

SAFETY DATA SHEET

FLOE® R-134a



SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	FLOE® R-134a
Product Use Description	Refrigerant, Propellant
Chemical Formula	CH ₂ FCF ₃
Chemical Family	Hydrofluorocarbon (HFC)
Company	Floe International L.L.C 16192 Coastal Highway Lewes, Delaware 19958, USA www.floehvac.com
For More Information	

SECTION 2: HAZARDS IDENTIFICATION

Form	Liquefied gas
Color	Colorless
Odor	Weak
Classification	Gases under pressure – Liquefied gas.
Label Elements	
Symbol	
Signal Word	Warning
Hazard Statement	Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation. Protect from sunlight. Store in a well-ventilated place. May cause cardiac arrhythmia and frostbite.
Precautionary Statements	
Hazards not otherwise classified	

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Concentration

Substance Name	CAS No.	Concentration
1,1,1,2-Tetrafluoroethane	811-97-2	99.80 %

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SECTION 4: FIRST AID MEASURES

Inhalation	Move the exposed person to fresh air.
Skin Contact	Frostbite: treat as thermal burns.
Eye Contact	Rinse immediately with plenty of water
Ingestion	Ingestion is not considered a potential route of exposure.
Treatment	If you feel unwell, seek medical advice. Seek medical attention if irritation or symptoms persist.

SECTION 5: FIRE-FIGHTING MEASURE

Suitable Extinguishing Media	Use extinguishing media appropriate to the surrounding fir conditions.
Specific Hazard Arising From The Chemical	This product is not flammable in air under ambient conditions of temperature and pressure. Certain mixtures of the product and air under pressure may be flammable. At high temperature: Thermal decomposition giving toxic and corrosive products: Gaseous hydrogen fluoride (HF), carbon oxides.
Special Protective Actions For Fire-Fighters	Wear self-contained breathing apparatus and protective suit. Cool containers / tanks with water spray. Ensure a system for the rapid emptying of containers. In case of fire nearby, remove exposed containers.

SECTION 6: ACCIDENTAL RELEASE MEASURE

Personal Precautions	Ensure adequate ventilation of the working area. Avoid contact with skin and eyes. Evacuate personnel to a safe area. Wear self-contained breathing apparatus and protective clothing. Vapors are heavier than air.
Environmental Precautions	Do not release into environment.
Methods For Cleaning Up	Allow to evaporate.

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SECTION 7: HANDLING AND STORAGE

Handling

Ensure adequate ventilation of the working area. Avoid contact with eyes and skin. Adopt best Manual Handling considerations when handling, carrying and dispensing. Keep away from sources of ignition – No smoking. Do not eat, drink or smoke in areas where this product is used or stored. When using do not eat or drink. Wash hands after handling the products.

Storage

Keep containers tightly closed. Keep in a cool, dry, well, ventilated area. Store in correctly labelled containers. Keep away from sources of ignition – No smoking. Store out of direct sunlight. Storage temperature: <45 °C.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters Guidelines

Substance name

1,1,1,2-Tetrafluoroethane

WEL 8-hr Limit ppm: 1000

WEL 15 min limit ppm

WEL 8-hr limit mg/m³ total
inhalation dust

WEL 8-hr limit mg/m³ total
respirable dust

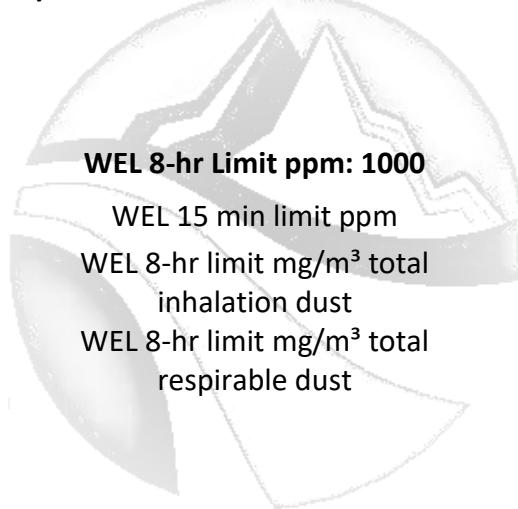
WEL 8-hr Limit mg/m³: 4240

WEL 15 min limit ppm

WEL 8-hr limit mg/m³ total
inhalation dust

WEL 8-hr limit mg/m³ total
respirable dust

Exposure Controls



Appropriate Engineering Controls

Ensure adequate ventilation of the working area.

Individual Protection Measure

Wear protective clothing.

Eye/Face Protection

Approved safety goggles.

Skin Protection – Other

Wear suitable protective clothing.

Respiratory Protection

Wear suitable respiratory equipment when necessary.

Eye Protection

Tightly fitted safety goggles.

Occupational Exposure Controls

Keep away from food, drink and animal feeding stuffs.

Hand Protection

Wear suitable gloves.

