



MATERIAL SAFETY DATA SHEET

R-116

November 2018 Revised

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

MATERIAL IDENTIFICATION

Formula CF3-CF3

TRADENAMES AND SYNONYMS

CC0913

COMPANY IDENTIFICATION

Manufacturer/Distributor

Hudson Technologies Company
One Blue Hill Plaza, PO Box 1541
Pearl River, NY 10965

Phone Numbers

Product information: 1-800-953-2244
Transport Emergency: CHEMTREC 1-800-424-9300
Medical Emergency: 1-800-501-4376

COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS

Material	CAS Number	%
HEXAFLUOROETHANE (FC-116)	76-16-4	100

*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation may cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

Skin contact with the liquid can cause frostbite. Prolonged skin contact may cause temporary tingling, numbness, coldness, or drying of skin. Eye contact with the liquid may initially include mild eye irritation with discomfort, tearing, or blurring of vision. Inhalation may include nonspecific discomfort such as nausea, headache, or weakness. Inhalation of high concentrations may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness; temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Individuals with preexisting diseases of the central nervous system or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

CARCINOGENICITY INFORMATION

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.



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FIRST AID MEASURES

INHALATION

If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush skin with water for at least 15 minutes. Treat for frostbite if necessary by gently warming the affected area. Get medical attention if irritation is present.

EYE CONTACT

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

Ingestion is not considered a potential route of exposure.

NOTES 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.

FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flash Point	Will not burn
Method	TOC
Flammable limits in Air, % by Volume	
LEL	Not applicable
UEL	Not applicable
Autoignition	>870 C (>1598 F)
Autodecomposition	Not determined

FIRE AND EXPLOSION HAZARDS

Cylinders are equipped with pressure and temperature relief devices, but still may rupture under fire conditions. Decomposition may occur.

EXTINGUISHING MEDIA

As appropriate for combustibles in area.

FIRE FIGHTING INSTRUCTIONS

Use water spray or fog to cool containers. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions.

ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (PERSONNEL)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

ACCIDENTAL RELEASE MEASURES

Ventilate area, especially low or enclosed places where heavy vapors might collect. Remove open flames. Wear self-contained breathing apparatus (SCBA) for large spills or when a release occurs.

HANDLING AND STORAGE

HANDLING (PERSONNEL)

Avoid breathing high concentrations of vapor. Avoid contact of skin or eyes with liquid or cold vapors. Use with sufficient ventilation to keep employee exposure below recommended limits.



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STORAGE

Store containers in a clean, dry area. Do not heat above 52 C (125 F).

EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

PERSONAL PROTECTIVE EQUIPMENT

Impervious gloves and chemical splash goggles should be worn when handling liquid. Under normal conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a spill occurs.

EXPOSURE GUIDELINES

APPLICABLE EXPOSURE LIMITS

HEXAFLUOROETHANE (FC-116)

PEL (OSHA)	None Established
TLV (ACGIH)	None Established

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Boiling Point	-78.3 C (-108.9 F)
Vapor Pressure	439 psia @ 19.7 C (67.5 F) C (67.5 deg F)
Vapor Density	4.8 (Air=1.0)
% Volatiles	100 WT%
Odor	Slight ethereal
Form	Liquefied gas
Color	Clear, colorless
Density	1.57 g/cm ³ @ -78 C (-108 F) - Liquid C (-109 deg F) - Liquid

STABILITY AND REACTIVITY

CHEMICAL STABILITY

Material is stable. However, avoid open flames and high temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS

Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

DECOMPOSITION

Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride.

POLYMERIZATION

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

ANIMAL DATA

Inhalation 4-hour LC50: >800,000 ppm in rats Effects observed in animals by inhalation include decreased



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growth rate, pulmonary changes, irregular respiration, increased urine volume and creatinine, reversible pathological changes in the kidneys, and increased urinary fluoride concentration. One study showed no arrhythmogenic effects in dogs at a concentration of 20% R-116, while another study did show some arrhythmogenic effects in both guinea pigs and dogs. Long-term inhalation exposures resulted in an initial decrease in growth rate, but no other adverse changes were noted. No animal test reports are available to define carcinogenic, developmental, or reproductive hazards. The compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

One limited study in which mice were exposed for 23 months to a chlorofluorocarbon mixture containing 25% FC-114, showed no evidence of carcinogenic activity or other signs of toxicity. This compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals. Tests for developmental or reproductive toxicity have not been performed.

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Comply with Federal, State, and local regulations. Reclaim by distillation or remove to a permitted waste disposal facility.

TRANSPORTATION INFORMATION

SHIPPING INFORMATION

DOT/IMO/IATA
Proper Shipping Name: HEXAFLUOROETHANE, COMPRESSED
Hazard Class: 2.2
UN No.: 2193
Shipping Label: Nonflammable Gas
Shipping Containers: Cylinders

REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSCA Inventory Status : Reported/Included.
TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312
Acute : Yes
Chronic : No
Fire : No
Reactivity : No
Pressure : Yes

HAZARDOUS CHEMICAL LISTS

SARA Extremely
Hazardous Substance - No
CERCLA Hazardous Substance - No
SARA Toxic Chemical - No

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 0
Reactivity : 1

Personal Protection rating to be supplied by user depending on use conditions.

ADDITIONAL INFORMATION

R-11 contains very low levels of carbon tetrachloride and chloroform, chemicals known to the State of California to cause cancer.

California Prop. 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.



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The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS:
MSDS Coordinator
Responsibility for MSDS: Stephen Mandracchia
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This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS