ISOPROPYL CYCLOHEXANE

CAUTIONARY RESPONSE INFORMATION

1. CORRECTIVE RESPONSE ACTIONS
   Drop discharge.

2. CHEMICAL DESIGNATIONS
   2.1 CG Compatibility Group: Not listed.
   2.2 Formula: (CH₃)₂CHCH₂.
   2.3 IMO/UN Designation: Not listed.
   2.4 DOT ID No.: Not listed.
   2.5 CAS Registry No.: 686-29-7.
   2.6 NAERSI Guide No.: Not listed.
   2.7 Standard Industrial Trade Classification: 51129.

3. HEALTH HAZARDS
   3.1 Personal Protective Equipment: Hydrocarbon vapor canister, supplied-air, or hose mask, hydrocarbon-insoluble rubber or plastic gloves, chemical goggles or face splash shield, hydrocarbon-insoluble rubber or plastic apron.
   3.2 Symptoms Following Exposure: Dizziness, with nausea and vomiting. Concentrated vapor may cause collapse and unconsciousness.
   3.3 Treatment of Exposure: INHALATION: Remove victim to fresh air; if breathing stops, give artificial respiration and administer oxygen. SKIN OR EYE CONTACT: Remove contaminated clothing and gently flush affected areas with water for 15 minutes; call a physician.
   3.4 TLV-TWA: Not listed.
   3.5 TLV-STEL: Not listed.
   3.6 TLV- Ceiling: Not listed.
   3.7 Toxicity by Ingestion: Currently not available.
   3.8 Toxicity by Inhalation: Currently not available.
   3.9 Chronic Toxicity: Currently not available.
   3.10 Vapor (Gas) Irritant Characteristics: Currently not available.
   3.11 Liquid or Solid Characteristics: Currently not available.
   3.12 Odor Threshold: Currently not available.
   3.13 IDLH Values: Not listed.
   3.14 OSHA PEL-TWA: Not listed.
   3.15 OSHA PEL-STEL: Not listed.
   3.16 OSHA PEL-Ceiling: Not listed.
   3.17 EPA AEGL: Not listed.

4. FIRE HAZARDS
   4.1 Flash Point: 96°F C.C.
   4.2 Flammable Limits in Air: Currently not available.
   4.3 Inerting Agents: Foam, carbon dioxide, dry chemical.
   4.4 Fire Extinguishing Agents Not to Be Used: Water may not be effective on fire.
   4.5 Special Hazards of Combustion Products: Currently not available.
   4.6 Behavior in Fire: Not listed.
   4.7 Auto Ignition Temperature: 541°F.
   4.8 Electrical Hazards: Currently not available.
   4.9 Burning Rate: Currently not available.
   4.10 Radiative Flame Temperature: Currently not available.
   4.11 Stoichiometric Air to Fuel Ratio: 64.3 (calc.).
   4.12 Flame Temperature: Currently not available.
   4.13 Combustion Molar Ratio (Reactant to Product): 18.0 (calc.).

5. CHEMICAL REACTIVITY
   5.1 Reactivity with Water: No reaction.
   5.2 Reactivity with Common Materials: No reaction.
   5.3 Stability During Transport: Stable.
   5.4 Neutralizing Agents for Acids and Caustics: Not pertinent.
   5.5 Polymerization: Not pertinent.
   5.6 Inhibitor of Polymerization: Not pertinent.

6. WATER POLLUTION
   6.1 Aquatic Toxicity: TL-96 ~ 100 - 1000 ppm.
   6.2 Waterfowl Toxicity: Currently not available.
   6.3 Biological Oxygen Demand (BOD): Currently not available.
   6.4 Food Chain Concentration Potential: Currently not available.
   6.5 GESAMP Hazard Profile: Bioaccumulation: 0.
   6.6 GESAMP Hazard Profile: Damage to living resources: (3).
   6.7 Human Oral hazard: 0.
   6.8 Human Contact hazard: 0.
   6.9 Reduction of amenities: 0.

7. SHIPPING INFORMATION
   7.1 Grades of Purity: 97%.
   7.2 Storage Temperature: Ambient.
   7.3 Inert Atmosphere: No requirement.
   7.4 Venting: Currently not available.
   7.5 IMDG Pollution Category: C.
   7.6 Ship Type: 3.
   7.7 Barge Hull Type: Currently not available.

8. HAZARD CLASSIFICATIONS
   8.1 49 CFR Category: Not listed.
   8.2 49 CFR Class: Not Pertinent.
   8.3 49 CFR Package Group: Not listed.
   8.4 Marine Pollutant: Not listed.
   8.5 NFPA Hazard Classification: Not listed.

9. PHYSICAL & CHEMICAL PROPERTIES
   9.1 Physical State at 15°C: Liquid.
   9.2 Molecular Weight: 126.24.
   9.3 Boiling Point at 1 atm: 310°F = 154.5°C = 429 K.
   9.4 Freezing Point: -129°F = -89.3°C = 184 K.
   9.5 Critical Temperature: Currently not available.
   9.6 Critical Pressure: Currently not available.
   9.7 Specific Gravity: 0.8023 @ 20°C.
   9.8 Liquid Surface Tension: Currently not available.
   9.9 Liquid Water Interfacial Tension: Currently not available.
   9.10 Vapor (Gas) Specific Gravity: 4.35 (est).
   9.11 Ratio of Specific Heats: Not listed.
   9.12 Latent Heat of VapORIZATION: (est) 20,035 Btu/lb = 11,131 cal/g = 466 X 10⁹ J/kg.
   9.13 Heat of Combustion: Currently not available.
   9.14 Heat of Decomposition: Currently not available.
   9.15 Heat of Solution: Currently not available.
   9.16 Heat of Polymerization: Currently not available.
   9.17 Heat of Fusion: Currently not available.
   9.18 Limiting Values: Currently not available.
   9.19 Reid Vapor Pressure: Currently not available.

NOTES

JUNE 1999
### ISOPROPYL CYCLOHEXANE

- **9.20** SATURATED LIQUID DENSITY
- **9.21** LIQUID HEAT CAPACITY
- **9.22** LIQUID THERMAL CONDUCTIVITY
- **9.23** LIQUID VISCOSITY
- **9.24** SOLUBILITY IN WATER
- **9.25** SATURATED VAPOR PRESSURE
- **9.26** SATURATED VAPOR DENSITY
- **9.27** IDEAL GAS HEAT CAPACITY

#### SATURATED LIQUID DENSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>50.090</td>
</tr>
</tbody>
</table>

#### LIQUID HEAT CAPACITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### LIQUID THERMAL CONDUCTIVITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit inch per hour-square foot-F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### LIQUID VISCOSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Centipoise</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SOLUBILITY IN WATER

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per 100 pounds of water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SATURATED VAPOR PRESSURE

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per square inch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### SATURATED VAPOR DENSITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### IDEAL GAS HEAT CAPACITY

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**JUNE 1999**