

# SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1

Product Name Difluoromethane and Pentafluoroethane and 1,1,1,2-Tetrafluoroethane mixture

Issue Date 23-Oct-2015

Revision date 23-Oct-2015

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product identifier

Product Name Difluoromethane and Pentafluoroethane and 1,1,1,2-Tetrafluoroethane mixture  
Other Name Freon 407C; R407C

### Other means of identification

Cas No. No information available

### Recommended use of the chemical and restrictions on use

Recommended Use Used as a long-term substitute for HCFC-22, used as a refrigerant.  
Uses advised against No information available

### Details of the supplier of the safety data sheet

Supplier Sinochem Lantian Fluoro Materials Co.,Ltd.  
Shangyu Zhejiang  
Address  
Postal Code 312369  
Phone 0571-87397255/0575-82738809/0575-827328369  
FAX 0571-88900147  
E-mail -

Importer  
Address  
Postal Code  
Phone  
FAX  
E-mail

### Emergency telephone number

0532-83889090

## 2. HAZARDS IDENTIFICATION

### GHS Classification

Gases under pressure Liquefied gas

### Label elements

Symbols/Pictograms



Signal word Warning  
Hazard Statements Contains gas under pressure; may explode if heated

Precautionary Statements

Prevention None  
Response None

Storage Protect from sunlight. Store in a well-ventilated place  
Disposal None

**Hazards not otherwise classified (HNOC)**

No information available

**Unknown acute toxicity**

0% of the mixture consists of ingredient(s) of unknown toxicity

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**Chemical nature**

Mixture

Chemical Name	CAS No	Weight-%
1,1,1,2-Tetrafluoroethane	811-97-2	52
Pentafluoroethane	354-33-6	25
Methylene fluoride	75-10-5	23

**4. FIRST AID MEASURES**

**Description of first aid measures**

General advice Do not get in eyes, on skin, or on clothing. Do not breathe dust/fume/gas/mist/vapors/spray. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Administer oxygen if breathing is difficult. Get medical advice/attention if you feel unwell.

Skin Contact Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Ingestion Not an expected route of exposure. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**

No information available.

**Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing media**

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

Unsuitable extinguishing media No information available.

**Specific hazards arising from the chemical**

Thermal decomposition can lead to release of irritating and toxic gases and vapors

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Evacuate personnel to safe areas.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Remove all sources of ignition. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Do not touch or walk through spilled material. Ensure adequate ventilation, especially in confined areas. Use personal protection recommended in Section 8. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

### Methods and material for containment and cleaning up

Allow substance to evaporate. Avoid breathing dust/fume/gas/mist/vapors/spray. P273 - Avoid release to the environment.

### Methods and material for containment and cleaning up

Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Use personal protection recommended in Section 8. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Keep locked up and out of reach of children. Keep only in original container. Keep away from food, drink and animal feeding stuffs. Store in accordance with local regulations.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

Chemical Name	Latvia	France	Finland	Germany	Italy
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)		-	-	STEL 8000 ppm STEL 33600 mg/m <sup>3</sup> TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-
Pentafluoroethane (CAS #: 354-33-6)	TWA: 2 ppm TWA: 20 mg/m <sup>3</sup>	-	-	-	-
Methylene fluoride (CAS #: 75-10-5)	TWA: 2 ppm TWA: 20 mg/m <sup>3</sup>	-	-	-	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	-	-	TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	1000 ppm 4240 mg/m <sup>3</sup>	STEL 4000 ppm STEL 16800 mg/m <sup>3</sup> TWA: 1000 ppm TWA: 4200 mg/m <sup>3</sup>	-

### Appropriate engineering controls

Showers  
Eyewash stations  
Ventilation systems

### Individual protection measures, such as personal protective equipment

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.
Hand Protection	Wear protective gloves.
Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin and body protection	Wear suitable protective clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

Appearance	Volatile liquid and steam
Color	Colorless, transparent,
Odor	Ethers sweetness
Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	-43.9
Flash point	Not determined
Evaporation rate	Not determined
Flammability (solid, gas)	Not determined
Flammability Limit in Air	Not determined
Vapor Pressure	1174.0 (25°C)2186.0(50°C)
Vapor density	3.0 (25°C)
Density	Not determined
Relative density	1.14
Bulk density	Not determined
Specific gravity	Not determined
Water solubility	Not determined
Partition coefficient (LogPow)	Not determined
Autoignition temperature	685°C
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not an explosive
Oxidizing properties	Not determined

### Other information

No information available

## 10. STABILITY AND REACTIVITY

### Reactivity

No known effects under normal use conditions.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of Hazardous Reactions

Hazardous polymerization does not occur.