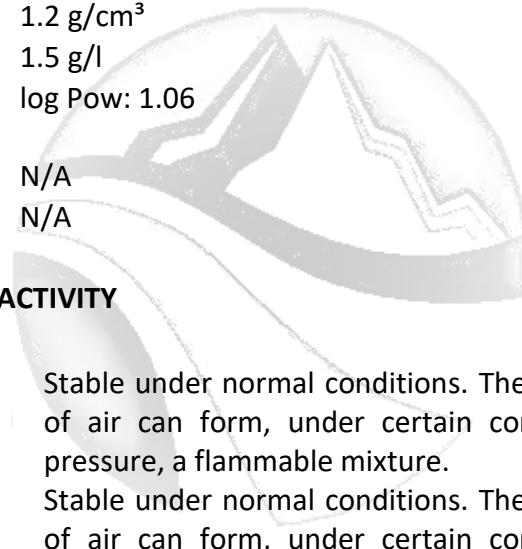
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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquefied gas
Color	Colorless
Odor	Weak
pH	Neutral
Melting/Freezing Point	-101 °C
Boiling Point/Boiling Range	-26.2 °C
Flash Point	N/A
Evaporation Rate	>1
Explosive Properties	Not Explosive
Vapor Pressure	0.574 MPa
Vapor Density	4.24 kg/m ³
Density	1.2 g/cm ³
Water Solubility	1.5 g/l
Partition Coefficient: n-octanol/water	log Pow: 1.06
Auto Ignition Temperature	N/A
Decomposition Temperature	N/A



SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions. The gaseous product in presence of air can form, under certain conditions of temperature and pressure, a flammable mixture.
Chemical Stability	Stable under normal conditions. The gaseous product in presence of air can form, under certain conditions of temperature and pressure, a flammable mixture.
Possibility of hazardous reactions	No data is available on this product.
Conditions To Avoid	Keep away from heat and sources of ignition. Avoid contact with flames and red hot metallic surfaces.
Material To Avoid	Alkaline hydroxides, alkaline earth metals. Strong oxidizing agents. Finely divided metals.
Hazardous Decomposition Products	At high temperature: thermal decomposition giving toxic and corrosive product: gaseous hydrogen fluoride (HF), Carbon oxides. Decomposition temperature: >370 °C.

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SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity	Slightly harmful by inhalation. As with other volatile aliphatic halogenated compounds, through vapor accumulation and/or inhalation of large quantities, the products can cause: loss of consciousness and cardiac disorders aggravated by stress and lack of oxygen, risk of mortality.
Skin Corrosion/Irritation	Ejection of liquefied gas: frostbite possible.
Serious Eye Damage/Eye Irritation	Ejection of liquefied gas: frostbite possible.
Respiratory Or Skin Irritation	N/A
Sensitization	N/A
Mutagenicity	N/A
Carcinogenicity	N/A
Toxicity For Reproduction	N/A

SECTION 12: ECOLOGICAL INFORMATION

Eco Toxicity Effects

Additional Information	Ecological Accumulation in aquatic organisms is unlikely. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.
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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Methods	Dispose of in compliance with all local and national regulations.
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SECTION 14: TRANSPORT INFORMATION

DOT	UN/ID No.	3159
	Proper Shipping Name	1,1,1,2 – Tetrafluoroethane
	Class	2.2
	Packing Group	
	Hazard Labels	2.2

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IATA	UN/ID No.	3159
	Description Of Goods	1,1,1,2 – Tetrafluoroethane
	Class	2.2
	Hazard Labels	2.2
	Packing Instruction (Cargo Aircraft)	200
IMDG	Packing Instruction (Passenger Aircraft)	200
	UN/ID No.	3159
	Proper Shipping Name	1,1,1,2 – Tetrafluoroethane
	Class	2.2
	Hazard Labels	2.2
EMSD	Ems Number	F – C, S – V
	Marine Pollutant	No

SECTION 15: REGULATORY INFORMATION

Inventories

US: Toxic Substances Control Act	On TSCA Inventory.
Australia: Industrial Chemical (Notification And Assessment) Act	On the inventory, or in compliance with the inventory.
Canada: Canadian Environmental Protection Act (CEPA). Domestic Substances List.	All components of this product are on the Canadian DSL.
Japan: Kashin-Hou Law List	On the inventory, or in compliance with the inventory.
Korea: Toxic Chemical Control Law (TCCL) List	On the inventory, or in compliance with the inventory.
Philippines: The Toxic Substances And Hazardous And Nuclear Waste Control Act	On the inventory, or in compliance with the inventory.
China: Inventory Of Existing Chemical Substances	On the inventory, or in compliance with the inventory.

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New Zealand: NZIOC

On the inventory, or in compliance with the inventory.

National Regulatory Information

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 313 Components:

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313

SARA 311/312 Hazards:

Acute Health Hazard.

Sudden Release of Pressure Hazard.

California Prop. 65

WARNING! This product contains a chemical known to the state of California to cause cancer, birth defects, or any other reproductive harm.

New Jersey RTK

1,1,1,2 - Tetrafluoroethane

811-97-2

Pennsylvania RTK

1,1,1,2 - Tetrafluoroethane

811-97-2

WHMIS Classification

Compressed Gas:

This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.

1,300

Global Warming Potential

0

Ozone Depletion Potential

