



DuPont Chemicals



DuPont Chemicals

2187FR

Revised 12-APR-1996

Printed 19-AUG-1997

"SUVA" 134A

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number	DU000693
CAS Number	811-97-2
Formula	CH2FCF3
CAS Name	" SUVA " 134A

Tradenames and Synonyms

HCF 134A
VT1505

Company Identification

MANUFACTURER / DISTRIBUTOR

DuPont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS

Product Information	1-800-441-7515
Transport Emergency	CHEMTREC: 1-800-424-9300
Medical Emergency	1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
*ETHANE, 1, 1, 1, 2-TETRAFLUORO- (HFC-134a).		811-97-2 100

HAZARDS IDENTIFICATION

Potential Health Effects

INHALATION

ETHANE, 1,1,1,2-TETRAFLUORO-

Gross overexposure may cause: Central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Inhalation of high concentrations of vapor is harmful and may cause heart irregularity 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.

HUMAN HEALTH EFFECTS:

SKIN CONTACT

ETHANE, 1,1,1,2-TETRAFLUORO-

Immediate effects of overexposure may include frostbite. If liquid or escaping vapor contacts the skin. Frostbite-like effects may occur if the liquid or escaping vapors contact the eyes.

Inhalation may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness.

Higher exposures may lead to temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Fatality may occur from gross overexposure.

Individuals with preexisting diseases of the central nervous 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.

FIRST AID MEASURES

First Aid

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

In case of contact, immediately flush area with plenty of lukewarm water for at least 15 minutes, while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. Treat for frostbite if necessary by gently warming affected area.

EYE CONTACT

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

FIRST AID MEASURES CONTINUED,

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
LEL	Not Applicable
UEL	Not Applicable
Autoignition	>743 C (>1369 F)

HFC-134A is not flammable at ambient temperatures and atmospheric pressure. However, HFC-134A has been shown in tests to be combustible at pressures as low as 5.5 psig at 177 C (351 F) when mixed with air at concentrations of 60 volume % air. At lower temperatures, higher pressures are required for combustibility. Experimental data have also been reported which indicate combustibility of HFC 134A in the presence of certain concentrations of chlorine.

FIRE AND EXPLOSION HAZARDS:

Cylinders may rupture under fire conditions. Decomposition may occur. Contact of welding or soldering torch flame with high concentrations of refrigerent can result in visible changes in the size and color of the torch flame. This flame effect will only occur in concentrations of product well above the recommended exposure limit, therefore stop all work and ventilate the area before proceeding. Use forced ventilation to disperse refrigerant vapors from the work area before using any open flames.

Extinguishing Media

As appropriate for combustibles in area. Extinguishant for other burning material in area is sufficient to stop burning.

Fire Fighting Instructions

Cool tank/container with water spray. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or contents are released 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. Use self-contained breathing apparatus (SCBA) for large spills or releases.

HANDLING AND STORAGE

Handling (Personnel/Physical Aspects)

Use with sufficient ventilation to keep employee below recommended limits. HFC-134A should not mixed with air for leak testing. In general it should be used or allowed to be present with high concentration air above atmospheric pressure. See Flamable Propertieaction. Contact with chlorine or other strong oxidizing agents should also be avoided.

Storage

Store in a Clean, dry area. Do not heat above 52 C (126 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. Refrigerant concentration monitors may be necessary to determine vapor concentrations in work areas prior to use of torches or other open flames, or if employees are entering enclosed areas.

PERSONAL PROTECTIVE EQUIPMENT

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

EXPOSURE GUIDELINES

EXPOSURE LIMITS

“SUVA” 134A

PEL (OSHA)

None Established

TLV (ACGIH)

None Established

AEL * (DuPont)

1,000 ppm, 8 & 12 Hr. TWA

WEEL (AIHA)

