## 1. Product and company identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>Dusting Gas/Freeze Spray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier</td>
<td>Techspray</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Techspray</td>
</tr>
<tr>
<td>Code</td>
<td>1671/1672/1697</td>
</tr>
<tr>
<td>MSDS #</td>
<td>1671/1672/1697</td>
</tr>
<tr>
<td>Validation date</td>
<td>5/4/2015.</td>
</tr>
<tr>
<td>Print date</td>
<td>5/4/2015.</td>
</tr>
<tr>
<td>In case of emergency</td>
<td>Chemtrec - 1-800-424-9300 or collect 703-527-3887</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Product type</td>
<td>Aerosol.</td>
</tr>
</tbody>
</table>

## 2. Hazards identification

### Emergency overview
- **Physical state**: Gas. [Aerosol.]
- **Color**: Clear. Colorless.
- **Odor**: Ethereal. Faint odor.
- **Signal word**: CAUTION!
- **Hazard statements**: CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
- **Precautionary measures**: Use only with adequate ventilation. Do not spray on an open flame or other ignition source. Keep away from heat, sparks, open flames and hot surfaces. - No smoking. Pressurized container: Do not pierce or burn, even after use.
- **Routes of entry**: Not available.
- **Potential acute health effects**
  - **Inhalation**: Harmful by inhalation. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
  - **Ingestion**: Do not ingest. If swallowed then seek immediate medical assistance. Ingestion of liquid can cause burns similar to frostbite.
  - **Skin**: Contact with rapidly expanding gas may cause burns or frostbite.
  - **Eyes**: Contact with rapidly expanding gas may cause burns or frostbite.
- **Potential chronic health effects**: Contains material that may cause target organ damage, based on animal data.
2. Hazards identification

**Carcinogenicity**: No known significant effects or critical hazards.

**Mutagenicity**: No known significant effects or critical hazards.

**Teratogenicity**: No known significant effects or critical hazards.

**Developmental effects**: No known significant effects or critical hazards.

**Fertility effects**: No known significant effects or critical hazards.

**Target organs**: Contains material which may cause damage to the following organs: central nervous system (CNS).

**Over-exposure signs/symptoms**

**Inhalation**: Adverse symptoms may include the following:
- Respiratory tract irritation
- Coughing
- Dizziness/vertigo
- Nausea or vomiting
- Headache
- Unconsciousness

**Ingestion**: Adverse symptoms may include the following:
- Frostbite

**Skin**: Adverse symptoms may include the following:
- Frostbite
- Irritation
- Redness
- Dryness
- Cracking

**Eyes**: Adverse symptoms may include the following:
- Irritation
- Redness

**Medical conditions aggravated by over-exposure**: Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>811-97-2</td>
<td>100</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. First aid measures

**Eye contact**: Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

**Skin contact**: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

**Inhalation**: Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
4. First aid measures

**Ingestion**
Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Protection of first-aiders**
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**Notes to physician**
No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5. Fire-fighting measures

**Flammability of the product**
In a fire or if heated, a pressure increase will occur and the container may burst. Bursting aerosol containers may be propelled from a fire at high speed.

**Extinguishing media**
- **Suitable**: Use an extinguishing agent suitable for the surrounding fire.
- **Not suitable**: None known.

**Special exposure hazards**
Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

**Hazardous thermal decomposition products**
Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- halogenated compounds

**Special protective equipment for fire-fighters**
Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Special remarks on fire hazards**
Not available.

**Special remarks on explosion hazards**
Not available.

6. Accidental release measures

**Personal precautions**
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

**Environmental precautions**
Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**Methods for cleaning up**

**Small spill**
Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

**Large spill**
Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.
6. Accidental release measures

7. Handling and storage

Handling: Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous.

Storage: Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Protect from sunlight. Use appropriate containment to avoid environmental contamination.

8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Occupational exposure limits</th>
<th>TWA (8 hours)</th>
<th>STEL (15 mins)</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredient</td>
<td>List name</td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>US AIHA 10/2011</td>
<td>1000</td>
<td>-</td>
</tr>
</tbody>
</table>

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Engineering measures: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Eyes: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
## 8. Exposure controls/personal protection

| Skin | Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. |
| Environmental exposure controls | Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels. |
| Other protection | Not available. |
| Personal protective equipment (Pictograms) | Not available. |

## 9. Physical and chemical properties

| Physical state | Gas. [Aerosol.] |
| Flash point | Not available. |
| Burning time | Not applicable. |
| Burning rate | Not applicable. |
| Auto-ignition temperature | 750°C (1382°F) |
| Flammable limits | Not available. |
| Color | Clear. Colorless. |
| Odor | Ethereal. Faint odor. |
| Taste | Not available. |
| Molecular weight | Not applicable. |
| Molecular formula | Not applicable. |
| pH | Not available. |
| Boiling/condensation point | -26.2°C (-15.2°F) |
| Melting/freezing point | -101°C (-149.8°F) |
| Critical temperature | Not available. |
| Relative density | Not available. |
| Vapor pressure | Not available. |
| Vapor density | 3.5 [Air = 1] |
| Volatility | 100% (w/w) |
| Odor threshold | Not available. |
| Evaporation rate | Not available. |
| SADT | Not available. |
| Viscosity | Not available. |
| Ionicity (in water) | Not available. |
| Dispersibility properties | Not available. |
| Solubility | Not available. |
| Physical/chemical properties comments | Not available. |
| Aerosol product | Spray |
| Heat of combustion | 4.2 kJ/g |
10. Stability and reactivity

Chemical stability: The product is stable.

