# 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Code:** QS A  
**Product Name:** Quik-Shield A  
**Company Name:** SWD URETHANE  
539 S. Drew St.  
Mesa, AZ  85210,  
**Web site address:** www.swdurethane.com  
**Emergency Contact:** CHEMTREC  
(800) 424-9300

---

# 2. HAZARDS IDENTIFICATION

**Acute Toxicity:** Oral, Category 5  
**Skin Corrosion/Irritation:** Category 2  
**Skin Sensitization:** Category 1  
**Serious Eye Damage/Eye Irritation:** Category 2B  
**Acute Toxicity:** Inhalation, Category 4  
**Respiratory Sensitization:** Category 1  
**Carcinogenicity:** Category 2  
**Aquatic Toxicity (Acute):** Category 2

**GHS Signal Word:** Danger

**GHS Hazard Phrases:**  
- H303 - May be harmful if swallowed.  
- H315 - Causes skin irritation.  
- H317 - May cause an allergic skin reaction.  
- H320 - Causes eye irritation.  
- H332 - Harmful if inhaled.  
- H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
- H351 - Suspected of causing cancer.  
- H401 - Toxic to aquatic life.

**GHS Precaution Phrases:**  
- 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.  
- P264 - Wash hands thoroughly after handling.  
- P271 - Use only outdoors or in a well-ventilated area.  
- P272 - Contaminated work clothing should not be allowed out of the workplace.  
- P273 - Avoid release to the environment.  
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
- P284 - Wear respiratory protection.  
- P285 - In case of inadequate ventilation wear respiratory protection.

**GHS Response Phrases:**  
- P302+352 - IF ON SKIN: Wash with plenty of soap and water.  
- P304+340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
- P341 - If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.  
- P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
- P308+313 - IF exposed or concerned: Get medical attention/advice.  
- P332+313 - If skin irritation occurs, get medical advice/attention.
P337+313 - If eye irritation persists, get medical advice/attention.
P342+311 - If experiencing respiratory symptoms call a POISON CENTER or
doctor/physician.
P362 - Take off contaminated clothing and wash before re-use.

GHS Storage and Disposal
P405 - Store locked up.

Potential Health Effects
(Acute and Chronic):
Inhalation: Causes respiratory tract irritation.
Skin Contact: May be harmful if absorbed through the skin. Causes skin irritation.
Eye Contact: Causes eye irritation.
Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>Methylenebis(phenylisocyanate) (MBI; Methylene diphenyl diisocyanate; MDI; Diphenylmethane-4,4'-diisocyanate)</td>
<td>30.0 - 60.0 %</td>
</tr>
<tr>
<td>NA</td>
<td>MDI, mixed isomers</td>
<td>30.0 - 60.0 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Emergency and First Aid Procedures:
In Case of Inhalation: If breathed in, move person into fresh air. If not breathing give artificial respiration.
In Case of Skin Contact: Wash off with soap and plenty of water. Consult a physician.
In Case of Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
In Case of Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Note to Physician: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

5. FIRE FIGHTING MEASURES

Flash Pt: > 150.00 C  Method Used: Closed Cup
Explosive Limits: LEL: No data. UEL: No data.
Autoignition Pt: NA
Suitable Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.
Fire Fighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary.
Flammable Properties and Hazards: No data available.
### 6. ACCIDENTAL RELEASE MEASURES

**Steps To Be Taken In Case Material Is Released Or Spilled:**
- Personal precautions.
- Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.
- Environmental precautions.
- Do not let product enter drains.
- Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

### 7. HANDLING AND STORAGE

**Precautions To Be Taken in Handling:**
- Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
- Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

**Precautions To Be Taken in Storing:**
- Keep container tightly closed in a dry and well-ventilated place.
- Recommended storage temperature: 15 - 38 deg.C.
- Store under inert gas. Moisture sensitive.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>Methylenebis(phenylisocyanate) (MBI; Methylene diphenyl diisocyanate; MDI; Diphenylmethane-4,4’-diisocyanate)</td>
<td>CEIL: 0.02 ppm</td>
<td>TLV: 0.005 ppm</td>
<td>No data.</td>
</tr>
<tr>
<td>NA</td>
<td>MDI, mixed isomers</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
</tbody>
</table>

**Respiratory Equipment (Specify Type):**
Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Face Protection:**
Face shield and safety glasses.

