

Safety Data Sheet

FREEZALL

**AEROCHEM**

1. Identification

Product identifier	FREEZALL
Product code	AEFREEZ285GDZ
Other means of identification	None.
Recommended use of the chemical and restrictions on use	Non-flammable (-60°C) chiller. Freezing agent used in detecting thermal breakdowns.
Manufacturer	AEROCHEM Inc. 5977 Trans Canada Highway Pointe-Claire, QC H9R 1C1 Canada General Information: 1-888-592-5837 www.aerochem.ca info@aerochem.ca
Emergency phone number	INFOTRAC®: 1-800-535-5053 International call collect: 1-352-323-3500 24 hours/day, 7 days/week

2. Hazard identification

Summary	Content under pressure, do not puncture, cut, heat or throw container into the flames. Avoid contact with eyes. Do not breathe gas. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved.
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WHMIS 2015/GHS/OSHA HCS 2012



Gases under pressure (Liquefied gas)
Simple Asphyxiant

WARNING

H280: Contains gas under pressure; may explode if heated

H29X : May displace oxygen and cause rapid suffocation

P261: Avoid breathing gases.

P271: Use only outdoors or in a well-ventilated area.

P304+340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P312: Call a POISON CENTER or physician if you feel unwell.

P305+351+338: IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.

P410+403: Protect from sunlight. Store in a well-ventilated place.

3. Composition/information on ingredients

Common name	CAS	Weight % content
1,1,1,2-Tetrafluoroethane	811-97-2	80 - 100 %

Note: The manufacturer withholds the actual concentration range of the ingredient as a trade secret.

4. First-aid measures

Inhalation	Move person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. If a problem develops or persists, seek medical attention.
Skin contact	Wash skin with warm water and mild soap. Bathe (do not rub) any frostbite with lukewarm (not hot) water. If a problem develops or persists, seek medical attention.
Eye contact	IMMEDIATELY flush with plenty of water. Remove contact lenses if easy to do. Flush with water for at least 15 minutes. Hold eyelids apart to rinse properly. If a problem develops or persists, seek medical attention.
Ingestion	DO NOT induce vomiting, unless recommended by medical personnel. If victim is conscious wash out mouth with plenty of water. Never give anything by mouth if victim is unconscious or convulsing. If spontaneous vomiting occurs, keep head below hip level to prevent aspiration into the lungs. Seek medical attention or contact a Poison Centre immediately.
Other	No information available.
Symptoms	Contact with liquefied gas may cause frostbite. Inhalation of gas may cause central nervous system depression such as drowsiness, headache, dizziness, vertigo, nausea and fatigue.
Notes to the physician	Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media	Dry chemicals, water spray, chemical foam, carbon dioxide (CO ₂).
Specific hazards arising from the chemical	Non-flammable aerosol. Content under pressure, containers may explode under fire conditions. Aerosol containers are unstable at temperatures above 49 °C.
Special protective equipment	Firefighters must wear self contained breathing apparatus with full face mask. Firefighting suit may not be efficient against chemicals.
Special protective actions for fire-fighters	Use water spray to cool fire-exposed containers.


6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Do not touch spilled material. Make sure to wear personal protective equipment mentioned in this Safety Data Sheet.
Environmental precautions	For a large spill, consult the Department of Environment or the relevant authorities.
Methods and materials for containment and cleaning up	Evacuate unauthorized personnel. Ventilate the area well. Remove sources of ignition. Allow propellant gas to evaporate. Finish cleaning the contaminated surface by rinsing with soapy water.

7. Handling and storage

Precautions for safe handling	Content under pressure, do not puncture, cut, heat or throw container into the flames. Keep away from heat and open flame. Use only in well ventilated area. Do not breathe gas. Avoid contact with eyes. Avoid prolonged contact with skin. Wear eye protection, gloves and other protective clothing that are adapted to the task being performed and the risks involved. Keep only the quantities necessary for the work being performed in the work area. Do not eat, do not drink and do not smoke during use. Wash hands, forearms and face thoroughly after handling this compound and before eating, drinking or using toiletries. Remove contaminated clothing and wash before reuse.
Conditions for safe storage, including any incompatibilities	Keep in properly labelled containers. Store away from oxidizing materials and incompatible materials (see section 10). Keep away from direct sunlight and heat.
Storage temperature	<49°C (120.2°F)

8. Exposure controls/personal protection

Immediately Dangerous to Life or Health	No IDLH value is reported.
1,1,1,2-Tetrafluoroethane	TWA (8h) 1000 ppm US AIHA
Appropriate engineering controls	Provide sufficient mechanical ventilation (general or local exhaust) to keep the airborne concentrations of vapours, mists, aerosols or dust below their respective occupational exposure limits.
Individual protection measures	
Eye	No measures will be necessary. If there is a risk of contact with eyes, wear chemical splash goggles.
Hands	To avoid frostbite, wear gloves suitable to the hazards. Wear nitrile or neoprene gloves. Disposable nitrile gloves can also be used, but discard after single use.
Skin	Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Wear normal work clothing covering arms and legs as required by employer code.
Respiratory	Respiratory protection is not required for normal use. Where the conditions in the workplace require a respirator, it is necessary to follow a respiratory protection program. Moreover, respiratory protection equipment (RPE) must be selected, fitted, maintained and inspected in accordance with regulations and standard 29 CFR 1910.134 (OSHA), ANSI Z88.2 or CSA Z 94.11 (Canada) and approved by NIOSH/MSHA.
Feet	No personal protection measure required.
 Safety glasses Nitrile gloves	