1000 ppm, 8 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DATA

Boiling Point	-26.5 C (15.7 F) @ 736 mm Hg
Vapor Pressure	96 psig @ 25 C (77 F)
Fl Vapor Density	3.6 (Air=1.0) @ 25 C (77 F)
Fl % Volatilize	100 WT%
Solubility in Water	0.15 WT%, @ 25 C (77 F) @ 14.7 psia
Odor	Slight ethereal
Form	Liquefied Gas.
Color	Clear, Colorless.
Liquid Density	1.21 g/cm ³ @ 25 C (77 F)

STABILITY AND REACTIVITY

CHEMICAL STABILITY

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

CONDITIONS TO AVOID

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. HCFC-134A can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

POLYMERIZATION

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

ANIMAL DATA

ETHANE, 1,1,1,2-TETRAFLUORO

INHALATION: 4 hour, ALC, rat: 567,000 ppm.

SKIN: The compound is a skin irritant and a slight eye irritant but is not a skin sensitizer in animals.

EYE: A short duration spray of vapor produced very slight eye irritation.

Effects from single high exposures include central nervous system depression, anesthesia, rapid breathing, lung congestion and microscopic liver changes. Cardiac sensitization occurred in dogs at 50,000 ppm or greater from the action of exogenous epinephrine.

No toxic effects or abnormal histopathological observations occurred in rats repeatedly exposed to concentrations ranging from 10,000 to 50,000 ppm (v/v). Long-term exposures to 50,000 ppm (v/v) of vapors produced organ weight increases and a decrease in body weight gain, but no increased mortality or adverse hematological effects. In chronic inhalation studies, HCFC-22, at a concentration of 50,000 ppm (v/v), produced a small, but statistically significant increase of late-occurring tumors involving salivary glands in male rats, but not female rats or male or female mice. In the same studies, no increased incidence of tumors was seen in either species at concentrations of 10,000 ppm or 1,000 ppm (v/v).

Long-term administration in corn oil produced no effects on body weight or mortality.

HCFC-22 was mutagenic in some strains of bacteria in bacterial cell cultures, but not mammalian cell cultures or animals. It did not cause heritable genetic damage in

(Continued)

2008FR

(Continued)

TOXICOLOGICAL INFORMATION (Continued)

mammals.

Single exposure caused: Cardiac sensitization, a potentially fatal disturbance of heart rhythm associated with a heightened sensitivity to the action of epinephrine. Lowest-Observed-Adverse-Effect-Level for cardiac sensitization: 75,000 ppm. Single exposure caused: Lethargy. Narcosis. Increased respiratory rates. These effects were temporary. Single exposure to near lethal doses caused: Pulmonary edema. Repeated exposure to caused: Increased adrenals, liver, spleen weight. Decreased uterine, prostate weight. Repeated dosing of higher concentrations caused: the following temporary effects- Tremors. Incoordination.

CARCINOGENIC, DEVELOPMENTAL, REPRODUCTIVE, MUTAGENIC EFFECTS:

In a two-year inhalation study, HFC-134A, at a concentration of 50,000 ppm, produced an increase in late-occurring benign testicular tumors, testicular hyperplasia and testicular weight. The no-effect-level for this study was 10,000 ppm. Animal data show slight fetotoxicity but only

ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Aquatic Toxicity:

HCFC-22 48 hour EC50 - Daphnia magna: 433 mg/L

DISPOSAL CONSIDERATIONS

WASTE DISPOSAL

Comply with Federal, State, and local regulations. Reclaim

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

TRANSPORTATION INFORMATION

SHIPPING INFORMATION

DOT/IMO Proper Shipping Name	CHLORDDIFLUOROMETHANE
Hazard Class	2.2
UN No.	1018
DOT/IMO Label	NONFLAMMABLE GAS

Shipping Containers

Tank Cars.
Tank Trucks.
Cylinders.

(Continued)

2008FR

(Continued)

REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

TSGA 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	- See Components Section	

OTHER INFORMATION

NFPA NPCA-HMIS

NPCA HMIS

Health	1
Flammability	0
Reactivity	1

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

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	: DuPont Chemicals
Address	: Engineering a Product Safety
➤	: P.O. Box 80709, Chestnut Run
➤	: Wilmington, DE 19880-0709
Telephone	: (302) 999-4946

Indicates updated section.

End of MSDS

2008FR