feel unwell
P321  Specific treatment is urgent (see Section 4 First Aid measures)
P331  Do NOT induce vomiting
P362  Take off contaminated clothing and wash before reuse
P363  Wear contaminated clothing before reuse
P301+P310  IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
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+P338  IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing
P308+P313  IF exposed or concerned: Get medical advice/attention
P309+P311  IF exposed or you feel unwell: Call a POISON CENTER or doctor/physician
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 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.

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 of 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/Data on Components:**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS number</th>
<th>Weight Concentration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates, petroleum, heavy thermal cracked</td>
<td>64741-81-7</td>
<td>30.00% - 40.00%</td>
</tr>
<tr>
<td>Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,3-diisocyanatomethylbenzene</td>
<td>57516-88-8</td>
<td>40.00% - 50.00%</td>
</tr>
<tr>
<td>Distillates, petroleum, catalytic reformer fractionator residue, intermediate-boiling</td>
<td>68477-30-5</td>
<td>5.00% - 10.00%</td>
</tr>
<tr>
<td>Toluene Diisocyanate, mixed isomers</td>
<td>26471-62-5</td>
<td>10.00% - 15.00%</td>
</tr>
<tr>
<td>Distillates, petroleum, light catalytic cracked</td>
<td>64741-59-9</td>
<td>1.00% - 5.00%</td>
</tr>
<tr>
<td>Polycyclic aromatic hydrocarbons</td>
<td>130498-29-2</td>
<td>0.10% - 1.00%</td>
</tr>
</tbody>
</table>

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.

**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 at least 48 hours.

5. **Fire Fighting Measures:**

**Flash Point:** 128 C (262 F)

**LEL:** N/A  
**UEL:** N/A

**Upper and lower explosive limits listed if known**

**Suitable Extinguishing Agents:** Water spray, CO2, 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.

Section 5 pertains to fire-fighting measures and reactivity is addressed in section 10.

**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. Evacuate area and isolate to prevent unauthorized access. Call CHEMTREC at 1-800-424-9300 for assistance and advice.

### 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 in dry, well ventilated area. Keep containers tightly closed. Store between 60°F-100°F.

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

### 8. Exposure Controls and Personal Protection:

<table>
<thead>
<tr>
<th>Chemical Name / CAS No.</th>
<th>OSHA Exposure Limits</th>
<th>ACGIH Exposure Limits</th>
<th>Other Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates, petroleum, heavy thermal cracked 64741-81-7</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
<tr>
<td>Oxirane, methyl-, polymer with oxirane, ether with 1,2,3-propanetriol (3:1), polymer with 1,3-diisocyanatomethylbenzene 57516-88-8</td>
<td>Not Established</td>
<td>Not Established</td>
<td>Not Established</td>
</tr>
</tbody>
</table>
Distillates, petroleum, catalytic reformer fractionator residue, intermediate-boiling 68477-30-5 | Not Established | Not Established | Not Established
---|---|---|---
Toluene Diisocyanate, mixed isomers 26471-62-5 | 20 ppb PEL | 0.02 ppm STEL 0.005 ppm TWA | Not Established
Distillates, petroleum, light catalytic cracked 64741-59-9 | Not Established | Not Established | Not Established
Polycyclic aromatic hydrocarbons 130498-29-2 | 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:** Protective impervious 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.**

<table>
<thead>
<tr>
<th>Appearance: Brown liquid</th>
<th>Odor: Pungent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapor Pressure: N/A</td>
<td>Odor threshold: N/A</td>
</tr>
<tr>
<td>Vapor Density: N/A</td>
<td>pH: N/A</td>
</tr>
<tr>
<td>Specific Gravity 1.05</td>
<td>Melting point: N/A</td>
</tr>
<tr>
<td>Freezing point: N/A</td>
<td>Solubility: N/A</td>
</tr>
<tr>
<td>Boiling range: N/A</td>
<td>Flash point: 262°F, 128°C</td>
</tr>
<tr>
<td>Evaporation rate: N/A</td>
<td>Flammability: N/A</td>
</tr>
<tr>
<td>Explosive Limits: N/A</td>
<td>Partition coefficient N/A</td>
</tr>
<tr>
<td>Autoignition temperature: N/A</td>
<td>(n-octanol/water):</td>
</tr>
<tr>
<td></td>
<td>Decomposition temperature: N/A</td>
</tr>
</tbody>
</table>

**10. Stability and Reactivity:**

**Chemical Incompatible Materials:** Isocyanates 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 a container containing isocyanates 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: 1mg/L

#### Component Toxicity

**Toxicity Values Listed if Known**

**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.

**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.

Other harmful target organ effects have been associated with exposure to aromatic oils.