**Protective Gloves:**
Handle with gloves.

**Other Protective Clothing:**
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

**Engineering Controls (Ventilation etc.):**
No data available.

**Work/Hygienic/Maintenance Practices:**
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical States: [ ] Gas [X] Liquid [ ] Solid
Appearance and Odor: Slightly. Musty.
Melting Point: 42.00 C - 45.00 C
Boiling Point: 200.00 C
Autoignition Pt: NA
Flash Pt: > 150.00 C Method Used: Closed Cup
Explosive Limits: LEL: No data. UEL: No data.
Specific Gravity (Water = 1): No data.
Density: 1.18 G/CM3
Vapor Pressure (vs. Air or mm Hg): No data.
Vapor Density (vs. Air = 1): No data.
Evaporation Rate: No data.
Solubility in Water: No data.
Percent Volatile: No data.

10. STABILITY AND REACTIVITY

Stability: Unstable [ ] Stable [X]
Conditions To Avoid - Instability: Contact with moisture, other materials that react with isocyanates, or temperatures above 350 °F (177 °C), may cause polymerization.
Hazardous Decomposition or Byproducts: formed under fire conditions. Carbon oxides, nitrogen oxides (NOx).
Possibility of Hazardous Reactions: Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions: No data available.

11. TOXICOLOGICAL INFORMATION

Toxicological Information: No data available.
Irritation or Corrosion: Serious eye damage/eye irritation:
Eyes - rabbit - Moderate eye irritation.
Carcinogenicity/Other Information: Carcinogenicity.
This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Limited evidence of carcinogenicity in animal studies.
IARC: Group 3: Not classifiable as to its carcinogenicity to humans 3.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
CAS # | Hazardous Components (Chemical Name) | NTP | IARC | ACGIH | OSHA
---|---|---|---|---|---
101-68-8 | Methylenebis(phenylisocyanate) {MBI; Methylene diphenyl diisocyanate; MDI; Diphenylmethane-4,4'-diisocyanate} | n.a. | 3 | n.a. | n.a.
NA | MDI, mixed isomers | n.a. | 3 | n.a. | n.a.

### 12. ECOLOGICAL INFORMATION

**Persistence and Degradability:**
No data available.

**Bioaccumulative Potential:**
No data available.

**Mobility in Soil:**
No data available.

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Method:**
Product.

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging.
Dispose of as unused product.

### 14. TRANSPORT INFORMATION

**GHS Classification:**
Acute Toxicity: Oral, Category 5 - Warning! May be harmful if swallowed
Skin Corrosion/Irritation, Category 2 - Warning! Causes skin irritation
Skin Sensitization, Category 1 - Warning! May cause an allergic skin reaction
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation
Acute Toxicity: Inhalation, Category 4 - Warning! Harmful if inhaled
Respiratory Sensitization, Category 1 - Danger! May cause allergy or asthma symptoms or breathing difficulties if inhaled
Carcinogenicity, Category 2 - Warning! Suspected of causing cancer
Aquatic Toxicity (Acute), Category 2 - Toxic to aquatic life

**LAND TRANSPORT (US DOT):**

<table>
<thead>
<tr>
<th>DOT Proper Shipping Name</th>
<th>DOT Hazard Class</th>
<th>UN/NA Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other regulated substances, Liquid, N.O.S. (Methylene Diphenyl Diisocyanate)</td>
<td>9</td>
<td>NA3082</td>
</tr>
</tbody>
</table>

**Packing Group:** III

**LAND TRANSPORT (Canadian TDG):**

<table>
<thead>
<tr>
<th>TDG Shipping Name</th>
<th>UN Number</th>
<th>Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Regulated.</td>
<td>3082</td>
<td>9 - CLASS 9</td>
<td>III</td>
</tr>
</tbody>
</table>

**MARINE TRANSPORT (IMDG/IMO):**

<table>
<thead>
<tr>
<th>IMDG/IMO Shipping Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Regulated.</td>
<td></td>
</tr>
</tbody>
</table>
**AIR TRANSPORT (ICAO/IATA):**

ICAO/IATA Shipping Name: Not Regulated.

