Product Safety Summary Sheet

DuPont™ 1,1-Difluoroethane

Chemical Identification, Product Identification or Common Name:
CAS number: 75-37-6
CAS name: Ethane, 1,1-Difluoro
IUPAC name: 1,1-Difluoroethane
Common Name: HFC-152a

Product Uses and Applications:
1,1-Difluoroethane (HFC 152a) can be used alone or mixed with other common aerosol propellants in a wide range of personal, household or industrial product categories where the end consumer product is dispensed as a spray, e.g., hair spray, cologne, deodorant, and air fresheners. 1,1-Difluoroethane can also be a component of blowing agents for extruded polystyrene foams.

Physical Properties of the Chemical or Product:
HFC-152a is a clear, colorless liquefied gas with a slight odor and a boiling point of -25°C (-13°F). Generally, 1,1-Difluoroethane is considered stable but open flames and high temperatures should be avoided as this material can be decomposed by high temperatures, potentially resulting in the formation of hazardous decomposition products.

Exposure Potential:

Workplace exposure:
HFC-152a is manufactured in closed-systems, thus significant exposures or exposures above applicable exposure limits (to workers) is unlikely. However, exposure can come from leaks that can be caused by equipment malfunction or during equipment maintenance. Always refer to the
(Material) Safety Data Sheet ((M)SDS) for guidance on the appropriate personal protective equipment to be used and on the safe handling of this material.

Workers should follow the recommended safety measures contained within the (Material) Safety Data Sheet ((M)SDS) and on any product packaging. Employees should be trained in the appropriate work processes and safety equipment to limit exposure to chemical substances. Occupational use of this substance is considered to be safe provided the recommended safety measures given in the (M)SDS are followed.

**Consumer exposure:**
Consumer exposure can potentially occur through the direct use of personal, household or industrial products which contain HFC-152a. HFC-152a is expelled into the atmosphere as it pushes consumer product content out of its container, so potential consumer exposure would be by inhalation, although the cumulative effects of such inhalation to the public are minimal.

**Environmental exposure:**
Emissions from HFC-152a manufacturing facilities are small due to being manufactured in closed systems. Generally, industrial hygiene monitoring data during manufacture and industrial use show exposures under acceptable exposure limits. Residual HFC-152a can be collected and stored for recycle or disposal.

As an aerosol in consumer personal care and household products, typically all of the HFC-152a has been expelled from the container once the product has been fully consumed. For foam applications, some HFC-152a may remain entrained in the foam product after the foam’s disposition.

Any HFC-152a which gets into waste streams is expected to volatilize over a short period of time, perhaps as little as a few weeks.

**Health Information**
Note: The information contained in this section may be useful to someone handling the pure undiluted substance. Consumers are not likely to come in contact with the pure substance. For more information on health hazards and recommended protective equipment, please refer to the (M)SDS.

<table>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Toxicity</td>
<td>Inhalation: Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are anesthetic effects, light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness. Vapors are heavier than air and can cause suffocation by reducing available oxygen for breathing.</td>
</tr>
<tr>
<td>Irritation</td>
<td>Skin: Not an irritant. Contact with liquid or refrigerated gas can cause cold burns or frostbite.</td>
</tr>
</tbody>
</table>
Eye: Not an irritant. Contact with liquid or refrigerated gas can cause cold burns or frostbite.

<table>
<thead>
<tr>
<th>Sensitization</th>
<th>Not expected to cause skin sensitization.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mutagenicity</td>
<td>Not a mutagen.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not carcinogenic.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>No toxicologically significant effects were found.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>No reproductive/developmental toxicity.</td>
</tr>
</tbody>
</table>

### Environmental Information

*Note: The information in this section is intended to provide general information regarding this substance’s environmental impact. The results in the table below refer to testing performed with the non-formulated, undiluted substance. The data does not replace the data given in the (M)SDS. For more information and recommended protective measures, please refer to the (M)SDS.*

<table>
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<tr>
<th>Effect Assessment</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>Slightly toxic to aquatic organisms (data is based on similar substances).</td>
</tr>
<tr>
<td>Biodegradability Persistence</td>
<td>Not readily biodegradable. Persistent in the atmosphere. It is expected to rapidly volatilize from aquatic and soil compartments.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not expected to bioaccumulate.</td>
</tr>
</tbody>
</table>

### Risk Management

**Workplace Management:**

Risk management measures for industrial site use include containment through engineering controls and the use of personal protective equipment (PPE) as appropriate. Engineering controls include the use of storage and shipping containers that are rated for the pressures and temperatures to which the material may be subjected, use of appropriate recycle and recovery equipment, and adequate ventilation at both storage and use locations. Always refer to the (Material) Safety Data Sheet ((M)SDS) for guidance on the appropriate personal protective equipment to be used and on the safe handling of this material.

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when the potential for large amounts are released. Mechanical exhaust should be used in low or enclosed places. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs. Safe work practices include maintaining proper storage of material containers at safe temperatures and away from building air ventilation intake locations.

All equipment and cylinders should be grounded before use and explosion-proof electrical equipment should be used. Fire protective clothing (NOMEX) with antistatic control should be worn when handling this product.
**Consumer Risk Management:**
HFC-152a is used as an aerosol propellant to move consumer products out of a container and is typically used in low concentrations. When used as intended, exposure to the consumer is minimal. Use of adequate ventilation will further reduce potential exposure.

**Regulatory Information:**
Always refer to the (Material) Safety Data Sheet ((M)SDS) for guidance on regulatory restrictions that may govern the manufacture, sale, transportation, use and/or disposal of this chemical or product. Regulations may vary by region, country, state, county, city, or local government.

**First Aid Information:**
For all First Aid or Emergency information, consult the (Material) Safety Data Sheet ((M)SDS).

**Information Sources:**
Data is compiled from a variety of sources, including publicly available documents, internal data and other sources such as, but not limited to, Chemical Safety Reports and (Material) Safety Data Sheets ((M)SDS).

**Contact Information:**
E.I. du Pont de Nemours and Company, Wilmington, DE 19880
USA Customer Service:
Toll Free: 1-800-774-1000
Global: 1-843-335-5912
Hours: 8:00 a.m. - 7 p.m. EST

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