1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: PERMABOND QFS16
Product Type: Accelerator
Company: PERMABOND LLC
14 Robinson Street
Pottstown, PA 19464
USA

Telephone: 732-868-1372 or 800-640-7599
Website: www.permabond.com

Emergency Telephone: Medical: Poison Control Center 866-827-6282 (toll free)
or 1-303-389-1109
Transport: CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

DANGER:
HIGHLY FLAMMABLE LIQUID AND VAPOR
MAYBE FATAL IF SWALLOWED AND ENTERS AIRWAYS
CAUSES SERIOUS EYE IRRITATION
CAUSES SKIN IRRITATION
MAY CAUSE DROWSINESS OR DIZZINESS

HAZARD CLASS | HAZARD CATEGORY
-----------------|------------------
FLAMMABLE LIQUID | 2
EYE IRRITATION  | 2A
SKIN IRRITATION | 2
SPECIFIC TARGET ORGAN TOXICITY- SINGLE EXPOSURE- CENTRAL NERVOUS SYSTEM | 3
ASPIRATION HAZARD | 1

PICTOGRAM(S)

Precautionary Statements

Prevention:
Keep away from heat, sparks, open flames, hot surfaces – No smoking. Keep container tightly closed. Do not release into water. Use explosion proof equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Avoid breathing vapors, mist or spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves, eye protection and face protection.

Response:
IF SWALLOWED: Immediately call a physician or a poison control center. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician or a poison control center. IF IN EYES: Rinse cautiously with plenty of water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician control center or a physician. IF ON SKIN/HAIR: Immediately remove all contaminated clothing. Rinse with plenty of water. If you feel unwell call a poison control center or a physician. If eye irritation occurs: Get medical attention. If skin irritation occurs: Get medical attention. In case of fire: Use foam, dry chemical or carbon dioxide to extinguish.

Storage:
Store in a well-ventilated cool place. Keep container tightly closed. Store locked up.

Disposal: Dispose of according to Federal, State/Provincial and local governmental regulations.

See Section 11 for additional toxicological information.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>CAS NUMBER</th>
<th>CONCENTRATION (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane</td>
<td>142-82-5</td>
<td>60 – 100</td>
</tr>
</tbody>
</table>

*Exact concentration is a trade secret. Concentration ranges are provided to assist user in determining appropriate protection.

### 4. FIRST AID MEASURES

**Inhalation:**  Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.

**Skin contact:**  Immediately wash skin with plenty of soap and water. If symptoms develop or persist get medical attention.

**Eye contact:**  Immediately flush with large amounts of water for at least 15 minutes. Get medical attention.

**Ingestion:**  DO NOT induce vomiting. Get medical attention.

**Symptoms:**  See section 11

**Notes to Physician:**  Aspiration may cause pulmonary edema or aspiration pneumonia.

### 5. FIRE-FIGHTING MEASURES

**Extinguishing media:**  Foam, dry chemical or carbon dioxide.

**Special fire fighting procedures:**  Fire fighter should wear positive pressure self-contained breathing apparatus. Water should be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

**Unusual fire or explosion hazards:**  Vapors may accumulate in low confined areas, travel considerable distance to sources of ignition, and flash back

**Hazardous combustion products:**  Oxides of carbon. Oxides of nitrogen.
6. ACCIDENTAL RELEASE MEASURES

Use personal protection equipment recommended in section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Remove all sources of ignition. Prevent product from entering drains or waterways.

Clean-up methods: Ensure adequate ventilation. Contain spillage, if safe to do so. Soak up with inert absorbent material (e.g., sand, silica gel, acid binders universal binder, saw dust). Store in partially filled closed container until proper disposal. Refer to section 8 (Exposure Controls/Personal Protection) before clean up.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Prevent contact with eyes, skin and clothing. Do not breathe vapor or mist. Keep away from sources of ignition – No smoking. Wash thoroughly after handling

Storage: Store in a cool well ventilated area. Keep container closed. Store away from sources of ignition.

