

**GC Electronics**  
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 www.gcelectronics.com

**Product Name: GC AIR JET**  
 MSDS Number: 150B  
 Revision Date: 10/20/11  
 Supersedes Date: 10/22/09

**MATERIAL SAFETY DATA SHEET**

Complies with OSHA Hazard Communication Standard 29 CFR 1910.1200

Product Type: Air Jet  
 Product Name: **GC AIR JET**  
 Part Number(s): **19-8475**  
**19-8475-10**  
**19-8508**

**Emergency Contact: Chemtrec**  
**Phone (24 hours): (800) 424-9300**

**Section 1 - Identification of Product**

COMMON NAME (used on label)(Trade Name & Synonyms): **GC AIR JET with Bitterant**  
 CAS. NUMBER: See Section 2  
 CHEMICAL NAME: 1,1,1,2-Tetrafluoroethane  
 CHEMICAL FAMILY: Hydrofluorocarbon  
 FORMULA: Not Applicable

<b>HMIS RATINGS</b>		<b>NFPA</b>			
Health:	2	Health:	2	Minimal Hazard	0
Flammability:	0	Flammability:	0	Slight Hazard	1
Reactivity:	0	Phy. Hazard:	0	Moderate Hazard	2
Personal Protection:	B			Serious Hazard	3
				Severe Hazard	4
				Gloves, Safety Glasses	B

**Section 2 - Hazardous Ingredients**

Principal Hazardous Component(s)

CHEMICAL AND COMMON NAME(S)	CAS. #	OSHA PEL	AGCIH TLV	VAPOR		FLASH POINT DEG. F
				PRESSURE @ 25 DEG. C	LEL UEL	
1,1,1,2-Tetrafluoroethane	811-97-2	N/A*	N/A*	96 Psia	Non-Flammable	None

OSHA TABLE COMMENTS:

\*Limit established by manufacturer is 1000ppm

NOTE: This product does not contain any ingredients subject to Section 313 of SARA Title III.

N/A is not available or not applicable

### Section 3 - Physical Data

BOILING POINT (Deg. F): -15  
SPECIFIC GRAVITY (Water = 1): 1.21  
VAPOR PRESSURE @ 25 Deg. C: 96 Psia  
PERCENT VOLATILE BY WEIGHT (%): 100%  
PERCENT VOLATILE ORGANIC COMPOUNDS: 0%  
VAPOR DENSITY (Air = 1): >1  
EVAPORATION RATE (BA = 1): >1  
SOLUBILITY IN WATER: Substantial  
REACTIVITY IN WATER: None  
APPEARANCE AND ODOR: Clear gas at standard temperature and pressure with a slight ethereal odor.  
FINISHED PACKAGE: Aerosol container filled with liquefied gas.  
Ph: Neutral

### Section 4 - Fire & Explosion Hazard Data

FLASH POINT: None  
FLAMMABLE LIMITS IN AIR\* and METHOD: Non-Flammable  
EXTINGUISHER MEDIA: Use media appropriate for surrounding material  
EXPLOSION HAZARDS: This product is not flammable at ambient temperatures and atmospheric pressure. However, this material may become combustible when mixed with air under pressure and exposed to strong ignition sources.  
AUTO-IGNITION TEMPERATURE: >1369 Deg. F  
SPECIAL FIRE FIGHTING PROCEDURES: Water may be used to cool closed containers to prevent pressure build-up and possible bursting when exposed to high temperatures. Firemen should wear self-contained, positive pressure, respiratory equipment. Hazardous decomposition products.  
UNUSUAL FIRE AND EXPLOSION HAZARDS: Contents under pressure. Keep temperature of containers below 120 Deg. F to prevent bursting. Exposure to temperature above 120 Deg. F may cause can to burst with violence and cause injury.

\*Comments: Based on ASHRAE Standard 34 with match ignition

### Section 5 - Health Hazard Data

#### EMERGENCY OVERVIEW:

PHYSICAL APPEARANCE: Clear, colorless, volatile liquid  
IMMEDIATE CONCERNS: Warning! High concentrations of vapor can reduce oxygen available for breathing. Harmful if inhaled. May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products.