9. Physical and chemical properties

Physical state	Aerosol (Liquefied gas)	Flammability	Non-flammable
Colour	Colourless	Flammability limits	N/Av.
Odour	Odourless	Flash point	N/Av.
Odour threshold	N/Av.	Auto-ignition temperature	N/Av.

pH	N/Ap.	Sensibility to electrostatic charges	No
Melting point	-101 °C (-149.8 °F)	Sensibility to sparks and/or friction	No
Freezing point	-101 °C (-149.8 °F)	Vapour density	3.6 (Air = 1)
Boiling point	-26.5 °C (-15.7 °F)	Relative density	1.21 kg/L (Water = 1)
Solubility	Insoluble in water (0.15%)	Partition coefficient n-octanol/water	N/Av.
Evaporation rate	> Éther éthylique	Decomposition temperature	N/Av.
Vapour pressure	661.9kPa (4964.3 mm Hg) @ 20 °C (68 °F)	Viscosity	10 cSt @ 40 °C (104 °F)
Percent Volatile	100%	Molecular mass	102.03
N/Av.: Not Available N/Ap.: Not Applicable Und.: Undetermined N/E: Not Established			

10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under recommended storage conditions. Aerosol containers are unstable at temperatures above 49 °C.
Possibility of hazardous reactions (including polymerizations)	A dangerous reaction will not occur.
Conditions to avoid	Avoid temperatures over 49 °C. Avoid contact with incompatible materials.
Incompatible materials	Strong oxidizing agents (e.g. chlorine, fluorine, nitric acid, perchloric acid, peroxides, nitrates, chlorates, chromates, permanganates and perchlorates).
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information


Numerical measures of toxicity	1,1,1,2-Tetrafluoroethane Inhalation >500000 ppm/4h Rat LC50
Likely routes of exposure	Skin, eyes, inhalation, ingestion.
Delayed, immediate and chronic effects	<p>Eye contact May cause redness to eyes. Contact with liquefied gas may cause frostbite.</p> <p>Skin contact Prolonged and repeated contact may cause redness and slight irritation of the skin. Contact with liquefied gas may cause frostbite.</p> <p>Inhalation In the workplace, the product is rapidly absorbed by respiratory tract. Inhalation of gas may cause central nervous system depression such as drowsiness, headache, dizziness, vertigo, nausea and fatigue. The severity of symptoms may vary depending on exposure conditions. Inhalation in large amounts of 1,1,1,2-Tetrafluoroethane (CAS no 811-97-2) may cause asphyxiation.</p> <p>Ingestion Low degree of acute toxicity. May cause gastrointestinal irritation with nausea and vomiting.</p> <p>Respiratory or skin sensitization Ingredients present at levels greater than or equal to 0.1% of this product are not skin or respiratory sensitizers.</p> <p>IARC/NTP No ingredients listed.</p>

	<p>Classification</p> <p>Carcinogenicity Ingredients present at levels greater than or equal to 0.1% of this product are not listed as a carcinogen by IARC, ACGIH, NIOSH, NTP or OSHA.</p> <p>Mutagenicity Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effects.</p> <p>Reproductive toxicity Ingredients in this product present at levels greater than or equal to 0.1% are not known to cause mutagenic effects.</p> <p>Specific target organ toxicity - single exposure No target organ is listed.</p> <p>Specific target organ toxicity - repeated exposure No target organ is listed.</p>
Interactive effects	No information available.
Other information	No additional information.

12. Ecological information

Ecological toxicity	<p>Fish - Oncorhynchus mykiss - Rainbow trout LC50 450 mg/L; 96h (CAS no 811-97-2)</p> <p>Aquatic Invertebrate - Daphnia magna EC50 980 mg/L; 48h (CAS no 811-97-2)</p> <p>Algae, Pseudokirchneriella subcapitata EC50 159 mg/L; 96h (CAS no 811-97-2)</p>
Persistence	Persistent in the environment.
Degradability	Degradation of tetrafluoroethane (CAS no 811-97-2) in the atmosphere is slow. The major degradation process for tetrafluoroethane in the atmosphere is oxidation. It has low reactivity towards indirect photo-oxidation by hydroxyl radicals in the troposphere, with an estimated lifetime of 14.3 years for this reaction.
Bioaccumulative potential	Based on the measured partition coefficient Log Kow of 1.06, Tetrafluoroethane (CAS no 811-97-2) is expected to have a low potential for bioaccumulation in the environment.
Mobility in soil	Tetrafluoroethane (CAS no 811-97-2) is expected to mainly partition to the atmosphere when released with minor partitioning to soil.
Other adverse effects	Tetrafluoroethane (CAS no 811-97-2) does not deplete the ozone layer, but it does have a high global warming potential.

