

CHEMTRONICS®

Technical Data Sheet

TDS # 1052

Freeze Spray

PRODUCT DESCRIPTION

Freeze Spray is engineered for locating thermal intermittent electrical components and cooling printed circuit boards. This circuit refrigerant system is nonflammable, residue-free and provides fast cooling action.


- Nonflammable
- High heat transfer
- Low static generation
- Noncorrosive
- Lowers temperature to -60°F (51°C)
- Ultra pure
- Leaves no residue
- Nonabrasive on most surfaces

TYPICAL APPLICATIONS

Freeze Spray can be used to:

- Cool Equipment for Testing
- Dissipate Heat While Soldering or Desoldering
- Isolate Thermal Intermittent Components
- Test Circuit Traces for Continuity
- Test Printed Circuit Boards for Stress Fractures
- Track Intermittent Failures and Shorts

TYPICAL PRODUCT DATA AND PHYSICAL PROPERTIES

Boiling Point	-15.7°F
Vapor Density (air=1) @ 77°F	3.18
Solubility in Water @ 77°F /1 atm	0.10% by weight
Specific Gravity (water = 1 @77°F)	1.21
Evaporation Rate (butyl acetate=1)	>1
Appearance	Clear, Colorless Liquified Gas
Odor	Slight Ethereal
Surface Tension (dynes/cm @ 77°F)	7.8
Flash Point (TCC)	None
Shelflife	5 years
RoHS/WEEE Status	

COMPATIBILITY

Freeze Spray is generally compatible with most materials used in printed circuit board fabrication, including sensitive plastics and compounds. With any circuit refrigerant, compatibility must be determined on a non-critical area prior to use.

<u>Material</u>	<u>Compatibility</u>
Buna-N	Fair
Graphite	Good
HDPE	Good
LDPE	Good
Lexan™	Poor
Neoprene	Good
Cross-Linked PE	Good
Polyacrylate	Poor
Polystyrene	Good
PVC	Good
Silicone Rubber	Fair
Teflon™	Good
Viton™	Poor

ENVIRONMENTAL IMPACT DATA

ENVIRONMENTAL IMPACT DATA			
CFC	0.0%	VOC	0.0%
HCFC	0.0%	HFC	100.0%
CL Solv.	0.0%	ODP	0.0

CFC, HCFC, CL. SOLV., VOC, and HFC numbers shown are the content by weight. Ozone depletion potential (ODP) is determined in accordance with the Montreal Protocol and U.S. Clean Air Act of 1990. The ODP of this product is zero. It is the sum of the ODP of the substances that may contribute to the depletion of stratospheric ozone, based upon the weight of each substance in the product's formulation.

USAGE INSTRUCTIONS

For industrial use only.

Read MSDS carefully prior to use.

No special surface preparation is required prior to using Freeze Spray. Direct spray onto the area to instantly cool components, circuit boards or adhesives.

AVAILABILITY

ES1052 10 oz. Aerosol

NOTE:

This information is believed to be accurate. It is intended for professional end users having the skills to evaluate and use the data properly. CHEMTRONICS® does not guarantee the accuracy of the data and assumes no liability in connection with damages incurred while using it.

SECTION 1: CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Information: 800-TECH-401

Product Identification

FREEZE SPRAY

Product Code: ES1052 , ES1052C

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. % Range
Tetrafluoroethane	811-97-2	100%

SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: Clear, colorless liquified gas. This product is nonflammable. Exposure to liquid may cause frostbite.

Eyes: Contact with liquid is irritating and may cause frostbite.

Skin: Contact causes frostbite; prolonged contact can cause skin irritation.

Ingestion: Unlikely due to volatile nature of product. Contact with liquid may cause frostbite to mouth and throat tissues.

Inhalation: Harmful if inhaled. High concentrations of vapors in immediate area can displace oxygen and can cause dizziness, unconsciousness, and even death with longer exposure. Keep people away from such vapors without self-contained breathing apparatus.

Pre-Existing Medical Conditions Aggravated by Exposure: Heart, lung, skin, eye.

SECTION 4: FIRST AID MEASURES

Eyes: Treat for possible frostbite, then flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Have eyes examined and tested by medical personnel if irritation develops or persists.

Skin: Treat for possible frostbite, then wash skin with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists. Wash clothing separately before reuse.