#### POTENTIAL HEALTH EFFECTS:

EYES: Liquid contact can cause frostbite, which may be severe.  
SKIN: Prolonged or repeated contact can result in defatting and drying of the skin which may result in skin irritation and dermatitis (rash).

**INHALATION:** High concentrations displace oxygen and can cause unconsciousness and possibly death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

**SIGNS AND SYMPTOMS OF OVEREXPOSURE:**

**EYE CONTACT:** Can cause severe eye irritation  
**KIN CONTACT:** Exposure to rapidly expanding gas or vaporizing liquid may cause frostbite ("cold" burn)  
**INHALATION:** INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THE CONTENTS OF THE CAN MAY BE HARMFUL OR FATAL. Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing high concentrations of vapor may cause lightheadedness, giddiness, shortness of breath and may lead to narcosis, cardiac irregularities, unconsciousness or death

**ACUTE TOXICITY:** Overexposure may cause dizziness and loss of concentration. At higher levels depression and cardiac arrhythmia may result.

**EMERGENCY AND FIRST AID PROCEDURE:**

**INHALATION:** If high concentrations are inhaled: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs. Call a physician.

**EYES:** In case of eye contact, immediately flush eyes with plenty of cold water. Call a physician.

**SKIN:** In case of skin contact, flush with water. Treat for frostbite if necessary. In case of cold burns (frostbite) caused by rapidly expanding gas or vaporizing liquids, get medical attention promptly.

**INGESTION:** Ingestion is not considered a potential route of exposure.

**NOTE TO PHYSICIANS:** BECAUSE OF POSSIBLE DISTURBANCES OF CARDIAC RHYTHM, CATECHOLAMINE DRUGS, SUCH AS EPINEPHRINE, SHOULD ONLY BE USED WITH SPECIAL CAUTION IN SITUATIONS OF EMERGENCY LIFE SUPPORT. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions.

**Section 6 - Reactivity Data**

**STABILITY:** Stable  
**CONDITIONS TO AVOID:** Avoid any excessive heat, ignition sources, open flames, or other high temperatures which induce thermal decomposition.

**INCOMPATIBILITY (Materials to Avoid)** Alkali or alkaline earth metals – powdered Aluminum, Zinc, Be, etc  
**HAZARDOUS DECOMPOSITION PRODUCTS:** This material can be decomposed by high temperature (open flames, flowing metal surfaces, etc.) forming hydrofluoric acids and possibly carbonyl halides.

**HAZARDOUS POLYMERIZATION:** Will not occur.

**Section 7 - Spill or Leak Procedures**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

- SMALL SPILLS:** Remove ignition sources. Mop up, wipe up, or soak up immediately. Use proper protective equipment.
- LARGE SPILLS:** Evacuate area. Keep unnecessary and unprotected personnel from entering. Remove ignition sources. Contain liquid; transfer to closed containers; keep out of water supplies.
- RELEASE NOTES:** Spills and releases may have to be reported to Federal and/or local authorities.
- WASTE DISPOSAL METHODS:** Dispose in accordance with Federal, State, and Local regulations. Do not incinerate closed or empty containers.
- GENERAL COMMENTS:** 1,1,1,2-tetrafluoroethane is subject to U.S. Environmental Protection Agency Clean Air Act Regulations, Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

**Section 8 - Special Protection Information**

- ENGINEERING CONTROLS:** Local exhaust ventilation may be necessary to control any air contaminants to within their TLV's during the use of this product.
- VENTILATION:**
- LOCAL EXHAUST:** To keep below TLV
  - MECHANICAL (General):** To keep below TLV
  - SPECIAL:** None
  - OTHER:** None
- RESPIRATORY:** Under normal use conditions, no respiratory protection is required. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs. A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.
- EXPOSURE CONTROLS/PERSONAL PROTECTION**
- EXPOSURE GUIDELINES:** OSHA HAZARDOUS COMPONENTS (29 CFR 1910.1200)
- PERSONNEL PROTECTIVE EQUIPMENT:**
- EYES AND FACE:** Wear safety glasses with side shields (or goggles) and a face shield when handling liquid.
- SKIN:** Skin contact with liquid may cause frostbite. General work clothing and gloves should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, lined butyl gloves should be used. Any contaminated clothing should be promptly removed and washed before reuse.
- OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** None reasonably foreseeable