Conditions to avoid:
- Elevated temperature: Do not spray on a naked flame or any incandescent material. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Avoid all possible sources of ignition (spark or flame), open flames, sparks and static discharge.

Incompatible materials:
- Reactive or incompatible with the following materials: potassium, calcium, Magnesium, powdered Aluminum, and zinc.

Hazardous decomposition products:
- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Possibility of hazardous reactions:
- Under normal conditions of storage and use, hazardous reactions will not occur.

11. Toxicological information

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>LC50 Inhalation Vapor</td>
<td>Rat</td>
<td>1500 g/m³</td>
<td>4 hours</td>
</tr>
</tbody>
</table>

Conclusion/Summary: Not available.

Chronic toxicity
Not available.

Conclusion/Summary: Not available.

Irritation/Corrosion
Not available.

Conclusion/Summary: Not available.

Sensitizer
Not available.

Conclusion/Summary: Not available.

Carcinogenicity
Not available.

Conclusion/Summary: Not available.

Classification

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>EPA</th>
<th>NIOSH</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>None.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Mutagenicity
Not available.

Conclusion/Summary: Not available.

Teratogenicity
Not available.

Conclusion/Summary: Not available.

Reproductive toxicity
Not available.

Conclusion/Summary: Not available.

Synergistic products
Not available.
12. Ecological information

Ecotoxicity : No known significant effects or critical hazards.
  
Aquatic ecotoxicity : Not available.

Conclusion/Summary : Not available.

Persistence/degradability : Not available.

Conclusion/Summary : Not available.

Partition coefficient: n-octanol/water : Not available.

Bioconcentration factor : Not available.

Mobility : Not available.

Toxicity of the products of biodegradation : Not available.

Other adverse effects : No known significant effects or critical hazards.

13. Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Waste stream : Not available.

RCRA classification : Not available.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14. Transport information

<table>
<thead>
<tr>
<th>Regulatory information</th>
<th>UN number</th>
<th>Proper shipping name</th>
<th>Classes</th>
<th>PG</th>
<th>Label</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOT Classification</td>
<td>-</td>
<td>Consumer commodity ORM-D DOT SP 15146</td>
<td>ORM-D</td>
<td>-</td>
<td></td>
<td>Special provisions Must have a copy of DOT-SP 15146 with each shipment.</td>
</tr>
<tr>
<td>TDG Classification</td>
<td>-</td>
<td>Packaging Not approved For export to Canada</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Packaging Not approved For export to Canada</td>
</tr>
<tr>
<td>Mexico Classification</td>
<td>-</td>
<td>Consumer commodity ORM-DDOT SP15146</td>
<td>ORM-D</td>
<td>-</td>
<td></td>
<td>Must have a copy of DOT-SP 15146 with each shipment.</td>
</tr>
<tr>
<td>ADR/RID Class</td>
<td>UN3159</td>
<td>(1,1,1,2 Tetrafluoroethane)</td>
<td>2</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>
### 14. Transport information

<table>
<thead>
<tr>
<th>IMDG Class</th>
<th>UN3159</th>
<th>(1,1,1,2-Tetrafluoroethane)</th>
<th>2.2</th>
<th>-</th>
<th>-</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATA-DGR Class</td>
<td>UN3159</td>
<td>(1,1,1,2 Tetrafluoroethane)</td>
<td>2.2</td>
<td>-</td>
<td>Must have a copy of DOT-SP 15146 with each shipment. Limited quantity: 120 ml. The environmentally hazardous substance mark may appear if required by other transportation regulations.</td>
</tr>
</tbody>
</table>

PG*: Packing group

### 15. Regulatory information

**United States inventory (TSCA 8b)**: All components are listed or exempted.

**WHMIS (Canada)**: Class A: Compressed gas.

**Canadian lists**
- **Canadian NPRI**: The following components are listed: Volatile organic compounds
- **CEPA Toxic substances**: The following components are listed: Volatile organic compounds
- **Canada inventory**: All components are listed or exempted.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**International regulations**

**International lists**
- **Australia inventory (AICS)**: All components are listed or exempted.
- **China inventory (IECSC)**: All components are listed or exempted.
- **Japan inventory**: All components are listed or exempted.
- **Korea inventory**: All components are listed or exempted.
- **Malaysia Inventory (EHS Register)**: Not determined.
- **New Zealand Inventory of Chemicals (NZIoC)**: All components are listed or exempted.
- **Philippines inventory (PICCS)**: All components are listed or exempted.
- **Taiwan inventory (CSNN)**: All components are listed or exempted.

**Chemical Weapons Convention List Schedule I Chemicals**: Not listed

**Chemical Weapons Convention List Schedule II Chemicals**: Not listed

**Chemical Weapons Convention List Schedule III Chemicals**: Not listed
Dusting Gas/Freeze Spray

16. Other information

Label requirements : CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Hazardous Material Information System (U.S.A.)

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Flammability</td>
<td>1</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>0</td>
</tr>
</tbody>
</table>

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

References : Not available.
Other special considerations : Not available.
Date of printing : 5/4/2015.
Date of issue : 5/4/2015.
Date of previous issue : 4/14/2015.
Version : 2
Prepared by : Not available.

⚠️ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.