## 15. REGULATORY INFORMATION

### EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>Methylenebis(phenylisocyanate) {MBI; Methylene diphenyl disocyanate; MDI; Diphenylmethane-4,4'-diisocyanate}</td>
<td>No</td>
<td>Yes 5000 LB</td>
<td>Yes-Cat. N120</td>
</tr>
<tr>
<td>NA</td>
<td>MDI, mixed isomers</td>
<td>No</td>
<td>No</td>
<td>Yes-Cat. N120</td>
</tr>
</tbody>
</table>

### Other US EPA or State Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>CAA HAP,ODC</th>
<th>CWA NPDES</th>
<th>TSCA</th>
<th>Inventory, 8C</th>
<th>CA PROP.65</th>
<th>CA TAC</th>
<th>Title 8</th>
<th>TAC</th>
<th>Title 8</th>
<th>MA Oil/HazMat</th>
<th>MI CMR</th>
<th>Part 5</th>
<th>Part 5</th>
<th>NC TAP</th>
<th>NJ EHS</th>
<th>NY Part 597</th>
<th>PA HSL</th>
<th>SC TAP</th>
<th>WI Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>Methylenebis(phenylisocyanate) {MBI; Methylene diphenyl disocyanate; MDI; Diphenylmethane-4,4'-diisocyanate}</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8C</td>
<td>CA PROP.65: No; CA TAC, Title 8; TAC, Title 8</td>
<td>MA Oil/HazMat: No; MI CMR, Part 5: Part 5; NC TAP: Yes; NJ EHS: Yes - 1253; NY Part 597: Yes; PA HSL: Yes - E; SC TAP: Yes; WI Air: Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NA</td>
<td>MDI, mixed isomers</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8C</td>
<td>CA PROP.65: No; CA TAC: Title 8; TAC, Title 8</td>
<td>MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: Yes; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### International Regulatory Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Canadian DSL</th>
<th>Canadian NDSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>101-68-8</td>
<td>Methylenebis(phenylisocyanate) {MBI; Methylene diphenyl disocyanate; MDI; Diphenylmethane-4,4'-diisocyanate}</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>NA</td>
<td>MDI, mixed isomers</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

### Regulatory Information:

This product contains chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372.

CAS# 101-68-8, Methylene diphenyl diisocyanate, MDI: 30 - 60%

CAS# n/a, MDI, mixed isomers: 30 - 60%

## 16. OTHER INFORMATION

Revision Date: 04/28/2015

Additional Information About This Product: No data available.

Company Policy or Disclaimer:

While the information and recommendations in this publication are given to the best of our knowledge, and information at the date of publication, nothing herein is to be construed as a warranty, expressed or otherwise. In all cases, it is the responsibility of the user to determine the applicability of such information, and recommendations or the suitability of any product for its own particular purpose.

The product may present hazards and should be used with caution. While certain hazards are described in this Safety Data Sheet, no guarantee is made that these are the only hazards that exist. Hazards, toxicity and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED SWD EMPLOYEE
SHALL PROVIDE, OR MAKE AVAILABLE, DATA SHEETS FOR SWD PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF SWD. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET OR QUESTIONS REGARDING THIS DATA SHEET SHOULD BE DIRECTED TO SWD AT 800-828-1394.
# 1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product Code:</th>
<th>QS 112 B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Name:</td>
<td>Quik-Shield 112 B</td>
</tr>
<tr>
<td>Company Name:</td>
<td>SWD URETHANE</td>
</tr>
<tr>
<td></td>
<td>539 S. Drew St.</td>
</tr>
<tr>
<td></td>
<td>Mesa, AZ 85210,</td>
</tr>
<tr>
<td>Web site address:</td>
<td><a href="http://www.swdurethane.com">www.swdurethane.com</a></td>
</tr>
<tr>
<td>Emergency Contact:</td>
<td>CHEMTREC</td>
</tr>
<tr>
<td></td>
<td>(800) 424-9300</td>
</tr>
</tbody>
</table>

# 2. HAZARDS IDENTIFICATION

### Acute Toxicity: Oral, Category 4

### Acute Toxicity: Skin, Category 5

### Skin Corrosion/Irritation, Category 3

### Serious Eye Damage/Eye Irritation, Category 2B

### Aquatic Toxicity (Acute), Category 3

**GHS Signal Word:** Warning

**GHS Hazard Phrases:**
- H302 - Harmful if swallowed.
- H313 - May be harmful in contact with skin.
- H316 - Causes mild skin irritation.
- H320 - Causes eye irritation.
- H402 - Harmful to aquatic life.

