

SAFETY DATA SHEET

HFO Duster and Freeze ES1054, ES1054E, ES1624, ES1624E, ES1026,
ES1026E

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Identification of the substance or mixture

Product name : HFO Duster and Freeze ES1054, ES1054E, ES1624, ES1624E, ES1026, ES1026E

REACH Product name : trans-1,3,3,3-tetrafluoroprop-1-ene

Chemical name : HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.

Synonyms : trans - 1,3,3,3 - tetrafluoroprop-1-ene

Product type : Aerosol.

CAS number : 29118-24-9

Use of the substance/mixture : Aerosol Propellant.Blowing agent.Refrigerant.

Company/undertaking identification

Manufacturer : ITW Chemtronics
8125 Cobb Center Drive
Kennesaw, GA 30152

Tel. 770-424-4888 or toll free 800-645-5244

Distributor :

Importer : ITW Contamination Control BV
Saffierlaan 5
VZ-2132 Hoofddorp
The Netherlands

Email: info@itw-cc.com

Tel: +31 88 1307 400
FAX: +31 88 1307 499

e-mail address of person responsible for this SDS : askchemtronics@chemtronics.com

Emergency telephone number (with hours of operation) : Chemtrec - 1-800-424-9300 or collect 703-527-3887

2. HAZARDS IDENTIFICATION

The product is not classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Not classified.

Additional hazards : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite. Ingestion of liquid can cause burns similar to frostbite.

See Section 11 for more detailed information on health effects and symptoms.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Mono-constituent substance

Ingredient name	CAS number	%	EC number	Classification
trans-1,3,3,3-tetrafluoroprop-1-ene	29118-24-9	100		Not classified. [A]

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.

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

4. FIRST AID MEASURES

First aid measures

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

4. FIRST AID MEASURES

- Ingestion** : Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : May cause frostbite. If frostbite occurs, get medical attention. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- 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** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

See Section 11 for more detailed information on health effects and symptoms.

5. FIRE-FIGHTING MEASURES**Extinguishing media**

- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : 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. 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: carbonyl halides
- 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.
- Remark** : This product is not flammable at ambient temperatures and atmospheric pressure. However, it can be ignited when mixed with air under pressure and exposed to strong ignition sources.

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. 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. Avoid breathing gas. Avoid breathing vapor or mist.

7. HANDLING AND STORAGE

Storage : Do not store below the following temperature: 50°C (122°F). 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.

Packaging materials

Recommended : Use original container.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure limit values**

<u>Ingredient name</u>	<u>Occupational exposure limits</u>
No exposure limit value known.	

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 European Standard EN 689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, 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.

Respiratory protection : 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.

Hand protection : 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.

Eye protection : 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, gases or dusts.

Skin protection : 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**General information****Appearance**

Physical state : Gas. [Aerosol spray can Liquefied compressed gas.]

Color : Clear. Colorless.

Odor : Characteristic. [Slight]

Important health, safety and environmental information

Boiling point : -19°C (-2.2°F)

Flash point : Closed cup: Not applicable. Open cup: Not applicable..

Relative density : 1.13 (Water = 1)

Partition coefficient: n-octanol/water : The product is more soluble in octanol; log(octanol/water) = 1.6

Vapor density : 4 (Air = 1)

Evaporation rate (butyl acetate = 1) : >1 compared with butyl acetate

Other information

Auto-ignition temperature : 368°C (694.4°F)

10. STABILITY AND REACTIVITY

Stability	: The product is stable.
Conditions to avoid	: No specific data.
Materials to avoid	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION**Potential acute health effects**

Inhalation	: Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion	: No known significant effects or critical hazards.
Skin contact	: May cause skin irritation.
Eye contact	: May cause eye irritation.

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	LC50 Inhalation Gas.	Rat	207000 ppm	4 hours

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	Chronic NOEL Inhalation Gas.	Rat	5000 ppm	13 weeks

Product/ingredient name	Test	Experiment	Result
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	-	Experiment: In vitro Subject: Mammalian-Human Cell: Somatic	Negative
	475 Mammalian Bone Marrow Chromosomal Aberration Test	Experiment: In vivo Subject: Mammalian-Animal Cell: Somatic	Negative

Product/ingredient name	Result	Species	Dose	Exposure
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	Negative - Inhalation	Rabbit	15000 ppm	-
	Negative - Inhalation	Rat	15000 ppm	-

Chronic effects	: No known significant effects or critical hazards.
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.

Over-exposure signs/symptoms

Inhalation	: Adverse symptoms may include the following: respiratory tract irritation coughing
Ingestion	: No specific data.
Skin	: No specific data.
Eyes	: Adverse symptoms may include the following: irritation redness

12. ECOLOGICAL INFORMATION

Environmental effects : This product shows a low bioaccumulation potential.

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	-	EC50 >160 mg/l	Daphnia	48 hours
	-	NOEC >170 mg/l	Algae	72 hours
	-	NOEC >117 mg/l	Fish - Goldfish	96 hours

Conclusion/Summary : Not available.

Other ecological information**Biodegradability**

Conclusion/Summary : Not readily biodegradable.

Bioaccumulative potential





Product/ingredient name	LogP _{ow}	BCF	Potential
HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.	1.6	-	low

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

13. DISPOSAL CONSIDERATIONS

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

14. TRANSPORT INFORMATIONInternational transport regulations

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADR/RID Class	1950	AEROSOLS (Non-flammable)	2	-		Tunnel code (E)
ADN/ADNR Class	1950	AEROSOLS	2	-		-
IMDG Class	1950	AEROSOLS	2.2	-		-
IATA Class	1950	AEROSOLS	2.2	-		-

PG* : Packing group

15. REGULATORY INFORMATIONEU regulations

Classification and labeling have been determined according to EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

Hazard symbol or symbols :



- Risk phrases** : This product is not classified according to EU legislation.
- Contains** : HPO-1234ze Propellants. Refrigerant. Liquefied compressed gas.
- Product use** : Professional applications, Used by spraying.
- Europe inventory** : Not determined.

Other EU regulations

- Additional warning phrases** : Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not spray on a naked flame or any incandescent material. Keep away from sources of ignition - No smoking. Do not pierce or burn, even after use. Keep out of the reach of children.

16. OTHER INFORMATIONHistory

- Date of printing** : 2/7/2012.
- Date of issue/Date of revision** : 2/7/2012.
- Date of previous issue** : No previous validation.
- Version** : 3
- 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.