For shelf life information contact Permabond customer service at (800)714-0170

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employees should complete an assessment of all workplaces to determine the need for and selection of proper exposure controls and protective equipment before each task is started.

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>AIHA WEEL</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Heptane</td>
<td>400 ppm TWA</td>
<td>500 ppm (2,000 mg/m3) PEL</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>500 ppm STEL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Engineering controls: Local exhaust ventilation is recommended when general ventilation is insufficient to maintain vapor concentrations below established exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s). Observe OSHA regulations for respirator use (29 CFR 1910.134)

Skin protection: Use chemical resistant impermeable clothing including gloves to prevent skin contact.

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be worn if the potential for splashing or spray exists.
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>Aliphatic</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not available</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>35 mm Hg (20°C (68°F))</td>
</tr>
<tr>
<td>Boiling point/range</td>
<td>96.1 – 98.9°C (205 -210°F)</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>Not available</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.68 at 23.9°C (75°F)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>3.45</td>
</tr>
<tr>
<td>Flash point</td>
<td>-2 °C (28.4°F)</td>
</tr>
<tr>
<td>Flammable/Explosive limits – Lower</td>
<td>1.1%</td>
</tr>
<tr>
<td>Flammable/Explosive limits – upper</td>
<td>6.7%</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>2.7 (Ether = 1)</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Not miscible</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>VOC content</td>
<td>99.9 %, 680 grams/liter (Estimated)</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>Stable when stored under the recommended storage conditions</td>
</tr>
<tr>
<td>Hazardous reactions</td>
<td>Will not occur.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>No data</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Acids. Oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat, flames, sparks and other sources of ignition. Contact with incompatible materials.</td>
</tr>
</tbody>
</table>
11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: May cause dizziness, incoordination, headache, nausea and vomiting.
Skin contact: Causes skin irritation
Eye contact: Causes serious eye irritation.
Ingestion: This product may be fatal if swallowed. Principal hazard of ingestion is aspiration into the lungs and subsequent pneumonitis.

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>LD50</th>
<th>LC50</th>
<th>Immediate and delayed Health Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane</td>
<td>None</td>
<td>LC50-Inhalation (RAT, 4 h) = 103 mg/l</td>
<td>Central Nervous System, Irritant</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>NTP Carcinogen</th>
<th>IARC Carcinogen</th>
<th>OSHA Carcinogen</th>
</tr>
</thead>
<tbody>
<tr>
<td>n-Heptane</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

12. ECOLOGICAL INFORMATION

Ecological information: Not Available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of according to Federal, State/Provincial and local governmental regulations. Refer to section 8 (Exposure Controls/Personal Protection) before handling.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR):

Proper shipping name: Heptanes
Hazard class or division: 3
Identification number: UN 1206
Packing group: II
Exceptions:
International Air Transportation (ICAO/IATA):

Proper shipping name: Heptanes
Hazard class or division: 3
Identification number: UN 1206
Packing group: II
Exceptions: May qualify as Consumer Commodity, ID8000. (not more than 500 ml)

Water Transportation (IMO/IMDG):

Proper shipping name: Heptanes
Hazard class or division: 3
Identification number: UN 1206
Packing group: II
Exceptions: Limited quantity (not more than 1 L)

Marine pollutant: Heptanes

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification: None above the reporting limits.
CERCLA/SARA Section 302 EHS: None above the reporting limits.
CERCLA/SARA Section 311/312: Immediate Health, Delayed Health, Fire
CERCLA/SARA 313: None above the reporting limits.
California Proposition 65: No chemical listed on the California Proposition 65 are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Domestic Substances List.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous one: New format

Issue date: 05/05/15

ADDITIONAL INFORMATION: The information given and the recommendations made herein apply to our product(s) alone and are not combined with other product(s). Such are based on our research and on data from other reliable sources and are believed to be accurate. No guaranty of accuracy is made. It is the purchaser's responsibility before using any product to verify this data under their own operating conditions and to determine whether the product is suitable for their purposes.