### Conditions to avoid

Heat, flames and sparks. Strong heating. Incompatible materials.

### Incompatible materials

Alkali metal alloys. Finely powdered metals. Oxidizing agent.

**Hazardous Decomposition Products**

Hydrogen fluoride

**11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

Inhalation	No known effect based on information supplied.
Eye contact	No known effect based on information supplied.
Skin Contact	No known effect based on information supplied.
Ingestion	No known effect based on information supplied.

**Information on toxicological effects**

**Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	-	-	> 567,000ppm /4h (Rat)
Pentafluoroethane (CAS #: 354-33-6)	-	-	> 709,000ppm 4h (Rat)
Methylene fluoride (CAS #: 75-10-5)	-	-	> 520,000ppm ( Rat ) 4 h

**Skin corrosion/irritation**

Non-irritating to the skin

**Serious eye damage/eye irritation**

No eye irritation

**Sensitization**

No information available.

**Germ cell mutagenicity**

No information available

**Carcinogenicity**

No information available

**Reproductive toxicity**

No information available

**STOT - single exposure**

No information available

**STOT - repeated exposure**

No information available

**Aspiration hazard**

No information available

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
1,1,1,2-Tetrafluoroethane (CAS #: 811-97-2)	142 mg/L/96h (green algae)(weight of evidence)	450 mg/L/96h (Oncorhynchus mykiss)	980 mg/L/48h (Daphnia magna)

Pentafluoroethane (CAS #: 354-33-6)	142 mg/L 96h other: green algae	560 mg/L 24h Oncorhynchus mykiss 450 mg/L 48 72 96h Oncorhynchus mykiss	> 200 mg/L 48h Daphnia magna
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**Persistence and degradability**

No information available

**Bioaccumulative potential**

No information available

**Mobility in soil**

No information available

**Other adverse effects**

No information available

**13. DISPOSAL CONSIDERATIONS**

**Waste treatment methods**

Disposal of wastes Disposal should be in accordance with applicable regional, national and local laws and regulations  
Contaminated packaging Dispose of in accordance with federal, state and local regulations

**14. TRANSPORT INFORMATION**

**DOT**

**UN/ID No.** 3340  
**Proper shipping name** LIQUEFIED GAS, N.O.S.  
**Hazard Class** 2.2  
**Packing Group** No information available  
**Special precautions** No information available  
**Marine pollutant** No

**15. REGULATORY INFORMATION**

**International Inventories**

Component	AICS	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
1,1,1,2-Tetrafluoroethane 811-97-2	X	X	X	X	X	X	X	X
Pentafluoroethane 354-33-6	X	X	X	X	X	X	X	X
Methylene fluoride 75-10-5	X	-	X	X	X	X	X	X

"-" Not Listed

"X" Listed

**US Federal Regulations**

**SARA 313**

Not applicable

**SARA 311/312 Hazard Categories**

Not applicable

**CWA (Clean Water Act)**

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Methylene fluoride 75-10-5	-	X	-	-

**CERCLA**

Not applicable

**US State Regulations**

**California Proposition 65**

Not applicable

**U.S. State Right-to-Know Regulations**

Not applicable

**16. OTHER INFORMATION**

**Revision Note**

Issue Date	23-Oct-2015
Revision date	23-Oct-2015
Revision Note	Not applicable

**Key or legend to abbreviations and acronyms used in the safety data sheet**

- TWA** - TWA (time-weighted average)
- STEL** - STEL (Short Term Exposure Limit)
- Ceiling** - Maximum limit value
- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

**Disclaimer**

The information provided in this Material 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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