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### Section 9 – Special Precautions

**PRECAUTIONS TO BE TAKEN  
IN HANDLING AND STORAGE:**

Liquid contents may cause frostbite on contact with skin; therefore, do not tilt, shake, or turn can upside down before or during use. Do not store above 110 Deg. F. Do not use or store near any open flames or ignition sources.

**HANDLING:**

Follow standard safety precautions for handling and use of compressed gas cylinders.

**STORAGE:**

Store in a cool place in original container and protect from sunlight.

**OTHER PRECAUTIONS:**

Contents under pressure. Do not puncture or incinerate. Exposure to temperatures above 120 Deg. F may cause can to burst with violence and cause injury. Vapors are heavier than air and will collect in low areas.

### Section 10 - Regulatory Information

#### TRANSPORTATION INFORMATION-DOMESTIC GROUND

Proper Shipping Name: Consumer Commodity, ORM-D, DOT SP10232

Technical Name: 1, 1, 1, 2-Tetrafluoroethane

UN / NA Number: N/A

Packing Group: N/A

Primary Hazard Class: Division 9

NAERG: #12

Other Shipping information: Must have a copy of the DOT SP10232 with each shipment

Special shipping notes: Domestic shipments only. For international shipments use 1,1,1,2 Tetrafluoroethane, UN 3159,2.2: Pkg instr. 200: DOT SP10232

**NOTE:** Copy of the Exemption is required will all shipments. Hazard label: Non-Flammable Gas: [(“LTD QTY of Class 2” when <120mL (5-oz)]

### Disclaimer

GC Electronics believes that the information contained herein is accurate and reliable as of the date of this material safety data sheet, but no representation guarantee or warranty, express or implied, is made as to the accuracy, reliability, or completeness of the information. Persons receiving this information are encouraged to make their own determination as to the information's suitability and completeness for their particular application. NO INFORMATION CONTAINED HEREIN CONSTITUTES A PRODUCT WARRANTY OF ANY KIND, WHETHER EXPRESS OR IMPLIED; AND ALL IMPLIED WARRANTIES OF MERCHANT ABILITY AND OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY GC ELECTRONICS.

March 7, 2011



U.S. Department  
of Transportation

East Building, PHH - 30  
1200 New Jersey Avenue, Southeast  
Washington, D.C. 20590

**Pipeline and Hazardous  
Materials Safety Administration**

DOT-SP 10232  
(FIFTEENTH REVISION)

EXPIRATION DATE: March 31, 2014

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: ITW Sexton  
Cambridge, MA
2. PURPOSE AND LIMITATIONS:
  - a. This special permit authorizes the manufacture, marking, sale, and use of a non-DOT specification packaging conforming in part with the DOT Specification 2Q, except as specified herein, for the transportation in commerce of the material authorized in this special permit. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions.
  - b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.
3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.
4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 173.304(d) and 173.306(a)(3) in that non-DOT specification cylinders are not authorized, except as specified herein.
5. BASIS: This special permit is based on the application of ITW Sexton dated April 1, 2010, submitted in accordance with § 107.109.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

<b>Hazardous Materials Description</b>			
<b>Proper Shipping Name</b>	<b>Hazard Class/ Division</b>	<b>Identification Number</b>	<b>Packing Group</b>
Refrigerant gases, n.o.s.	2.2	UN1078	N/A
1,1,1,2-Tetrafluoroethane	2.2	UN3159	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING - Prescribed packaging is a non-refillable non-DOT specification inside metal container conforming with Sexton Can Company drawing No. 995D0017, Revision G, dated November 26, 2007, on file with the Office of Hazardous Materials Special Permits and Approvals (OHMSPA). The cylinder must be in conformance with DOT Specification 2Q (§ 178.33a), except as follows:

§ 178.33a-6 Manufacture.