**GHS Precaution Phrases:**
- P264 - Wash hands thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P273 - Avoid release to the environment.

**GHS Response Phrases:**
- No phrases apply.

**GHS Storage and Disposal Phrases:**
- No phrases apply.

**Potential Health Effects (Acute and Chronic):**

**Inhalation:**
May be harmful if inhaled. Causes respiratory tract irritation. May cause narcotic effects in high concentration. Eye irritation, vertigo, and nausea were reported in humans exposed at 2200 ppm.

**Skin Contact:**
May be harmful if absorbed through the skin. Causes skin irritation. Causes moderate skin irritation. May cause dermatitis.

**Eye Contact:**
Causes eye irritation.

**Ingestion:**
Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause central nervous system depression.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-73-1</td>
<td>1,1,1,3,3-Pentafluoropropane  {HFC-245fa}</td>
<td>7.0 -13.0 %</td>
</tr>
<tr>
<td>NA</td>
<td>Halogenated Phosphate</td>
<td>7.0 -13.0 %</td>
</tr>
<tr>
<td>156-60-5</td>
<td>Trans-1,2-Dichloroethylene  {1,2-trans-Dichloroethylene; Ethene, 1,2-dichloro-, (E)-}</td>
<td>1.0 -3.0 %</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Emergency and First Aid Procedures:

In Case of Inhalation: If breathed in, move person into fresh air. If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical aid.

In Case of Skin Contact: Wash off with soap and plenty of water. Consult a physician. In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.

In Case of Eye Contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

In Case of Ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician. Get medical aid.

Signs and Symptoms Of Exposure: To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Note to Physician: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. Treat symptomatically and supportively.

5. FIRE FIGHTING MEASURES

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Autoignition Pt: No data.

Suitable Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or alcohol-resistant foam.

Fire Fighting Instructions: Wear self contained breathing apparatus for fire fighting if necessary. As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form explosive mixtures with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Fire or excessive heat may result in violent rupture of the container due to bulk polymerization. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.

Flammable Properties and Hazards: No data available.
6. ACCIDENTAL RELEASE MEASURES

Steps To Be Taken In Case Material Is Released Or Spilled:

Personal precautions.
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
Environmental precautions.
Do not let product enter drains.

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal. Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool.

7. HANDLING AND STORAGE

Precautions To Be Taken in Handling:
Avoid inhalation of vapor or mist.
Normal measures for preventive fire protection. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Pure vapor will be uninhibited and may polymerize in vents or other confined spaces.

Precautions To Be Taken in Storing:
Keep container tightly closed in a dry and well-ventilated place. Keep away from sources of ignition. Store in a tightly closed container. Flammables-area. Store protected from light and air.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Partial Chemical Name</th>
<th>OSHA TWA</th>
<th>ACGIH TWA</th>
<th>Other Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-73-1</td>
<td>1,1,1,3-Pentafluoropropane (HFC-245fa)</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
<tr>
<td>NA</td>
<td>Halogenated Phosphate</td>
<td>No data.</td>
<td>No data.</td>
<td>No data.</td>
</tr>
<tr>
<td>156-60-5</td>
<td>Trans-1,2-Dichloroethylene (1,2-dichloroethylene; Ethene, 1,2-dichloro-, (E))</td>
<td>No data.</td>
<td>TLV: 200 ppm</td>
<td>No data.</td>
</tr>
</tbody>
</table>

Respiratory Equipment (Specify Type):
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Eye Protection: Face shield and safety glasses. Wear chemical splash goggles.

Protective Gloves: Handle with gloves. Wear appropriate protective gloves to prevent skin exposure.

Other Protective Clothing: Choose body protection according to the amount and concentration of the dangerous substance at the work place. Wear appropriate protective clothing to prevent skin exposure.