13. Disposal considerations


 Container	Important! Prevent waste generation. Use in full. DO NOT pierce, cut, heat, or burn the container, even after use. Depressurize empty container (empty it of its propellant). Empty containers can be treated (recycled) where there is a recovery program. Observe all federal, state/provincial and municipal regulations. If necessary consult the Department of Environment or the relevant authorities.
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14. Transport information

UN Number	UN 3159
UN Proper Shipping Name	REFRIGERANT GAS R 134a
Environmental hazards	This material does not contain marine pollutant.

Special precautions for user	Permit required for transportation with proper DANGER placards displayed on vehicle. Exemption available: LTD QTY according to TDG Canada - art. 1.17; Mode of transportation: rail, sea and road, applicable for Canadian domestic shipments. Quantitative limits: applicable for containers containing =< 0.125 L each.
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TDG - Transportation of Dangerous Goods (Canada)

Transport hazard class(es)	 Class 2.2
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Packing group	
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Emergency response guidebook 2016	<u>126</u>
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IMO/IMDG - International Maritime Transport

Classification	UN 3159. REFRIGERANT GAS R 134a. Class 2.2, Emergency schedules (EmS-No) F-C, S-V
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IATA - International Air Transport Association

Classification	UN 3159. REFRIGERANT GAS R 134a. Class 2.2.
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These transportation classifications are provided as a customer service. As the shipper YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. In addition, if a domestic exemption exists, it is the responsibility of the shipper to define the application of it.

15. Regulatory information

CANADA

Common name	CAS	CEPA	DSL	NDSL	NPRI
1,1,1,2-Tetrafluoroethane	811-97-2		X		

- CEPA: List of Toxic Substances Managed Under Canadian Environmental Protection Act
- DSL: Domestic Substances List Inventory
- NDSL: Non-Domestic Substances List Inventory
- NPRI: National Pollutant Release Inventory Substances

UNITED STATE OF AMERICA

Common name	CAS	TSCA	CER CLA	EPCRA 313	EPCRA 302/304	CAA 112(b) HON	CAA 112(b) HAP	CAA 112(r)	CWA 311	CWA Prio.
1,1,1,2-Tetrafluoroethane	811-97-2	X								

- TSCA: Toxic Substance Control Act
- CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act list of hazardous substances
- EPCRA 313: Emergency Planning and Community Right-to-Know Act, Section 313 Toxic Chemicals
- EPCRA 302/304: Emergency Planning and Community Right-to-Know Act, Section 302/304 Extremely Hazardous Substances
- CAA 112(b) HON: Clean Air Act - Hazardous Organic National Emission Standard for Hazardous Air Pollutant
- CAA 112(b) HAP: Clean Air Act - Hazardous Air Pollutants lists pollutants
- CAA 112(r): Clean Air Act - Regulated Chemicals for Accidental Release Prevention
- CWA 311: Clean Water Act - List of Hazardous Substances
- CWA Priority: Clean Water Act - Priority Pollutant list

California Proposition 65


No ingredients listed.

Other regulations	
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HMIS

1	Health
0	Flamability
1	Reactivity
B	Protective Equipment

NFPA**16. Other information**

Date (YYYY-MM-DD)	AEROCHEM Inc. 2020-03-03
Version	03
Other information	<p>REFERENCES:</p> <ul style="list-style-type: none"> - Haz-Map, Information on Hazardous Chemicals and Occupational Diseases, https://haz-map.com/ - Service du répertoire toxicologique de la Commission des normes, de l'équité, de la santé et de la sécurité du travail (CNESST), http://www.reptox.csst.qc.ca - IPCS INCHEM, Chemical Safety Information from Intergovernmental Organizations, Canadian Centre for Occupational Health and Safety (CCOHS), Copyright International Programme on Chemical Safety (IPCS), http://www.inchem.org <p>DATE OF FIRST VERSION OF SDS: 2016-02-04.</p> <p>CHANGES MADE IN THE VERSION 02: section 3.</p> <p>DATE OF SECOND VERSION OF SDS: 2019-07-31.</p> <p>CHANGES MADE IN THE VERSION 03: section 1.</p> <p>ACGIH: American Conference of Governmental Industrial Hygienists AIHA: American Industrial Hygiene Association HMIS: Hazardous Materials Identification System NFPA: National Fire Protection Association OSHA: Occupational Safety and Health Administration (USA) NIOSH: National Institute for Occupational Safety and Health NTP: National Toxicology Program RSST: Règlement sur la santé et la sécurité du travail (Québec) GHS: Globally Harmonized System IARC: International Agency for Research on Cancer IDLH: Immediately Dangerous to Life or Health STEL: Short Term Exposure Limit (15 min) TWA: Time Weighted Averages WHMIS: Workplace Hazardous Materials Information System</p>
<p>Powered by</p>  <p>A global vision of prevention</p>	<p>To the best of our knowledge, the information contained herein is accurate. However, neither Preventis System 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.</p>