# Material Safety Data Sheet

**UltraJet® Duster**

## 1. Product and company identification

<table>
<thead>
<tr>
<th>Product name</th>
<th>UltraJet® Duster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier</td>
<td>Ladd Research</td>
</tr>
<tr>
<td></td>
<td>83 Holly Court</td>
</tr>
<tr>
<td></td>
<td>Williston, VT 05495</td>
</tr>
<tr>
<td></td>
<td>Tel. 802-658-4961</td>
</tr>
<tr>
<td>Synonym</td>
<td>HFC-134a; 1,1,1,2-tetrafluoroethane; 134a</td>
</tr>
<tr>
<td>Trade name</td>
<td>Air Duster, Canned Air, Duster</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Chemtronics</td>
</tr>
<tr>
<td></td>
<td>8125 Cobb Center Drive</td>
</tr>
<tr>
<td></td>
<td>Kennesaw, GA 30152</td>
</tr>
<tr>
<td></td>
<td>Tel. 770-424-4888 or toll free 800-645-5244</td>
</tr>
<tr>
<td>Catalog Number(s)</td>
<td>13032, 13034</td>
</tr>
<tr>
<td>Validation date</td>
<td>04/02/2018</td>
</tr>
</tbody>
</table>

## 2. Hazards identification

### Emergency overview

<table>
<thead>
<tr>
<th>Physical state</th>
<th>Gas. [Aerosol.]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Colorless.</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless.</td>
</tr>
<tr>
<td>Signal word</td>
<td>CAUTION!</td>
</tr>
<tr>
<td>Hazard statements</td>
<td>CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.</td>
</tr>
</tbody>
</table>

### Precautionary measures

- Do not breathe vapor or mist. Use only with adequate ventilation. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Use equipment rated for cylinder pressure.

### OSHA/HCS status

- This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### 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**: Unlikely due to volatile nature of product. 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. Irritating to eyes.

### Potential chronic health effects

- **Chronic effects**: Contains material that may cause target organ damage, based on animal data.
- **Carcinogenicity**: No known significant effects or critical hazards.
- **Mutagenicity**: No known significant effects or critical hazards.
- **Teratogenicity**: No known significant effects or critical hazards.
2. Hazards identification

**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

- **Ingestion**: Adverse symptoms may include the following:
  - frostbite
  - Irritating to mouth, throat and stomach.

- **Skin**: Adverse symptoms may include the following:
  - frostbite
  - irritation

- **Eyes**: Adverse symptoms may include the following:
  - frostbite
  - 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.

See toxicological information (Section 11)

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>98 - 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.

- **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.

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.

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.
7. Handling and storage

**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>Ingredient</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>AIHA WEEL (United States, 10/2011).</td>
</tr>
<tr>
<td></td>
<td>TWA: 1000 ppm 8 hours.</td>
</tr>
</tbody>
</table>

**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.

**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.
9. Physical and chemical properties

**Physical state**: Gas. [Aerosol.]

**Flash point**: [Product does not sustain combustion.]

**Color**: Colorless.

**Odor**: Odorless.

**Boiling/condensation point**: -26°C (-14.8°F)

**Aerosol product**

- **Type of aerosol**: Spray
- **Heat of combustion**: 4.158 kJ/g

10. Stability and reactivity

**Chemical stability**: The product is stable.

**Conditions to avoid**: Do not spray on a naked flame or any incandescent material.

**Incompatible materials**: Reactive or incompatible with the following materials: alkalis Powder. Strong oxidizing materials strong alkalis

**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.

**Irritation/Corrosion**: Not available.

**Sensitizer**: Not available.

**Carcinogenicity**: Not available.

**Classification**

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

**Mutagenicity**: Not available.

**Teratogenicity**: Not available.

**Reproductive toxicity**: Not available.
12. Ecological information

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

**Aquatic ecotoxicity**: Not available.

**Persistence/degradability**: 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.

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</td>
<td>ORM-D</td>
<td>-</td>
<td></td>
<td>Use ORM-D Label Ground 173.306 DOT-SP 15146</td>
</tr>
<tr>
<td>TDG Classification</td>
<td>Packaging Not approved For export to Canada</td>
<td>Packaging Not approved For export to Canada</td>
<td>-</td>
<td>-</td>
<td>Packaging Not approved For export to Canada</td>
<td></td>
</tr>
<tr>
<td>Mexico Classification</td>
<td>-</td>
<td>Consumer commodity ORM-D</td>
<td>ORM-D</td>
<td>-</td>
<td></td>
<td>Use ORM-D Label Ground 173.306 DOT-SP 15146</td>
</tr>
<tr>
<td>ADR/RID Class</td>
<td>3159</td>
<td>(1,1,1,2 Tetrafluoroethane)</td>
<td>2</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>IMDG Class</td>
<td>3159</td>
<td>(1,1,1,2 Tetrafluoroethane)</td>
<td>2.2</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>
14. Transport information

| IATA-DGR Class | 3159 | (1,1,1,2 Tetrafluoroethane) | 2.2 | - | Cargo Aircraft Only Quantity limitation: 150 kg |

PG*: Packing group

15. Regulatory information

HCS Classification : Compressed gas
Target organ effects

U.S. Federal regulations : 
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312
Classification : Sudden release of pressure
Delayed (chronic) health hazard

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2 Tetrafluoroethane</td>
<td>98 - 100</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>

State regulations

Massachusetts : None of the components are listed.
New York : None of the components are listed.
New Jersey : None of the components are listed.
Pennsylvania : None of the components are listed.
Canada inventory : All components are listed or exempted.

International regulations
15. Regulatory information

**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
- **II Chemicals:** Not listed
- **III Chemicals:** Not listed

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>0</td>
</tr>
<tr>
<td>Physical hazards</td>
<td>1</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.

**National Fire Protection Association (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>0</td>
</tr>
<tr>
<td>Instability/Reactivity</td>
<td>1</td>
</tr>
<tr>
<td>Special</td>
<td></td>
</tr>
</tbody>
</table>

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.
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