

Material Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

PRODUCT NAME: R134A (FLUGENE)

Address/Phone No.: AL SHAMLY TRADING FZE

JEBEL ALI – DUBAI U.A.E.

Emergency Phone No: 00971-4-2286643

Subject to member state regulation, applicable uses are: refrigerant

2. COMPOSITION/INFORMATION ON INGREDIENTS

Purity or Mixture: purity

Name of Chemical: 1,1,1,2-tetrafluoroethane

HAZARDOUS ELEMENT(S)	CAS No.	Content
1,1,1,2-tetrafluoroethane	000811-97-2	99.9%

3. HAZARDS IDENTIFICATION

Risk category :2.2 category inflammable gas

Route of Entry : inhalation, ingestion, eye and skin contact

Health Hazard : when the concentration is high, the pressure of oxygen in the air will fall, lead to anoxic suffocation. When eye or skin contact with this liquid product, it will cause damage such as frostbite. Under the thermal condition, this product will be decomposed , produce HF and carbon-fluorine-oxygen compound, like virulent carbonyl fluoride (F₂C=O)

Environment hazards: ODP value : 0, GWP value : 1200

Flaming and explosive hazards: Under normal condition, this product is non -flammable, but under special condition, it is flammable .

4. FIRST –AID MEASURES

The first aid advice given for skin contact, eye contact, and ingestion is applicable following exposures to the liquid or spray.

Skin contact : Take off the contaminated cloth, use soapsuds and clean water to fully wash skin for at least 15 minutes. If frostbite, seek medical treatment.

Eye contact: Hold up eyelid, use running clean water or physiological saline solution wash the eye, after that, seek medical treatment.

Inhalation contact: Leave working area, evacuate to fresh air immediately. Keep respiratory tract open. If breathing is difficult, execute oxygen therapy. If heartbeat or breathing stops, execute artificial respiration, and seek medical treatment.

Digestive contact: Drink enough warm water, forced vomit, after that seek medical treatment.

Further Medical Treatment

Symptomatic treatment and supportive therapy as indicated.

Adrenaline and similar sympathomimetic drugs should be avoided following exposure as cardiac arrhythmia may result with possible subsequent cardiac arrest.

5. FIRE-FIGHTING MEASURES

Hazard Property: this product does not burn or explode in the air. If in high temperature, it will decomposed, release poisonous HF and carbon-fluorine-oxygen compound. When heated, the pressure in the container increase with possibility of rupture or explosion.

Hazardous product of combustion: Poisonous HF and carbon-fluorine-oxygen compound.

Extinguishing method: This product itself is not flammable. Cut off gas resource. Spill water to cool off container, if possible remove container to open place.

Recommended extinguishing agent: Foggy water, foam carbon dioxide.

Attention and measure :Wear protective clothes and self-contained positive pressure ventilator, extinguish fire at upwind place.

6. ACCIDENTAL RELEASE MEASURES

Ensure suitable personal protection (including respiratory protection) during removal of spillages. See also Section 8. Provided it is safe to do so, isolate the source of the leak. Allow small spillages to evaporate provided there is adequate ventilation. Large spillages: Ventilate area. Contain spillages with sand or any suitable adsorbent material. Prevent liquid from entering drains, sewers, basements and workpits since the vapour may create a suffocating atmosphere.

7. HANDLING AND STORAGE

HANDLING

Handling: Operate in enclosed area with sufficient ventilation. Operators should be specially trained, and rigorously observe the regulation of operation procedure. If the concentration exceeds the standard, operator should wear self-contained breathing apparatus protective goggles to prevent gas leak to the air. When pack or unpack this product, pay attention not to damage cylinder and accessories which should be outfitted with anti-leak emergency management equipment.

Store: This product should be kept in cool and ventilated place. Keep away from fire or heat source. The temperature in the storage should not surpass 30°C, avoid direct sunshine, store separately from oxide, flammable substance and food chemical, pay special attention not to mix them up. Storage area should be outfitted with anti-leak emergency treatment equipment. When check and accept the product, pay attention to the name of the chemical and the date of testing. Consign the product in the principle of "first in, first out".

8. CONTRACT CONTROL/PERSONAL PROTECTION

Monitoring Method: Gas chromatography

Engineering control : fully ventilated

Respiration protection: If concentration in the air surpasses the regulatory requirement, wear self-contained breathing apparatus (half mask)

Eye Protection: Wear anti-chemical protective glass if necessary.

Body protection: Wear normal protective working clothes.

Hand protection; Wear normal protective goggles.

Other protection: Not inhale high concentration of this product. Before enter into column or limited space or high concentration area for operation, designate personnel to monitor.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and properties: colorless and transparent liquid with a slight scent of ether.

PH Value: No information.

Melting point: Not available

Boiling point: -26.1 °C

Liquid density: 1206kg/m³ (25°C)

Saturated vapour density (boiling point): 5.25kg/m³

Saturated vapour pressure (kPa): no information

Critical Temperature (K): 374.25

Critical pressure (MPa) : 4.06
Octanol/water logarithm value : No information
Flash point (C°): Not applicable
Ignitron temperature: Not applicable
Upper explosive limit [% V/V]: not applicable
Lower explosive limit [% (V/V)] not applicable
Dissolubility: This product can be dissolve in water, it can also be dissolved in alcohol and aether.

10. STABILITY AND REACTIVITY

Stability: Stable
Condition that should be avoided: high temperature
Forbidden mixture: No information
Aggregation hazard: not exist
Decomposed product: Poisonous HF and carbon-fluorine-oxygen compound.

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50: Not available
LC50: Not available
Pungency : Not available

12. ECOLOGICAL INFORMATION

Biologic toxicity: No information
Biological degrade: No information
Non-biologic degrade: No-information

13. DISPOSAL CONSIDERATIONS

Waste property : No information
Waste disposal method: It is burned before the waste mix up with other fuel, pay attention not to produce phosgene, the hydrogen halide that come from incinerator will be removed from acid scrubber.
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Attention: Dispose of according to relevant national regulation.

14. TRANSPORT INFORMATION

Hazard matter number: 2903399090

UN numbers: 3159

Class No: 2.2

Packing marker : Non-flammable gas

Packing category :III class package

Packing method: ISO tank, Ton Tank or steel cylinder

Attention: Fix valve protection caps during the transportation, put steel cylinder flat, the mouth of cylinders towards the same direction, not across; The height should not surpass the protective balustrade of transporting car and firmly secured with triangle wood headlock to rolling. It is forbidden to mix up with food chemical during transportation. In summer, transport at morning or evening, avoid sunshine. Drives by relevant regulation, not park the transportation vehicle at downtown or dense-population area.

15. REGULATORY INFORMATION

"Hazardous chemical safety management regulation", The no.334 order of china's state department, effective date: 15th , March 2002

"The regulation of chemical using in working place "It regulate the using, production, storage, transportation and pack and unpack of hazardous chemical.

In the standard of label and marking of common hazardous Chemical (GB13690-92) this product is classified as 2.2 category non-flammable gas.

This CSDS is written according to " regulation of writing chemical safety data sheet" (GB 16843-2000).

16. OTHER INFORMATION

Reference :

1. "Complete chemical hazard safety data sheet",published by chemical industry publish house,1997
2. "Occupational medicine in China" published by people sanitation publish house,1999
3. "Manual of common chemical hazard safety", published by China petroleum publishing house, 1998
4. "Environmental statistic manual of chemical toxicity regulation",published by China environmental science publishing house ,1992.