(a) \* \* \*

(b) \* \* \*

(1) \* \* \*

(2) Side seams. Not permitted.

(c) Ends: The ends shall be designed to withstand pressure and bottom end is fitted with a pressure relief device (PRD).

§ 178.33a-8 Tests.

**Burst Test** - For qualification burst tests, each 5000 containers or less, successively produced as a batch or part thereof shall constitute a lot. Two containers, one with a PRD and one without a PRD, taken randomly from each lot and complete with the ends assembled must be pressure tested to destruction. The burst pressure of containers fitted with a bottom PRD may not be below 250 psig. The burst pressure of containers without a bottom PRD may not be less than 370 psig. If either of the test container fails to meet the

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above requirements, the lot shall be rejected. However, an additional 5 randomly selected pairs of containers from that lot may be burst tested to qualify that lot. If any of the additional test containers fail the burst test, that lot must be rejected.

§ 178.33a-9 Marking.

Applies except that the container must be marked with "DOT-SP 10232" in lieu of "DOT 2Q".

b. OPERATIONAL CONTROLS - Each packaging must be prepared and shipped in accordance with the following:

- (1) The filling density may not exceed 87 percent.
- (2) Prior to initial shipment of the filled containers, each completed container must be heated until the pressure in the container is equivalent to the equilibrium pressure of the lading at 130°F. Lading equilibrium pressure may not exceed 200 psig at 130°F. Liquid content of lading may not completely fill the container at 130°F. Acceptable containers must show no evidence of leakage, distortion or other defect.
- (3) The container must be packed in a strong outside packaging as prescribed in § 173.301(a)(9).
- (4) Each outside packaging must be marked "INSIDE CONTAINERS COMPLY WITH DOT-SP 10232".
- (5) Containers filled with a material meeting the definition of a "consumer commodity" in § 171.8 may be reclassified as an ORM-D and shipped as "consumer commodity" in accordance with § 173.306(i). These outside packagings are not required to be marked "INSIDE CONTAINERS COMPLY WITH DOT-SP 10232" as specified above in paragraph 7(c)(4).

8. SPECIAL PROVISIONS:

a. In accordance with the provisions of Paragraph (b) of § 173.22a, persons may use the packaging authorized by this special permit for the transportation of the hazardous materials specified in paragraph 6, only in conformance with the terms of this special permit.



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- b. A person who is not a holder of this special permit, but receives a packaging covered by this special permit, may reoffer it for transportation provided no modification or change is made to the packaging and it is offered for transportation in conformance with this special permit and the HMR.
- c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.
- d. Each packaging manufactured under the authority of this special permit must be marked with a registration symbol designated by the Office of Hazardous Materials Special Permits and Approvals for a specific manufacturing facility.
- e. A current copy of this special permit must be maintained at each facility where the package is manufactured under this special permit. It must be made available to a DOT representative upon request.
- f. Test data obtained under the qualification burst test (§ 178.33a-8) of this special permit, must be kept on file and be made available upon request by OHMSPA.
9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only, and passenger-carrying aircraft.
10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo vessel, aircraft or motor vehicle used to transport packages covered by this special permit. The shipper shall furnish a current copy of this special permit to the air carrier before or at the time the shipment is tendered.
11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:
- o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, Parts 171-180.
  - o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

- o Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when the special permit has expired or is otherwise no longer in effect.

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—"The Hazardous Materials Safety and Security Reauthorization Act of 2005" (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notice of certain hazardous materials incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:



for Dr. Magdy El-Sibaie  
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Material Safety Administration, U.S. Department of Transportation, East Building PHH-30, 1200 New Jersey Avenue, Southeast, Washington, D.C. 20590.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at [http://hazmat.dot.gov/sp\\_app/special\\_permits/spec\\_perm\\_index.htm](http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm) Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: BMOORE/sln