Material Safety Data Sheet

DuPont™ SUVA® 123 refrigerant

Version 2.2

Revision Date 05/07/2012 Ref. 130000024258

This SDS adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	DuPont™ SUVA® 123 refrigerant
Product Grade/Type	:	ASHRAE Refrigerant number designation: R-123
Tradename/Synonym	:	HCFC-123 2,2-Dichloro-1,1,1-trifluoroethane R-123
MSDS Number	:	130000024258
Product Use	:	Refrigerant
Manufacturer	:	DuPont 1007 Market Street Wilmington, DE 19898
Product Information	:	1-800-441-7515 (outside the U.S. 1-302-774-1000)
Medical Emergency	:	1-800-441-3637 (outside the U.S. 1-302-774-1139)
Transport Emergency	:	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview

Misuse or intentional inhalation abuse may lead to death without warning. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Potential Health Effects

Skin

2,2-Dichloro-1,1,1-trifluoroethane	:	Liquid may cause: Irritation with discomfort or pain, redness or rash, itching or swelling., Prolonged or repeated skin contact with liquid may cause defatting resulting in drying, redness and possible blistering..

Eyes

2,2-Dichloro-1,1,1-trifluoroethane	:	Liquid may cause: Irritation with discomfort, pain, redness, or visual impairment.

Inhalation

2,2-Dichloro-1,1,1-trifluoroethane	:	Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are: Anaesthetic effects, Light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Repeated exposure

2,2-Dichloro-1,1,1-trifluoroethane	:	Adverse effects from repeated inhalation may include: Liver effects

Target Organs

2,2-Dichloro-1,1,1-trifluoroethane	:	Liver Central nervous system

Carcinogenicity

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

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
2,2-Dichloro-1,1,1-trifluoroethane	306-83-2	100 %

SECTION 4. FIRST AID MEASURES

Skin contact	:	In case of contact, immediately flush skin with plenty of water. Get medical attention if irritation develops and persists.

Eye contact	:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
Inhalation	:	Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Call a physician.
Ingestion	:	Material poses an aspiration hazard. If swallowed, DO NOT induce vomiting. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician. If vomiting occurs, have victim lean forward to reduce the risk of aspiration.
Notes to physician	:	Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

SECTION 5. FIREFIGHTING MEASURES

Flammable Properties		
Flash point	:	does not flash
Lower explosion limit	:	Method : None per ASTM E681
Upper explosion limit	:	Method : None per ASTM E681
Fire and Explosion Hazard	:	The product is not flammable.
Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Firefighting Instructions	:	Cool containers / tanks with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Safeguards (Personnel)	:	Ventilate spill area. Comply with Federal, State and Local regulations on reporting releases
Spill Cleanup	:	Dike spill. Collect on absorbent material and transfer to steel drums for recovery/disposal.
Accidental Release Measures	:	Prevent material from entering sewers, waterways, or low areas. 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.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Avoid breathing high concentrations of vapour. Use only with adequate ventilation especially for enclosed and low area where vapors can accumulate. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact of liquid with eyes and prolonged skin exposure. Decomposition will occur when product comes in contact with open flame or electrical heating elements.
Storage	:	Keep containers tightly closed and in an upright position. Store in a clean, dry place. Keep away from direct sunlight. Do not heat cylinder above 52°C to avoid over pressurizing the cylinder. Do not expose drums to direct heat or temperature above 46°C (115°F) to avoid pressurizing and possibly distorting the drums.
Storage temperature	:	< 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls	:	Use only with adequate ventilation. Keep container tightly closed.
Personal protective equipment		
Respiratory protection	:	Where there is potential for airborne exposures in excess of applicable limits, wear NIOSH approved respiratory protection. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Eye protection	:	Safety glasses with side-shields Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.
Skin and body protection	:	Where there is potential for skin contact, have available and wear as appropriate, impervious gloves, apron, pants, jacket, hood and boots.

