

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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2191FR "SUVA"-123 REFRIGERANT  
Revised 24-SEP-2001  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"SUVA" is a trademark of DuPont.

Corporate MSDS Number : DU002798  
CAS Number : 306-83-2  
Formula : CHCl<sub>2</sub>CF<sub>3</sub>  
CAS Name : 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123)

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, 2,2-DICHLORO-1,1,1-TRIFLUORO- (HCFC 123)	306-83-2	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.

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HAZARDS IDENTIFICATION  
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Potential Health Effects

HCFC-123

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

## (HAZARDS IDENTIFICATION - Continued)

breathing and is heavier than air. Product causes mild eye irritation. Decomposition products are hazardous.

## HEALTH HAZARDS:

Eye contact may cause irritation with discomfort, tearing, or blurring of vision.

Overexposure by inhalation may cause liver damage with altered enzyme levels, and temporary nervous system depression with anesthetic effects such as dizziness, weakness, headache, confusion, incoordination, and loss of consciousness. With overexposure (>2%), possibly temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

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

## 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

In case of contact, flush with water. 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

Material poses an aspiration hazard. If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

## (FIRST AID MEASURES - Continued)

If vomiting occurs naturally, have victim lean forward to reduce the risk of aspiration.

## Notes to Physicians

THIS MATERIAL MAY MAKE THE HEART MORE SUSCEPTIBLE TO ARRHYTHMIAS. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with special caution.

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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-123 is not flammable in air at temperatures up to 100 deg. C (212 deg. F) at atmospheric pressure. However, mixtures of HCFC-123 with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. HCFC-123 can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing HCFC-123 and air, or HCFC-123 in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, HCFC-123 should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example, HCFC-123 should NOT be mixed with air under pressure for leak testing or other purposes.

## (FIRE FIGHTING MEASURES - Continued)

## Extinguishing Media

Use media appropriate for surrounding material.

## Fire Fighting Instructions

Cool tank/container with water spray. Self-contained breathing apparatus (SCBA) is required if drums rupture and contents are spilled 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 spill area.

DuPont Emergency Exposure Limits (EEL) are established to facilitate site or plant emergency evacuation and specify airborne concentrations of brief durations which should not result in permanent adverse health effects or interfere with escape. EEL's are expressed as airborne concentration multiplied by time (CxT) for up to a maximum of 60 minutes and as a ceiling airborne concentration. These limits are used in conjunction with engineering controls/monitoring and as an aid in planning for episodic releases and spills. For more information on the applicability of EEL's, contact DuPont.

The DuPont Emergency Exposure Limit (EEL) for HCFC-123 is 1000 ppm for up to 60 minutes with a 1 minute not-to-exceed ceiling of 2500 ppm.

## Initial Containment

Dike spill. Prevent material from entering sewers, waterways, or low areas.

## Spill Clean Up

Collect on absorbent material and transfer to steel drums for recovery/disposal. 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 high concentrations of vapor. Provide adequate ventilation for storage, handling, and use, especially for enclosed or low spaces. Avoid contact of liquid with eyes and prolonged skin exposure.

## Handling (Physical Aspects)

Do not allow product to contact open flame or electrical heating elements because dangerous decomposition products may form.

## Storage

Store in a clean, dry place.

Do not heat above 52 deg C to avoid over pressurizing the container.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## Engineering Controls

Use only with adequate ventilation. Keep container tightly closed. Vapors are heavier than air posing a hazard of asphyxia if they are trapped in enclosed or low places.

## Personal Protective Equipment

## EYE/FACE PROTECTION

Wear safety glasses or coverall chemical splash goggles.

## RESPIRATORS

Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

## PROTECTIVE CLOTHING

Where there is potential for skin contact have available and wear as appropriate impervious gloves, apron, pants, and jacket.

## Exposure Guidelines

## Exposure Limits

"SUVA"-123 REFRIGERANT

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 50 ppm, 8 & 12 Hr. TWA
WEEL (AIHA)	: 50 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	: 27.6 C (81.7 F) @ 760 mm Hg
Vapor Pressure	: 13 psia @ 25 C (77 F)
Vapor Density	: 5.3 (Air=1.0)
% Volatiles	: 100 WT%
Evaporation Rate	: <1 (CCl4=1.0)
Solubility in Water	: 0.39 WT% @ 25 C (77 F)
pH	: Neutral
Odor	: Ether (slight).
Form	: Liquid.
Color	: Clear, Colorless.
Liquid Density	: 1.46 g/cm3 @ 25 C (77 F)

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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.

## (STABILITY AND REACTIVITY - Continued)

## Polymerization

Polymerization will not occur.

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TOXICOLOGICAL INFORMATION  
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## Animal Data

## HCFC-123

Dermal ALD, rabbit: >2000 mg/kg  
Oral ALD, rat: 9000 mg/kg  
Inhalation 4 hour, LC50, rat: 32,000 ppm

Animal testing indicates that HCFC-123 is not a skin irritant or skin sensitizer, but is a mild to moderate eye irritant.

Toxic effects noted in animals from single exposure by inhalation at concentrations of 5000 ppm or greater include effects on unconditioned reflexes, locomotor activity and coordination, suggesting anesthetic effects. Single inhalation exposures caused central nervous system effects, such as anesthesia, and nonspecific clinical signs and organ pathology changes. Cardiac sensitization occurred in dogs at concentrations of 20,000 ppm and greater.

Repeated exposures to 300 ppm and higher resulted in decreased cholesterol, triglycerides or glucose, and increased urinary fluoride levels. At 5000 ppm or greater, anesthetic effects, reduced lymphocyte counts, organ weight changes, including increased liver weight, and enzyme alterations, and decreased body weight gain were observed. Exposure to dogs, guinea pigs or monkeys at 1000 ppm or greater induced slight or mild liver damage. HCFC-123 was not neurotoxic in animals repeatedly exposed by inhalation at concentrations up to 5,000 ppm, but did cause a slight decrease in arousal at this concentration.

Long-term exposure caused decreased body weight, decreased cholesterol, triglycerides and glucose, and increased urinary fluoride concentrations in rats. Inhalation of 300, 1000 or 5000 ppm for two years caused an increase in benign testicular tumors in male rats. An increase in benign pancreatic and liver tumors was observed in rats exposed to 1000 or 5000 ppm. The tumors were late-occurring and none were judged to be life-threatening. The biological significance of these tumors to man is considered to be limited. Additionally, evidence of retinal atrophy was observed in this two-year study in both treated and control animals, although the toxicological significance is undetermined.

## (TOXICOLOGICAL INFORMATION - Continued)

Animal data indicate that HCFC-123 does not affect reproductive performance in rats or harm the unborn animal. HCFC-123 does not produce genetic damage in bacterial cell cultures or in animals. In two studies, genetic damage was produced in mammalian cell cultures, but did not produce genetic damage in another study. Overall weight of evidence indicates that HCFC-123 is not mutagenic.

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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

AQUATIC TOXICITY:  
Slightly toxic.  
96 hour LC50 - Fathead minnows: > 77 mg/L

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

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

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TRANSPORTATION INFORMATION  
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## Shipping Information

Not regulated as a hazardous material by DOT or IMO.

## Shipping Containers

Tank Cars.  
Tank Trucks.  
Pails.  
Drums.

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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 : Yes  
Fire : No  
Reactivity : No

## (REGULATORY INFORMATION - Continued)

Pressure : No

## HAZARDOUS CHEMICAL LISTS

SARA Extremely  
Hazardous Substance - No  
CERCLA Hazardous Substance - No  
SARA Toxic Chemical - See Components Section

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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.

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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