



MATERIAL SAFETY DATA SHEET

R-503 Refrigerant
November 2018

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

MATERIAL IDENTIFICATION

Formula

CHF₃/CCIF₃ (AZEOTROPE)

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	%
METHANE, TRIFLUORO- (R-23)	75-46-7	40
*METHANE, CHLOROTRIFLUORO- (R- 13)	75-72-9	60

* 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 can be fatal. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

HUMAN HEALTH EFFECTS:

Overexposure by inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness; or with gross overexposure (>20%), possibly temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Individuals with preexisting diseases of the central nervous or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures. Eye or skin contact with the liquid may cause frostbite.

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.

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 plenty of water. Treat for frostbite if necessary.



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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
Flammable limits in Air, % by Volume	
LEL	Not applicable
UEL	Not applicable
Autoignition	Not determined
Autodecomposition	>760 C (>1400 F)

Fire and Explosion Hazards:

Use water spray or fog to cool containers. Cylinders are equipped with temperature and pressure relief devices but may still rupture under fire conditions. Decomposition may occur.

EXTINGUISHING MEDIA

As appropriate for combustibles in area.

FIRE FIGHTING INSTRUCTIONS

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. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.

HANDLING AND STORAGE

HANDLING (PERSONNEL)

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

STORAGE

Clean, dry area. Do not heat above 52 deg C (125 deg 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 places.



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PERSONAL PROTECTIVE EQUIPMENT

Butyl or neoprene gloves and chemical splash goggles should be used if contact is possible. Under normal manufacturing 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

METHANE, TRIFLUORO- (R- 23)

PEL (OSHA) None Established

TLV (ACGIH) None Established

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Boiling Point	-88.8 C (-127.8 F)
Vapor Pressure	566 psia at 15.6 deg C (60 deg F)
Vapor Density	3.0 (Air = 1)
% Volatiles	100 WT%
Evaporation Rate	>1 (CCl4 = 1)
Solubility in Water	0.042 WT% @ 25 C (77 F)
pH	Neutral
Odor	Slight ethereal
Form	Gas
Color	Clear, colorless
Density	1.233 g/cc at -30 deg C (-22 deg F) - Liquid

STABILITY AND REACTIVITY

CHEMICAL STABILITY

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

INCOMPATIBILITY WITH OTHER MATERIALS

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

POLYMERIZATION

Polymerization will not occur.

OTHER HAZARDS

DECOMPOSITION

"FREON" 500 Refrigerant can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

TOXICOLOGICAL INFORMATION

ANIMAL DATA

R- 503 is untested for toxicological hazards. The hazards for each component are as follows.

R- 23

Inhalation 4-hour LC50: >663,000 ppm in rats

R- 23 is untested for skin and eye irritancy, and for animal sensitization.

Effects from single high inhalation exposure to R- 23 include anaesthetic effects, and nonspecific effects such as weight loss were observed at concentrations >22%. No cardiac sensitization was observed in dogs after breathing



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800,000 ppm for periods of 5-10 minutes following epinephrine challenge. In another test, dogs exposed to up to 30% or up to 50% (with additional oxygen), had no positive responses. No cardiac sensitization occurred in baboons exposed by inhalation to 10%, 30%, 50%, or 70% R- 23 before or after an epinephrine challenge; there was a dose-related decrease in heart rates and differences in respiratory rates during exposure.

No animal tests are available to define the carcinogenic hazards of R- 23. The maternal and developmental NOAEL was 50,000 ppm. R- 23 is not considered a unique developmental hazard to the conceptus. There were no developmental or reproductive effects. Tests have shown that R- 23 does not produce genetic damage in bacterial or mammalian cell cultures. It has not produced genetic damage in tests on animals.

R- 13

Inhalation 2-hour LC50: >600,000 ppm in rats

The compound is untested for skin irritancy, is untested for eye irritancy, and is untested for animal sensitization. No adverse effects were seen in animals exposed by inhalation to concentrations as high as 20% (v/v). Cardiac sensitization was observed in beagle dogs exposed to 800,000 ppm for 5 minutes and challenged with epinephrine. No animal test reports are available to define carcinogenic, mutagenic, embryotoxic, or reproductive hazards.

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

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

TRANSPORTATION INFORMATION

SHIPPING INFORMATION

DOT/IMO

Proper Shipping Name

CHLOROTRIFLUOROMETHANE AND
TRIFLUOROMETHANE AZEOTROPIC
MIXTURE

Hazard Class

2.2

UN No.

2599

DOT/IMO Label

NONFLAMMABLE GAS

Shipping Containers

Cylinders
Ton Tanks

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

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.



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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.

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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Pearl River, NY 10965
800-953-2244

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