Exposure Guidelines

Exposure Limit Values

2,2-Dichloro-1,1,1-trifluoroethane

AEL *	(DUPONT)	50 ppm	8 & 12 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	liquid
Color	:	colourless
Odor	:	slight, ether-like
pH	:	neutral
Boiling point	:	27.8 °C (82.0 °F)
% Volatile	:	100 %
Vapour Pressure	:	913.6 hPa at 25 °C (77 °F)
Density	:	1.46 g/cm3 at 25 °C (77 °F) (as liquid)
Water solubility	:	3.9 g/l at 25 °C (77 °F)
Vapour density	:	5.5 at 30°C (84°F) and 1013 hPa (Air=1.0)
Evaporation rate	:	< 1 (CCL4=1.0)

SECTION 10. STABILITY AND REACTIVITY

Stability	:	Stable at normal temperatures and storage conditions.
Hazardous decomposition products	:	Carbonyl halides, Hydrogen chloride, Hydrogen fluoride
Hazardous reactions	:	Polymerization will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

2,2-Dichloro-1,1,1-trifluoroethane

Dermal LD50	:	> 2,000 mg/kg , rabbit
Dermal LD50	:	> 2,000 mg/kg , rat
Oral LD50	:	9,000 mg/kg , rat
Inhalation 4 h LC50	:	32000 ppm , rat Central nervous system effects Liver effects
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	19500 ppm , dog Cardiac sensitization
Skin irritation	:	No skin irritation, rabbit Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	No eye irritation, rabbit Not expected to cause eye irritation based on expert review of the properties of the substance.
Skin sensitization	:	Did not cause sensitization on laboratory animals., guinea pig Not expected to cause sensitization based on expert review of the properties of the substance.
Repeated dose toxicity	:	Inhalation rat

Target Organs: Liver
Abnormal decrease in serum glucose, altered blood chemistry, Abnormal decrease in white blood cells, Organ weight changes, Reduced body weight gain, Liver effects, Retinal damage

Carcinogenicity : Animal experiments showed a statistically significant number of tumours.
The observed tumors do not appear to be relevant for men.

Mutagenicity : Did not cause genetic damage in animals.
Genetic damage in cultured mammalian cells was observed in some laboratory tests but not in others.
Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity : Animal testing showed no reproductive toxicity.

Teratogenicity : Animal testing showed no developmental toxicity.

Further information : Cardiac sensitisation threshold limit : 120900 mg/m3

SECTION 12. ECOLOGICAL INFORMATION

Aquatic Toxicity

2,2-Dichloro-1,1,1-trifluoroethane

96 h LC50 : Oncorhynchus mykiss (rainbow trout) 55.5 mg/l

96 h ErC50 : Pseudokirchneriella subcapitata (green algae) 96.6 mg/l

96 h EbC50 : Pseudokirchneriella subcapitata (green algae) 67.8 mg/l

48 h EC50 : Daphnia magna (Water flea) 17.3 mg/l

Environmental Fate

2,2-Dichloro-1,1,1-trifluoroethane

Biodegradability : 24 %
Not readily biodegradable.

Bioaccumulation : Bioconcentration factor (BCF) : 33

Bioaccumulation is unlikely.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal	:	Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with applicable Federal, State/Provincial and Local Regulations.
Environmental Hazards	:	Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s)	:	2,2-Dichloro-1,1,1-trifluoroethane
California Prop. 65	:	Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known
NJ Right to Know Regulated Chemical(s)	:	Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens or teratogens): 2,2-Dichloro-1,1,1-trifluoroethane

SECTION 16. OTHER INFORMATION

HMIS

DuPont™ SUVA® 123 refrigerant

Version 2.2

Revision Date 05/07/2012 Ref. 130000024258

Health	:	1
Flammability	:	0
Reactivity/Physical hazard	:	1
PPE	:	Personal Protection rating to be supplied by user depending on use conditions.

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For further information contact the local DuPont office or DuPont's nominated distributors.
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