Chemical Safety Data Sheet

Section 1 IDENTIFICATION

GHS Product identifier: Refrigerant gas R404a.

Other means of identification: /

Recommended use of the chemical and restrictions on use:

Supplier's details:

Emergency phone number:

Section 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Gases under pressure (Liquefied gas),

Hazardous to the ozone layer Category 1.

GHS Label elements, including precautionary statements:

Symbol:

Signal word: Warning

Hazard statement(s): Contains gas under pressure; may explode if heated. Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statement(s):

Prevention: /

Response: /

Storage:

Protect from sunlight. Store in a well-ventilate place.

Disposal:

Refer to manufacturer/supplier for information on recovery/recycling.

Other hazards which do not result in classification: /

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Concentration%
R404A	/	99.94%
Including: R143a	420-46-2	52%
R125	354-33-6	44%
R134a	811-97-2	4%

Section 4 FIRST AID MEASURES

Description of necessary first aid measures

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Do not rub affected area. Get medical advice/attention.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a

physician.
If ingestion: /
Most important symptoms/effects, acute and delayed: /
Indication of immediate medical attention and special treatment needed, if necessary: /

Section 5 FIREFIGHTING MEASURES

Suitable extinguishing media: SMALL FIRE: Use extinguishing agent suitable for type of surrounding fire. LARGE FIRE: Cool cylinder. DO NOT direct water at source of leak or venting safety devices as icing may occur.
Special hazards arising from the chemical: This material is non-flammable.
Special protective actions for fire-fighters: Wear breathing apparatus and protective gloves. Fight fire from a safe distance, with adequate cover. Use water delivered as a fine spray to control fire and cool adjacent area.DO NOT approach cylinders suspected to be hot. Cool fire exposed cylinders with water spray from a protected location. If safe to do so, remove cylinders from path of fire.

Section 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Remove all sources of ignition. Evacuate personnel to safe areas.
Environmental precautions: Prevent further leakage or spillage if safe to do so.
Methods and materials for containment and cleaning up: Ensure adequate ventilation in leak area.

Section 7 HANDLING AND STORAGE

Precautions for safe handling: Closed operation, local exhaust. Operators must be specially trained to strictly follow the operating procedures. Operators are advised to wear anti-freeze protective clothing. Lightly load and unload during handling to prevent damage to the packaging. Equipped with leakage emergency treatment equipment.
Conditions for safe storage, including any incompatibilities: Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep away from flammable materials.

Section 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters: /
Appropriate engineering controls: Local exhaust ventilation or a process enclosure ventilation system may be required.
Individual protection measures
Eye/face protection: Wear face shield or eye protection.
Skin protection: Wear protective clothing and cold insulating gloves.
Respiratory protection: Air respirators should be worn during emergency rescue or evacuation.
Thermal hazards: /

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, colour etc)	Liquefied gas in cylinder.
Odour	/
Odour Threshold	/
pH	/

Melting point/freezing point	/
Initial boiling point and boiling range	/
Flash point	/
Evaporation rate	/
Flammability (solid, gas)	/
Upper/lower flammability or explosive limits	/
Vapour pressure	/
Vapour density	/
Relative density	/
Solubility(ies)	/
Partition coefficient: n-octanol/water	/
Auto-ignition temperature	/
Decomposition temperature	/
Viscosity	/

Section 10 STABILITY AND REACTIVITY

Reactivity: /

Chemical stability: This material is stable in normal temperature.

Possibility of hazardous reactions: Hazardous polymerisation will not occur.

Conditions to avoid: Spark and high temperature.

Incompatible materials: /

Hazardous decomposition products: carbon monoxide (CO)，carbon dioxide (CO_2)，hydrogen fluoride

Section 11 TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure: Inhaled, skin, eyes.

Symptoms related to the physical, chemical and toxicological characteristics: /

Acute health effects: Accidental ingestion of the material may be harmful and cause asphyxiation. This material may produce eyes and skin cryogenic burns and frostbite.

Chronic health effects: /

Numerical measures of toxicity(such as acute toxicity estimates):

1, 1, 1-Trifluoroethane:

LC50(inhalation, rat): >540000 ppm4h

Pentafluoroethane:

LC50(inhalation, rat): >709000 ppm4h

1, 1, 1, 2-Tetrafluoroethane:

LC50(inhalation, rat): 359453ppm4h

Section 12 ECOLOGICAL INFORMATION

Toxicity:

1, 1, 1-Trifluoroethane:

Endpoint	Test Duration (hr)	Species	Value
EC0(ECx)	96h	Algae or other aquatic plants	>44mg/l
EC50	72h	Algae or other aquatic plants	~71mg/l

Pentafluoroethane:

Endpoint	Test Duration (hr)	Species	Value
LC50	96h	Fish	>81.8mg/l
EC50	72h	Algae or other aquatic plants	>114mg/l
EC50	48h	Crustacea	>97.9mg/l
NOEC(ECx)	96h	Fish	10mg/l
EC50	96h	Algae or other aquatic plants	142mg/l

1, 1, 1, 2-Tetrafluoroethane:

Endpoint	Test Duration (hr)	Species	Value
NOEC(ECx)	72h	Algae or other aquatic plants	~13.2mg/l
LC50	96h	Fish	450mg/l
EC50	72h	Algae or other aquatic plants	>114mg/l
EC50	48h	Crustacea	980mg/L
EC50	96h	Algae or other aquatic plants	142mg/l

Persistence and degradability:
High (1,1,1-Trifluoroethane)/High (Pentafluoroethane)/High (1,1,1,2-Tetrafluoroethane).
Bioaccumulative potential:
High (1,1,1-Trifluoroethane)/Low (Pentafluoroethane)/Low (1,1,1,2-Tetrafluoroethane).
Mobility in soil:
High (1,1,1-Trifluoroethane)/ Low (Pentafluoroethane)/Low (1,1,1,2-Tetrafluoroethane).
Other adverse effects: /

Section 13 DISPOSAL CONSIDERATIONS

Disposal methods: Burial in a land-fill specifically licensed to accept chemical. Reuse of broken container is forbidden.

Section 14 TRANSPORT INFORMATION

UN number: 3337.
UN proper shipping name: REFRIGERANT GAS R404A.
Transport hazard class(es) : 2.2.
Packing group, if applicable: /
Environmental hazards: /
Special precautions for user: /

Section 15 REGULATORY INFORMATION

Regulations: This safety data sheet is in compliance with the following national standards: GB/T 16483-2008, GB 13690-2009, GB 18218-2018, GB 15258-2009, GB 6944-2012, GB 190-2009, GB/T 191-2008, GB 12268-2012, GB/T 15098-2008, GBZ 2.1-2019, GBZ 2.2-2007 as well as the following regulations: Railway Dangerous Goods Transport Administrative Regulation, Dangerous Chemicals Safety Administrative Regulation.

Section 16 OTHER INFORMATION

References	UN Recommendations on the Transport of Dangerous Goods Model Regulations

	UN Globally Harmonized System of Classification and Labelling of Chemicals
Form Date	18-Mar-2022

Note 1: When products contain two or more hazardous substances, Safety Data Sheets should be prepared based on the risk of the mixture.

Note 2: Manufacturer/supplier should ensure the correctness of the information contained in the safety data sheets, and updated in a timely manner.

Note 3: As a result of product features without the existence of certain information or no data available (such as boiling point does not exist for the solid) in the table with "/" logo.