**Conditions Aggravated by Exposure:** Asthma, respiratory disorders, skin allergies, eczema.

**Routes of Entry:** Inhalation, ingestion, skin contact, eye contact

**Target Organs:** Respiratory track, eyes, skin, digestive tract, reproductive system, liver, blood, thymus.

**Chemicals with Known or Possible Carcinogenic Effects:**

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Description</th>
<th>% Weight</th>
<th>Carcinogen Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>130498-29-2</td>
<td>Polycyclic aromatic hydrocarbons</td>
<td>0.1 to 1.0%</td>
<td>Polycyclic aromatic hydrocarbons: OSHA: listed</td>
</tr>
<tr>
<td>26471-62-5</td>
<td>Toluene Diisocyanate, mixed isomers</td>
<td>10 to 15%</td>
<td>Toluene Diisocyanate, mixed isomers: IARC: Possible human carcinogen OSHA: listed</td>
</tr>
<tr>
<td>64741-59-9</td>
<td>Distillates, petroleum, light catalytic cracked</td>
<td>1 to 5%</td>
<td>Distillates, petroleum, light catalytic cracked: EU REACH: Present</td>
</tr>
<tr>
<td>64741-81-7</td>
<td>Distillates, petroleum, heavy thermal cracked</td>
<td>30 to 40%</td>
<td>Distillates, petroleum, heavy thermal cracked: EU REACH: Present</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Component</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distillates, petroleum, heavy thermal cracked</td>
<td>96 Hr LC50 Brachydanio rerio: 48 mg/L [semi-static]</td>
</tr>
<tr>
<td>Toluene Diisocyanate, mixed isomers</td>
<td>96 hr LC50 Danio rerio: &gt;100 mg/l</td>
</tr>
<tr>
<td></td>
<td>96 hr LC50 Danio rerio: &gt; 133 mg/l</td>
</tr>
<tr>
<td></td>
<td>48 hr EC50 Daphnia magna: 12.5 mg/l</td>
</tr>
<tr>
<td></td>
<td>96 hr EC50 Algae: 3,230 - 4,300 mg/l</td>
</tr>
<tr>
<td></td>
<td>3 hr EC50 Activated sludged microorganisms: &gt;100 mg/l</td>
</tr>
<tr>
<td>Distillates, petroleum, light catalytic cracked</td>
<td>96 Hr LC50 Brachydanio rerio: 7.3 mg/L [semi-static]</td>
</tr>
<tr>
<td>Polycyclic aromatic hydrocarbons</td>
<td>48 Hr LC50 Daphnia magna: 0.25 mg/L</td>
</tr>
</tbody>
</table>

13. Disposal Considerations:

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

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:

2,4-Toluene Diisocyanate
2,6-Toluene Diisocyanate
Reportable Quantity: 100 lbs

When in containers of less that the substance RQ, this material ships as follows:

<table>
<thead>
<tr>
<th>Agency</th>
<th>Proper Shipping Name</th>
<th>UN Number</th>
<th>Packing Group</th>
<th>Hazard Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMDG</td>
<td>Environmentally Hazardous Substance, N.O.S. (Contains Aromatic Hydrocarbons)</td>
<td>3082</td>
<td>III</td>
<td>9</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>Environmentally Hazardous Substance, N.O.S. (Contains Aromatic Hydrocarbons)</td>
<td>3082</td>
<td>III</td>
<td>9</td>
</tr>
<tr>
<td>DOT</td>
<td>Toluene Diisocyanate</td>
<td>2078</td>
<td>II</td>
<td>6.1</td>
</tr>
<tr>
<td>IMDG</td>
<td>Toluene Diisocyanate</td>
<td>2078</td>
<td>II</td>
<td>6.1</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>Toluene Diisocyanate</td>
<td>2078</td>
<td>II</td>
<td>6.1</td>
</tr>
</tbody>
</table>
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.

California Proposition 65
(Safe Drinking Water and Toxic Enforcement Act of 1986)
This product contains no substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute unless otherwise listed:

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

Polycyclic aromatic hydrocarbons  130498-29-2  0.1 to 1.0 %  CARC
Toluene Diisocyanate, mixed isomers  26471-62-5  10 to 15 %  CARC

Massachusetts Right To Know List:
Polycyclic aromatic hydrocarbons  130498-29-2  0.1 to 1.0 %
Toluene Diisocyanate, mixed isomers  26471-62-5  10 to 15 %

New Jersey Right To Know List:
Polycyclic aromatic hydrocarbons  130498-29-2  0.1 to 1.0 %
Toluene Diisocyanate, mixed isomers  26471-62-5  10 to 15 %

Pennsylvania Right To Know List:
Polycyclic aromatic hydrocarbons  130498-29-2  0.1 to 1.0 %
Toluene Diisocyanate, mixed isomers  26471-62-5  10 to 15 %

Chemicals subject to SARA 313 Reporting:
Polycyclic aromatic hydrocarbons  130498-29-2  0.1 to 1.0 %  Emissions, PBT
Toluene Diisocyanate, mixed isomers  26471-62-5  10 to 15 %  Emissions

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulation</th>
<th>All Components Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>Canada DSL</td>
<td>Yes</td>
</tr>
<tr>
<td>US</td>
<td>Toxic Substances Control Act</td>
<td>Yes</td>
</tr>
</tbody>
</table>

16. Other Information:

Safety Data Sheet issued by Product Safety Department

THIS PRODUCT CONTAINS TDI AND IS FOR INDUSTRIAL OR COMMERCIAL USE ONLY. NOT FOR USE BY CONSUMERS, OR FOR SALE OR RESALE TO CONSUMERS.

This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Carlisle TyrFil. The data on these sheets relates only to the specific material designated herein. Carlisle TyrFil 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.