Engineering Controls Use process enclosure, local exhaust ventilation, or other engineering controls to control
**9. PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical States</td>
<td>[ ] Gas</td>
</tr>
<tr>
<td></td>
<td>[ X ] Liquid</td>
</tr>
<tr>
<td></td>
<td>[ ] Solid</td>
</tr>
<tr>
<td>Appearance and Odor</td>
<td>Viscous</td>
</tr>
<tr>
<td></td>
<td>Light. Brown</td>
</tr>
<tr>
<td>Melting Point</td>
<td>No data.</td>
</tr>
<tr>
<td>Boiling Point</td>
<td>No data.</td>
</tr>
<tr>
<td>Autoignition Pt</td>
<td>No data.</td>
</tr>
<tr>
<td>Flash Pt</td>
<td>No data.</td>
</tr>
<tr>
<td>Explosive Limits</td>
<td>LEL: No data.</td>
</tr>
<tr>
<td></td>
<td>UEL: No data.</td>
</tr>
<tr>
<td>Specific Gravity (Water = 1)</td>
<td>No data.</td>
</tr>
<tr>
<td>Vapor Pressure (vs. Air or mm Hg)</td>
<td>No data.</td>
</tr>
<tr>
<td>Vapor Density (vs. Air = 1)</td>
<td>No data.</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data.</td>
</tr>
<tr>
<td>Solubility in Water</td>
<td>No data.</td>
</tr>
<tr>
<td>Percent Volatile</td>
<td>No data.</td>
</tr>
</tbody>
</table>

**10. STABILITY AND REACTIVITY**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stability</td>
<td>Unstable [ ] Stable [ X ]</td>
</tr>
<tr>
<td>Conditions To Avoid</td>
<td>No data available.</td>
</tr>
<tr>
<td>Instability</td>
<td>Light, ignition sources, Exposure to air.</td>
</tr>
<tr>
<td>Incompatibility - Materials To Avoid</td>
<td>Strong oxidizing agents, Strong bases, Copper.</td>
</tr>
<tr>
<td>Hazardous Decomposition or Byproducts</td>
<td>formed under fire conditions. Carbon oxides, Phosphorous oxides, Hydrogen chloride gas, Thermal decomposition 244 °C Hydrogen chloride, phosgene, Carbon monoxide.</td>
</tr>
<tr>
<td>Possibility of Hazardous Reactions</td>
<td>Will occur [ ] Will not occur [ X ]</td>
</tr>
<tr>
<td>Conditions To Avoid</td>
<td>No data available.</td>
</tr>
<tr>
<td>Hazardous Reactions</td>
<td></td>
</tr>
</tbody>
</table>
### 11. TOXICOLOGICAL INFORMATION

**Toxicological Information:**

- **Epidemiology:** No data available.
- **Teratogenicity:** No data available.
- **Reproductive Effects:** Mutagenicity: Neurotoxicity: Other Studies:
  - CAS# NA:
  - Acute toxicity, LD50, Oral, Rat, 3600. MG/KG.
  - Results:
    - Behavioral: Somnolence (general depressed activity).
    - Behavioral: Tremor.
    - Lungs, Thorax, or Respiration: Other changes.
  - National Technical Information Service, Vol/p/yr: OTS05, 7713

- Acute toxicity, LD50, Intravenous, Mouse, 56.00 MG/KG.
  - Results:
    - Behavioral: Food intake (animal).
    - Nutritional and Gross Metabolic: Weight loss or decreased weight gain.

- Skin corrosion/irritation, Skin sensitization, Skin, Rabbit, 0.000 , Mild.
  - Results:
    - Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Lacrimation.
    - Behavioral: Tremor.
    - Lungs, Thorax, or Respiration: Cyanosis.

- CAS# 156-60-5:
  - Reproductive Effects: TCLo, Inhalation, Rat, 6000. PPM, 6 H, female 7-16 day(s) after conception.
  - Results:
    - Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

  - Reproductive Effects: TCLo, Inhalation, Rat, 12000. PPM, 6 H, female 7-16 day(s) after conception.
  - Results:
    - Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
    - Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

- Mutagenicity: Mutation test: Mutation in microorganisms, 50.00 UG/PLAT, Bacteria - Salmonella typhimurium.
  - Results:
    - Behavioral: Sleep.
    - Behavioral: Hallucinations, distorted perceptions.
Mutagenicity:, Gene conversion and mitotic recombination., 80.00 MMOL/L, Saccharomyces cerevisiae.
Results:
Behavioral: Coma.
Lungs, Thorax, or Respiration: Dyspnea.

