

The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

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"SUVA" 124  
2200FR Revised 5-OCT-2001  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"SUVA" is a trademark of DuPont.

Corporate MSDS Number : DU002790  
CAS Number : 2837-89-0  
Formula : CHClF-CF3  
Molecular Weight : 136.48  
CAS Name : 2-CHLORO-1,1,1,2-TETRAFLUOROETHANE

Tradenames and Synonyms

1-Chloro-1,2,2,2-Tetrafluoroethane

Company Identification

MANUFACTURER/DISTRIBUTOR  
DuPont Fluoroproducts  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.  
302-774-1000)  
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.  
703-527-3887)  
Medical Emergency : 1-800-441-3637 (outside the U.S.  
302-774-1000)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
*ETHANE, 2-CHLORO-1,1,1,2-TETRAFLUORO- (HCFC-124)	2837-89-0	94.7
*ETHANE, 1-CHLORO-1,1,2,2-TETRAFLUORO- (HCFC-124a)	354-25-6	5

\* 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.

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HAZARDS IDENTIFICATION  
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## Potential Health Effects

## INHALATION

## ETHANE, 2-CHLORO-1,1,1,2-TETRAFLUORO-

Gross overexposure may cause: Central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Suffocation, if air is displaced by vapors.

## SKIN CONTACT

## ETHANE, 2-CHLORO-1,1,1,2-TETRAFLUORO-

Immediate effects of overexposure may include: Frostbite, if liquid or escaping vapor contacts the skin.

## EYE CONTACT

## ETHANE, 2-CHLORO-1,1,1,2-TETRAFLUORO-

"Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes.

## ADDITIONAL HEALTH EFFECTS

## ETHANE, 2-CHLORO-1,1,1,2-TETRAFLUORO-

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the: central nervous system, cardiovascular system.

## 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  
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## First Aid

## INHALATION

If high concentrations are 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

## (FIRST AID MEASURES - Continued)

Flush skin with water for at least 15 minutes after excessive contact. Seek medical assistance if irritation is present. 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.

## 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.

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FIRE FIGHTING MEASURES  
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## # Flammable Properties

Flash Point: No flash point

Flammable Limits in air, % by Volume:

LEL : None per ASTM E681

UEL : None per ASTM E681

Autoignition: Not determined

## Fire and Explosion Hazards:

Containers may rupture under fire conditions. Decomposition may occur.

Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and color of torch flames. This flame effect will only occur in concentrations of product well above the recommended exposure limits, therefore, stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames.

HCFC-124 is not flammable in air at temperatures up to 100 deg. C (212 deg. F) at atmospheric pressure. However, mixtures of HCFC-124 with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. HCFC-124 can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing HCFC-124 and air, or HCFC-124 in an oxygen enriched atmosphere become combustible depends on the

## (FIRE FIGHTING MEASURES - Continued)

inter-relationship of 1) the temperature, 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, HCFC-124 should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example, HCFC-124 should NOT be mixed with air under pressure for leak testing or other purposes.

Will not burn.

## Fire and Explosion Hazards:

Cylinders may rupture under fire conditions. Decomposition may occur.

## Extinguishing Media

Use media appropriate for surrounding material.

## Fire Fighting Instructions

Cool tank/container with water spray. Self-contained breathing apparatus (SCBA) may be required if cylinders rupture or release under fire conditions.

Water runoff should be contained and neutralized prior to release.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

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

Ventilate area, especially low or enclosed places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) if large spill or leak occurs.

## Spill Clean Up

Comply with Federal, State, and local regulations for reporting releases.

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HANDLING AND STORAGE  
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## Handling (Personnel)

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

## Storage

Store in a clean, dry place. Do not heat above 52 C (126 F).

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

Use sufficient ventilation to keep employee exposure below recommended limits. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.

## Personal Protective Equipment

Lined butyl gloves should be used to avoid prolonged or repeated exposure.

Chemical splash goggles should be available for use as needed to prevent eye contact.

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" 124	
PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 1000 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.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Boiling Point	: -11 C (12 F) @ 760 mm Hg
Vapor Pressure	: 61 psia @ 25 C (77 F)
Freezing Point	: -199 C (-326 F)
% Volatiles	: 100 WT%
Solubility in Water	: 1.71 WT% @ 24 C (75 F)
Odor	: Ether (slight).
Form	: Liquified Gas.
Color	: Clear, Colorless.
Density	: 1.364 g/cm <sup>3</sup> @ 25 C (77 F)
Saturated Vapor Density	: 6.882 g/L (at boiling point)
Critical temperature	: 122.2 C (252 F)
Critical pressure	: 518.3 psia
Critical volume	: 246.4 cc/g mol
Critical density	: 0.554 g/cm <sup>3</sup>

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable.

## 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. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

These materials are toxic and irritating. Contact should be avoided.

## Polymerization

Polymerization will not occur.

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TOXICOLOGICAL INFORMATION  
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## Animal Data

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

## INHALATION:

4 hour, ALC, rat: 230,000 - 300,000 ppm.

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: 25,000 ppm. Single exposure caused: the following temporary effects - Inactivity or anaesthesia. Low blood pressure.

Repeated exposure caused: Decreased body weight. Altered clinical chemistry. These effects were reversible. Repeated exposure caused: the following temporary effects - Inactivity or anaesthesia. Lethargy. Incoordination. Altered respiratory rate. One study showed: Increased liver weight.

## CARCINOGENIC, DEVELOPMENTAL, REPRODUCTIVE, MUTAGENIC EFFECTS:

In animal testing this material has not caused carcinogenicity, developmental toxicity. No animal data are available to define the following effects of this material: reproductive toxicity. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. This material has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).

## CHLOROTETRAFLUOROETHANE (HCFC-124a)

Inhalation 2-hour ALC : &gt; 200,000 ppm in guinea pigs

Single inhalation exposure to very high concentrations caused weakness. Repeated inhalation exposure at lower concentrations was without effect.

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Recover by distillation or remove to a permitted waste disposal facility.

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TRANSPORTATION INFORMATION  
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## Shipping Information

DOT/IMO  
Proper Shipping Name : 1-CHLORO-1,2,2,2-TETRAFLUOROETHANE  
Hazard Class : 2.2  
UN No. : 1021  
DOT/IMO Label : NONFLAMMABLE GAS

## Shipping Containers

Tank Cars.  
Cylinders.  
Ton Tanks.

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REGULATORY INFORMATION  
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## 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

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

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

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



(Continued)

## Additional Information

HCFC-124 is TSCA-listed but its use is controlled by a TSCA Section 5, Significant New Use Rule (SNUR); 40 CFR 721.3180. The SNUR prohibits the commercial use of HCFC-124 as a blowing agent in the manufacture of structural insulation foams for commercial or consumer purposes. Activity related to this application is therefore limited to technical research and development conducted in accordance with the requirements of the R&D Exemption of the TSCA PMN regulations. Refer to 40 CFR 720.36 for further details on the requirements of this Exemption. All other uses of HCFC-124 are permitted.

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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  
> : DuPont Fluoroproducts  
Address : Wilmington, DE 19898  
Telephone : (800) 441-7515

# Indicates updated section.

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