**1,1-DIFLUOROETHANE**

### CAUTIONARY RESPONSE INFORMATION

<table>
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<tr>
<th>Common Synonyms</th>
<th>Substance Characteristics</th>
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<tr>
<td>Ethylene difluoride</td>
<td>Liquid at low temperatures, solid at room temperature</td>
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<tr>
<td>Ethylidene fluoride</td>
<td>Flammable, irritating to skin and eyes</td>
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<tr>
<td>Refrigerant 152A</td>
<td>Harmful if inhaled, ingested, or absorbed through skin</td>
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**Exposure**
- FLAMMABLE:
- POISONOUS GASES MAY BE PRODUCED IN FIRE.
- Containers may explode in fire. Flashback along vapor trail may occur. Vapor may explode if ignited in an enclosed area. Wear goggles and self-contained breathing apparatus. Stop flow of gas if possible. Let fire burn. Cool exposed containers with water.

**Withdrawal**
- CALL FOR MEDICAL AID.
- VAPOR:
  - Irritating to eyes, nose and throat. Harmful if inhaled. Move victim to fresh air. Inhalation of concentrated gas will cause suffocation. Use artificial respiration if necessary. Movements and contact with liquid can damage eyes because of low temperature. Frostbite may result from contact with liquid. EYES: get medical attention if liquid has entered eyes. SKIN: soak in lukewarm water (for frostbite).

**Shipping Information**
- **1. CORRECTIVE RESPONSE ACTIONS**
  - Ship discharge:
    - Do not burn.
- **3. HEALTH HAZARDS**
  - **1. Personal Protective Equipment:** Individual breathing devices with air supply; neoprene gloves; protective clothing; eye protection
  - **2. Symptoms Following Exposure:** Inhalation of concentrated gas will cause suffocation. Contact with liquid can damage eyes because of low temperature. Frostbite may result from contact with liquid. EYES: get medical attention if liquid has entered eyes. SKIN: soak in lukewarm water (for frostbite).
  - **3. Treatment of Exposure:** INHALATION: remove to fresh air; use artificial respiration if necessary. EYES: get medical attention if liquid has entered eyes. SKIN: soak in lukewarm water (for frostbite).

**Environmental Impact**
- **5. CHEMICAL REACTIVITY**
  - **5.1 Reactivity with Water:** No reaction
  - **5.2 Reactivity with Common Materials:** Currently not available
  - **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

**Chemical Reactions**
- **2. CHEMICAL DESIGNATIONS**
  - **2.1 CG Compatibility Group:** Not listed
  - **2.2 Formula:** CH₃CHF₂
  - **2.3 IMOS/UN Designation:** 21030
  - **2.4 DOT ID No.:** 0230
  - **2.5 CAS Registry No.:** 75-37-6
  - **2.6 NAERG Guide No.:** 115
  - **2.7 Standard Industrial Trade Classification:** 51137

**Combustion Characteristics**
- **4. FIRE HAZARDS**
  - **4.1 Flash Point:** Not pertinent
  - **4.2 Flammable Limits in Air:** 3.7%–18%
  - **4.3 Fire Extinguishing Agents:** Shut off gas source; use water to cool adjacent combustibles.
  - **4.4 Fire Extinguishing Agents Not To Be Used:** Currently not available
  - **4.5 Special Hazards of Combustion Products:** Irritating hydrogen fluoride fumes may form in fire.
  - **4.6 Behavior in Fire:** Containers may explode. Vapors are heavier than air and may travel a considerable distance to an ignition source and flash back.
  - **4.7 Auto Ignition Temperature:** Currently not available
  - **4.8 Electrical Hazards:** Currently not available
  - **4.9 Burning Rate:** Not pertinent
  - **4.10 Adiabatic Flame Temperature:** Currently not available
  - **4.11 Stoichiometric Air to Fuel Ratio:** 11.9 (calc.)
  - **4.12 Flame Temperature:** Currently not available
  - **4.13 Combustion Molar Ratio (Reactant to Product):** 5.0 (calc.)
  - **4.14 Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

**Water Pollution**
- **6. WATER POLLUTION**
  - **6.1 Aquatic Toxicity:** Currently not available
  - **6.2 Waterfowl Toxicity:** Currently not available
  - **6.3 Biological Oxygen Demand (BOD):** None
  - **6.4 Food Chain Concentration Potential:** None
  - **6.5 GESAMP Hazard Profile:** Not listed

**Physical & Chemical Properties**
- **7. PHYSICAL & CHEMICAL PROPERTIES**
  - **7.1 Grades of Purity:** Commercial
  - **7.2 Storage Temperature:** Ambient
  - **7.3 Inert Atmosphere:** No requirement
  - **7.4 Vents:** Safety relief
  - **7.5 IMO Pollution Category:** Currently not available
  - **7.6 Ship Type:** Currently not available
  - **7.7 Barge Hull Type:** Currently not available

**Hazardous Substances**
- **8. HAZARD CLASSIFICATIONS**
  - **8.1 49 CFR Category:** Flammable gas
  - **8.2 49 CFR Class:** 2
  - **8.3 49 CFR Package Group:** Not pertinent
  - **8.4 Marine Pollutant:** No
  - **8.5 HNPA Hazard Classification:** Not listed
  - **8.6 EPA Reportable Quantity:** Not listed
  - **8.7 EPA Pollution Category:** Not listed
  - **8.8 RCRA Waste Number:** Not listed
  - **8.9 EPA FWPCA List:** Not listed

**Shipping Information**
- **9. PHYSICAL & CHEMICAL PROPERTIES**
  - **9.1 Physical State at 15°C and 1 atm:** Gas
  - **9.2 Molecular Weight:** 66.05
  - **9.3 Boiling Point at 1 atm:** 52.3°F = 11.3°C = 246.3 K
  - **9.4 Freezing Point:** –179°F = –117°C = 156°K
  - **9.5 Critical Temperature:** 236.3°F = 113.5°C = 426.7°K
  - **9.6 Critical Pressure:** 632 psia = 44.37 atm = 5.40 MmHg
  - **9.7 Specific Gravity:** 0.95 at 20°C (liquid)
  - **9.8 Liquid Surface Tension:** 11.25 dynes/cm = 0.01125 N/m = 10°C
  - **9.9 Liquid Water Interfacial Tension:** Currently not available
  - **9.10 Vapor (Gas) Specific Gravity:** 2.3
  - **9.11 Ratio of Specific Heats of Vapor (Gas):** 1.14
  - **9.12 Latent Heat of Vaporization:** 140.5 Btu/lb = 78.03 cal/g = 3,265 X 10^3 J/kg
  - **9.13 Heat of Combustion:** –7,950 Btu/lb = –4,420 cal/g = –185 X 10^3 J/kg
  - **9.14 Heat of Decomposition:** Not pertinent
  - **9.15 Heat of Solution:** Not pertinent
  - **9.16 Heat of Polymerization:** Not pertinent
  - **9.17 Heat of Fusion:** Currently not available
  - **9.18 Limiting Value:** Currently not available
  - **9.19 Reid Vapor Pressure:** Currently not available

**NOTES**
- **JUNE 1999**
### 1,1-DIFLUOROETHANE

<table>
<thead>
<tr>
<th>Temperature (degrees F)</th>
<th>Pounds per cubic foot</th>
<th>Temperature (degrees F)</th>
<th>British thermal unit per pound-F</th>
<th>Temperature (degrees F)</th>
<th>British thermal unit inch per hour-square foot-F</th>
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**June 1999**