Product Safety Summary Sheet

DuPont™ 2,2-Dichloro-1,1,1-trifluoroethane

Chemical Identification, Product Identification or Common Name:
CAS number: 306-83-2
CAS name: 2,2-Dichloro-1,1,1-trifluoroethane
EINICS Number: 206–190–3
IUPAC name: 1,1-Dichloro-2,2,2-trifluoroethane
Common Name: HCFC-123

Product Uses and Applications:
This chemical or product is generally used in the following manner:
- as a refrigerant in low pressure chillers for air conditioning systems,
- for the fire protection industry in portable fire extinguishers,
- as a heat-transfer agent,
- in some solvent applications.

Physical Properties of the Chemical or Product:
2,2-Dichloro-1,1,1-trifluoroethane is a clear, colorless liquid with a slight odor. The substance has a boiling point of 27.6 degrees C and a freezing point of -107 degrees C. 2,2-Dichloro-1,1,1-trifluoroethane is non-flammable. At high temperatures, 2,2-Dichloro-1,1,1-trifluoroethane may decompose when exposed to high temperatures from sources such as open flames or electric resistance heaters.

Exposure Potential:

Workplace exposure:
Refrigeration and chiller maintenance technicians are the main workplace population at risk of exposure to HCFC-123. Exposure can come from the transfer of refrigerant, the accidental spillage
of refrigerant from drums, and leaks that can be caused by equipment malfunction. The use of portable fire extinguisher cylinders represents an additional opportunity for exposure.

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:**
Under normal conditions, opportunities for exposure to the public are low, therefore associated health risks to the public are also low. Leakage from chiller systems can occur but emissions are usually low, and large scale leakage is often confined and not a hazard to the public.

There is potential for minor leakage or spillage of HCFC-123 during routine chiller maintenance. However, given that air conditioning equipment is usually housed in plant rooms or other inaccessible locations, it is not anticipated that public exposure will arise from such activities. There is a small possibility that a major failure of a large air conditioning system could lead to a significant, temporary exposure of the building occupants. It is unlikely under any scenario there would be routine, continuous exposure of the public to this chemical.

Fire extinguisher discharge, from portable fire extinguishers, represents the greatest potential for exposure to HCFC-123 to the general public. Exposure to thermal decomposition products of HCFC-123 may also occur during use as a fire extinguishant.

**Environmental exposure:**
Release into the environment may occur during the transport, storage, recycling and disposal of refrigerant, during operations of chillers, through leaks and spills during line disconnects, maintenance of chillers, or from inadequately sealed drums, from fire extinguisher discharge, and during recycling operations.

**Health Information**
*Note: The information contained in this section may be useful to someone handling the pure undiluted substance such as a manufacturer or transporter. 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.*

Exposures may affect human health as follows:

<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, loss</td>
</tr>
</tbody>
</table>
of coordination, 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.

<table>
<thead>
<tr>
<th>Irritation</th>
<th>Skin: Not an irritant. Liquid may cause irritation with discomfort or pain, redness or rash, itching or swelling. Eye: Not an irritant. Liquid may cause irritation with discomfort, pain, redness or visual impairment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitization</td>
<td>Does not cause sensitization.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Not a mutagen.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Tumors in animals; little to no relevance to humans.</td>
</tr>
<tr>
<td>Toxicity after repeated exposure</td>
<td>Inhalation: Adverse liver effects in animals; little to no relevance to humans. Skin: Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness or possible blistering.</td>
</tr>
<tr>
<td>Toxicity for reproduction</td>
<td>No evidence of reproductive toxicity.</td>
</tr>
</tbody>
</table>

**Environmental Information**

*Note: The information in this chapter is intended to provide brief and general information of 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>
<thead>
<tr>
<th>Effect Assessment</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquatic Toxicity</td>
<td>Moderately to slightly toxic to aquatic organisms. However, due to its limited solubility and high volatility, it is not considered a threat to aquatic life.</td>
</tr>
<tr>
<td>Biodegradability</td>
<td>Not readily biodegradable.</td>
</tr>
<tr>
<td>Persistence</td>
<td>Persistent.</td>
</tr>
<tr>
<td>Bioaccumulation potential</td>
<td>Not bioaccumulative.</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 refrigerant may be subjected, use of appropriate recycle and recovery equipment, and adequate ventilation at both storage and use locations.
Safe work practices include minimizing the opening of sealed refrigerant containers indoors, and proper storage of refrigerant containers at safe temperatures and away from building air ventilation intake 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.

**Consumer Risk Management:**
The opportunities to manage consumer risk of exposure are minimal as such exposure usually will only occur upon the discharge of fire extinguishers or in the case of a large refrigeration chiller leak. Technicians who work with 2,2-Dichloro-1,1,1-trifluoroethane have the greatest risk of 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).

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