Mutagenicity:, Mutation test: DNA damage., 22.00 MMOL/L, Saccharomyces cerevisiae.
Results:
Behavioral: Coma.
Vascular: BP lowering not characterized in autonomic section.

Mutagenicity:, Sex chromosome loss and nondisjunction, 51500. UMOL/L, Saccharomyces cerevisiae.
Results:
Gastrointestinal: Nausea or vomiting.

Mutagenicity:, Sex chromosome loss and nondisjunction, Species: Hamster, 6500. UMOL/L, Cell Type: lung.
Results:
Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Olfaction: Other changes.
Sense Organs and Special Senses (Nose, Eye, Ear, and Taste): Eye: Other.
Lungs, Thorax, or Respiration: Other changes.

Other Studies:, TDLo, Oral, Rat, 113.0 GM/KG, 90 D.
Results:
Kidney, Ureter, Bladder: Changes in bladder weight.

Other Studies:, TCLo, Inhalation, Rat, 200.0 PPM, 8 W.
Results:
Lungs, Thorax, or Respiration: Other changes.
Liver: Other changes.
Endocrine: Changes in endocrine weight (unspecified).

Acute toxicity, TCLo, Inhalation, Human, 4800. MG/M3, 10 M.
Results:
Behavioral: Sleep.
Behavioral: Hallucinations, distorted perceptions.
Acute toxicity, LD50, Oral, Rat, 1235. MG/KG.
Results:
Cardiac:Other changes.
Lungs, Thorax, or Respiration:Other changes.
Liver: Fatty liver degeneration.

Acute toxicity, LD50, Intraperitoneal, Rat, 7411. MG/KG.
Results:
Cardiac:Other changes.
Lungs, Thorax, or Respiration:Other changes.
Liver: Fatty liver degeneration.

Acute toxicity, LD50, Oral, Mouse, 2122. MG/KG.
Results:
Behavioral: Altered sleep time (including change in righting reflex).
Behavioral: Somnolence (general depressed activity).
Behavioral: Ataxia.

Acute toxicity, LCLO, Inhalation, Mouse, 75.00 GM/M3, 2 H.
Results:
Behavioral: General anesthetic.
Behavioral: Convulsions or effect on seizure threshold.
Lungs, Thorax, or Respiration:Dyspnea.

Acute toxicity, LD50, Intraperitoneal, Mouse, 3952. MG/KG.
Results:
Behavioral: General anesthetic.
Behavioral: Convulsions or effect on seizure threshold.
Gastrointestinal:Nausea or vomiting.

Acute toxicity, LCLO, Inhalation, Species: Cat, 43.00 GM/M3, 6 H.
Results:
Behavioral: General anesthetic.
Behavioral: Convulsions or effect on seizure threshold.
Gastrointestinal:Nausea or vomiting.
Skin and Appendages: Skin: After systemic exposure: Dermatitis, irritative.
Nutritional and Gross Metabolic: Weight loss or decreased weight gain.

Standard Draize Test, Skin, Species: Rabbit, 500.0 MG, 24 H.
Results:
Effects on Newborn: Growth statistics (e.g., reduced weight gain).

Irritation or Corrosion:
Skin - rabbit - Mild skin irritation - 24 h.
Serious eye damage/eye irritation:
Eyes - rabbit - Mild eye irritation.

Carcinogenicity/Other Information:
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. CAS# 156-60-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

12. ECOLOGICAL INFORMATION

Persistence and Degradability: No data available.
Bioaccumulative Potential: No data available.
Mobility in Soil: No data available.
13. DISPOSAL CONSIDERATIONS

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging.
Dispose of as unused product. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261. RCRA P-Series: None listed. RCRA U-Series: CAS# 156-60-5: waste number U079.

