Freon™ 124 Refrigerant

Version 4.0

Revision Date 08/30/2016 Ref. 130000000344

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	:	Freon™ 124 Refrigerant
Tradename/Synonym	:	1-Chloro-1,2,2,2-Tetrafluoroethane HCFC-124 SUVA™ 124
Product Grade/Type	:	ASHRAE Refrigerant number designation: R-124
Product Use	:	Refrigerant
Restrictions on use	:	For professional users only.
Manufacturer/Supplier	:	The Chemours Company FC, LLC 1007 Market Street Wilmington, DE 19899 United States of America
Product Information	:	1-844-773-CHEM (outside the U.S. 1-302-773-1000)
Medical Emergency	:	1-866-595-1473 (outside the U.S. 1-302-773-2000)
Transport Emergency	:	CHEMTREC: +1-800-424-9300 (outside the U.S. +1-703-527-3887)

SECTION 2. HAZARDS IDENTIFICATION

Product hazard category

Gases under pressure Liquefied gas

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Label content

Pictogram :

Signal word : Warning

Hazardous warnings : Contains gas under pressure; may explode if heated.

Hazardous prevention measures : Protect from sunlight. Store in a well-ventilated place.

Other hazards

Misuse or intentional inhalation abuse may lead to death without warning., May cause cardiac arrhythmia.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
Rapid evaporation of the liquid may cause frostbite.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No.	Concentration
2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)	2837-89-0	99.7 %

SECTION 4. FIRST AID MEASURES

General advice	:	Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
Inhalation	:	Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.
Skin contact	:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. 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. Consult a physician if necessary.
Ingestion	:	Is not considered a potential route of exposure.
Most important symptoms/effects, acute and delayed	:	Anaesthetic effects Light-headedness irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness
Protection of first-aiders	:	If potential for exposure exists refer to Section 8 for specific personal protective equipment.
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

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media	:	No applicable data available.
Specific hazards	:	The product is not flammable. Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Decomposition may occur.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. Wear neoprene gloves during cleaning up work after a fire.
Further information	:	Cool containers/tanks with water spray. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions. Water runoff should be contained and neutralized prior to release.

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 area, especially low or enclosed places where heavy vapours might collect.
Environmental precautions	:	Should not be released into the environment. In accordance with local and national regulations.
Spill Cleanup	:	Ventilate area using forced ventilation, especially low or enclosed places where heavy vapors might collect. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Accidental Release Measures	:	Avoid open flames and high temperatures. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

SECTION 7. HANDLING AND STORAGE

Handling (Personnel)	:	Use sufficient ventilation to keep employee exposure below recommended limits. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.
Handling (Physical Aspects)	:	No applicable data available.
Dust explosion class	:	Not applicable
Storage	:	Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3000 psig) piping or systems. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Separate full containers from empty containers. Keep at temperature not exceeding 52°C. Do not store near combustible materials. Avoid area where salt or other corrosive materials are present. The product has an indefinite shelf life when stored properly.
Storage period	:	> 10 yr
Storage temperature	:	< 52 °C (< 126 °F)

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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		
Respiratory protection	:	Under normal manufacturing conditions, no respiratory protection is required when using this product.
Hand protection	:	Additional protection: Impervious gloves

Eye protection	:	Wear 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.
Protective measures	:	Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Exposure Guidelines
Exposure Limit Values

2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
No applicable data available.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance		
Physical state	:	gaseous
Form	:	Liquefied gas
Color	:	colourless
Odor	:	slight, ether-like
Odor threshold	:	No applicable data available.
pH	:	No applicable data available.
Melting point/freezing point	:	Freezing point -199 °C (-326 °F)
Boiling point/boiling range	:	Boiling point -12.0 °C (10.4 °F) at 1,013 hPa
Flash point	:	does not flash

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Evaporation rate	:	No applicable data available.
Flammability (solid, gas)	:	The product is not flammable.
Upper explosion limit	:	Method: None per ASTM E681
Lower explosion limit	:	Method: None per ASTM E681
Vapor pressure	:	3,827 hPa at 25 °C (77 °F)
Vapour density	:	No applicable data available.
Density	:	1.355 g/cm3 at 25 °C (77 °F) (as liquid)
Specific gravity (Relative density)	:	1.36 at 25 °C (77 °F)
Water solubility	:	1.45 g/l at 25 °C (77 °F) at 1,013 hPa
Solubility(ies)	:	No applicable data available.
Partition coefficient: n-octanol/water	:	No applicable data available.
Auto-ignition temperature	:	No applicable data available.
Ignition temperature	:	no data available
Decomposition temperature	:	No applicable data available.
Viscosity, kinematic	:	No applicable data available.
Viscosity, dynamic	:	No applicable data available.
% Volatile	:	100 %

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Stable at normal ambient temperature and pressure.
Chemical stability	:	The product is chemically stable.
Possibility of hazardous reactions	:	Polymerization will not occur.
Conditions to avoid	:	Avoid open flames and high temperatures.
Incompatible materials	:	Alkali metals Alkaline earth metals, Powdered metals, Powdered metal salts
Hazardous decomposition products	:	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., Avoid contact with decomposition products

SECTION 11. TOXICOLOGICAL INFORMATION

2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)

Inhalation 4 h LC50	:	> 230000 ppm , Rat Anaesthetic effects Central nervous system effects
Inhalation Low Observed Adverse Effect Concentration (LOAEC)	:	25000 ppm , Dog Cardiac sensitization
Inhalation No Observed Adverse Effect Concentration	:	10000 ppm , Dog Cardiac sensitization
Skin irritation	:	Not expected to cause skin irritation based on expert review of the properties of the substance.
Eye irritation	:	Not expected to cause eye irritation based on expert review of the properties of the substance.
Skin sensitization	:	Not expected to cause sensitization based on expert review of the properties of the substance. Does not cause respiratory sensitisation., There are no reports of human respiratory sensitization.

Repeated dose toxicity	:	Inhalation multiple species - No toxicologically significant effects were found.
Carcinogenicity	:	Not classifiable as a human carcinogen.
Mutagenicity	:	Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Animal testing did not show any mutagenic effects.
Teratogenicity	:	Animal testing showed no developmental toxicity.
Further information	:	Cardiac sensitisation threshold limit : 140000 mg/m3

Carcinogenicity

The carcinogenicity classifications for this product and/or its ingredients have been determined according to HazCom 2012, Appendix A.6. The classifications may differ from those listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or those found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition).

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 12. ECOLOGICAL INFORMATION

Additional ecological information	:	no data available

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal methods - Product	:	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.

Contaminated packaging : Empty pressure vessels should be returned to the supplier.

SECTION 14. TRANSPORT INFORMATION

DOT	UN number	: 1021
	Proper shipping name	: Refrigerant gas R 124
	Class	: 2.2
	Labelling No.	: 2.2
IATA_C	UN number	: 1021
	Proper shipping name	: Refrigerant gas R 124
	Class	: 2.2
	Labelling No.	: 2.2
IMDG	UN number	: 1021
	Proper shipping name	: REFRIGERANT GAS R 124
	Class	: 2.2
	Labelling No.	: 2.2

SECTION 15. REGULATORY INFORMATION

SARA 313 Regulated Chemical(s) : 2-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)

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-Chloro-1,1,1,2-tetrafluoroethane (HCFC-124)

California Prop. 65 : Chemicals known to the State of California to cause cancer, birth defects or any other harm: none known

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SECTION 16. OTHER INFORMATION

Before use read Chemours safety information. For further information contact the local Chemours office or nominated distributors.

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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