Ingestion: Treat for possible frostbite. Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting. Get immediate medical attention.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: None to boiling (TCC) LEL/UEL: Nonflammable

Extinguishing Media: Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.

Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus (pressure-demand, MSHA/NIOSH approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Large Spills: Shut off leak if possible and safe to do so. Wear self-contained breathing apparatus and appropriate personal protective equipment. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal. Do not flush to sewer. Avoid runoff into storm sewers and ditches which lead to waterways.

Small Spills: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container for proper disposal.

SECTION 7: HANDLING AND STORAGE

Avoid prolonged or repeated contact with eyes, skin, and clothing. Wash hands before eating. Use with adequate ventilation. Avoid breathing product vapor or mist. Do not reuse this container. Store in a cool dry place away from heat, sparks and flame. Keep container closed when not in use. Do not store in direct sunlight.

KEEP OUT OF REACH OF CHILDREN.

SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Guidelines:

CHEMICAL NAME	ACGIH TLV	OSHA PEL	OTHER (DUPONT AEL)
Tetrafluoroethane	NA	NA	1,000 ppm

Work/Hygienic Practices: Good general ventilation should be sufficient to control airborne levels. Local exhaust ventilation may be necessary to control any air contaminants to within their TLVs during the use of this product. If vapor concentration exceeds TLV, use NIOSH approved organic vapor cartridge respirator. Wear safety glasses with side shields (or goggles) and a full face shield. Wear rubber or other chemically resistant gloves when handling this material.

NFPA and HMIS Codes:

Health	1	1
Flammability	0	0
Reactivity	1	1
Personal Protection	-	B

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Clear, colorless liquified gas

Odor: Slight ethereal odor

pH: NA

Vapor Pressure: 82 psig @ 77 F

Percent Volatile: 100%

Boiling Point: -15.7°F (-27C)

Solubility in Water: 0.10% by weight @ 77°F/1 atm

Specific Gravity: (Water =1) 1.21

Evaporation Rate: >1

(Butyl acetate=1)

Vapor Density: 3.18 @ 77F ° (Air = 1)

SECTION 10: STABILITY AND REACTIVITY

Stability - This product is stable. Conditions to Avoid: Do not spray near open flames, red hot surfaces or other sources of ignition.
Incompatibility: Do not mix with powdered alkali and alkaline earth metals or strong oxidizing agents.
Products of Decomposition: Thermal decomposition may release hydrofluoric acid vapor.
Hazardous Polymerization: Will not occur
Conditions to Avoid: NA

SECTION 11: TOXICOLOGICAL INFORMATION

Inhalation:
 Tetrafluoroethane* Rats ALC 567,000 ppm/4hrs

*Information from Dupont.
 Cancer Information: No ingredients listed as human carcinogens by NTP or IARC
 Reproductive effects: none Teratogenic effects: none Mutagenic effects: none

SECTION 12: ECOLOGICAL INFORMATION

Environmental Impact Information
 Avoid runoff into storm sewers and ditches which lead to waterways. Water runoff can cause environmental damage.

REPORTING

US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is: **1-800-424-8802**

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with all federal, state and local regulations. Water runoff can cause environmental damage.

SECTION 14: TRANSPORTATION INFORMATION

Proper Shipping Name	UN Number	Hazard Class	Sub. Risk	Pkg. Group	Hazard Label	Pkg. Instr.	Max. Quantity
<u>Air</u> : 1,1,1,2-Tetrafluoroethane	UN 3159	2.2	NA	NA	Nonflammable Gas	200	75kg;150kg
<u>Ground</u> : Consumer Commodity ORM-D	NA	NA	NA	NA	ORM-D	173.306 DOT-E-10232	

SECTION 15: REGULATORY INFORMATION

SECTION 313 SUPPLIER NOTIFICATION

This product contains no toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372).

This information should be included on all MSDSs copied and distributed for this material.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

All ingredients of this product are listed on the TSCA Inventory.

WHMIS: Class A; Class D2B

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

SECTION 16: OTHER INFORMATION

Product is a Level 1 aerosol. Do not puncture or incinerate containers. Normal ventilation for standard manufacturing practices is usually adequate. Local exhaust should be used when large amounts are released.

To the best of our knowledge, the information contained herein is accurate. However, all materials may present unknown hazards and should be used with caution. In particular, improper use of our products and their inappropriate combination with other products and substances may produce harmful results which cannot be anticipated. Final determination of the suitability of any material is the sole responsibility of the user. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that may exist.