14. TRANSPORT INFORMATION

GHS Classification:
Acute Toxicity: Oral, Category 4 - Warning! Harmful if swallowed
Acute Toxicity: Skin, Category 5 - Warning! May be harmful in contact with skin
Skin Corrosion/Irritation, Category 3 - Warning! Causes mild skin irritation
Serious Eye Damage/Eye Irritation, Category 2B - Warning! Causes eye irritation
Aquatic Toxicity (Acute), Category 3 - Harmful to aquatic life

LAND TRANSPORT (US DOT):
DOT Proper Shipping Name: Not Regulated.
DOT Hazard Class: 
UN/NA Number: 

LAND TRANSPORT (Canadian TDG):
TDG Shipping Name: Not Regulated.
UN Number: 
Hazard Class: TDG Classification: 

MARINE TRANSPORT (IMDG/IMO):
IMDG/IMO Shipping Name: Not Regulated.

AIR TRANSPORT (ICAO/IATA):
ICAO/IATA Shipping Name: Not Regulated.

15. REGULATORY INFORMATION

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>S. 302 (EHS)</th>
<th>S. 304 RQ</th>
<th>S. 313 (TRI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-73-1</td>
<td>1,1,1,3,3-Pentafluoropropane (HFC-245fa)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>NA</td>
<td>Halogenated Phosphate</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>156-60-5</td>
<td>Trans-1,2-Dichloroethylene</td>
<td>No</td>
<td>Yes 1000 LB</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>(1,2-trans-Dichloroethylene; Ethene, 1,2-dichloro-, (E)-)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CAS # Hazardous Components (Chemical Name) Other US EPA or State Lists

<table>
<thead>
<tr>
<th>CAS #</th>
<th>Hazardous Components (Chemical Name)</th>
<th>Other US EPA or State Lists</th>
</tr>
</thead>
<tbody>
<tr>
<td>460-73-1</td>
<td>1,1,1,3,3-Pentafluoropropane (HFC-245fa)</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: No; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: No</td>
</tr>
<tr>
<td>NA</td>
<td>Halogenated Phosphate</td>
<td>CAA HAP,ODC: No; CWA NPDES: No; TSCA: Yes - Inventory, 8D TERM; CA PROP.65: No; CA TAC, Title 8: No; MA Oil/HazMat: No; MI CMR, Part 5: No; NC TAP: No; NJ EHS: No; NY Part 597: No; PA HSL: No; SC TAP: No; WI Air: No</td>
</tr>
</tbody>
</table>
156-60-5  Trans-1,2-Dichloroethylene  
{1,2-trans-Dichloroethylene; Ethene, 1,2-dichloro-, (E)-}

CAS #  Hazardous Components (Chemical Name)  
460-73-1  1,1,1,3,3-Pentafluoropropane  {HFC-245fa}  
NA  Halogenated Phosphate  
156-60-5  Trans-1,2-Dichloroethylene  
{1,2-trans-Dichloroethylene; Ethene, 1,2-dichloro-, (E)-}

International Regulatory Lists  
Canadian DSL: Yes; Canadian NDSL: No  
Canadian DSL: Yes; Canadian NDSL: No  
Canadian DSL: Yes; Canadian NDSL: No

Regulatory Information:  
This product contains no chemicals subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 40 CFR part 372.

16. OTHER INFORMATION

Revision Date: 04/30/2015

Additional Information About This Product: No data available.

Company Policy or Disclaimer:  
While the information and recommendations in this publication are given to the best of our knowledge, and information at the date of publication, nothing herein is to be construed as a warranty, expressed or otherwise. In all cases, it is the responsibility of the user to determine the applicability of such information, and recommendations or the suitability of any product for its own particular purpose.

The product may present hazards and should be used with caution. While certain hazards are described in this Safety Data Sheet, no guarantee is made that these are the only hazards that exist. Hazards, toxicity and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behavior should be determined by the user and made known to handlers, processors and end users.

NO PERSON OR ORGANIZATION EXCEPT A DULY AUTHORIZED SWD EMPLOYEE SHALL PROVIDE, OR MAKE AVAILABLE, DATA SHEETS FOR SWD PRODUCTS. DATA SHEETS FROM UNAUTHORIZED SOURCES MAY CONTAIN INFORMATION THAT IS NO LONGER CURRENT OR ACCURATE. NO PART OF THIS DATA SHEET MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM, OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF SWD. ALL REQUESTS FOR PERMISSION TO REPRODUCE MATERIAL FROM THIS DATA SHEET OR QUESTIONS REGARDING THIS DATA SHEET SHOULD BE DIRECTED TO SWD AT 800-828-1394.