



REFEX INDUSTRIES LTD.

1/171, Old Mahabalipuram Road,
Thiruporur-603110, Chengalpatt Dt
Phone: +91 44 49971260

Material Safety Data Sheet(MSDS)

===== Composition/Information on Ingredients =====

Product ID: **REFRIGERANT GAS R404A Components:**

Ingred Name: Pentafluoroethane (R-125) CAS:
354-33-6
= Wt: 44.

Ingred Name: 1,1,1-Trifluoro-ethane,(R-143a) CAS:
420-46-2
= Wt: 52.

Ingred Name: 1,1,1,2-Tetrafluoro- ethane(R-134a)
CAS: 811-97-2 = Wt: 4.

===== Contractor Identification =====

Company Name: Refex Industries Ltd.
Address: 1/171, Old Mahabalipuram Road, Thiruporur-603110
Emergency Phone Num: +91 44 49971260

===== Hazards Identification =====

Hazards identification In high concentrations may cause asphyxiation. Liquefied gas

===== First Aid Measures =====

Inhalation

In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Skin/eye contact

In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance

Ingestion

Ingestion is not considered a potential route of exposure.

===== Fire Fighting Measures =====

Specific hazards

Exposure to fire may cause containers to rupture/explode. Non flammable

Hazardous combustion products

If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition:

Carbonyl fluoride
Hydrogen fluoride
Carbon monoxide

Suitable extinguishing media

All known extinguishants can be used.

Specific methods

If possible, stop flow of product.

Move away from the container and cool with water from a protected position.

Special protective equipment for fire fighters

Use self-contained breathing apparatus and chemically protective clothing.

===== Accidental Release Measures =====

Personal precautions

Evacuate area.

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation.

Environmental precautions

Try

to stop release.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Clean up methods

Ventilate area.

===== Handling and Storage =====

Handling and storage

Suck back of water into the container must be prevented.

Do not allow backfeed into the container.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Refer to supplier's container handling instructions.

Keep container below 50°C in a well ventilated place.

===== Exposure Controls/Personal Protection =====

Respiratory Protection: Under normal manufacturing conditions, no respiratory protection is required when using this product. self-contained breathing apparatus is required if large release occurs.

Ventilation: Local exhaust if large amounts are released. mechanical ventilation should be used in low/enclosed places.

Protective Gloves: Impervious gloves should be used to avoid prolonged exposure.

Eye Protection: Chemical splash goggles should be available for use.

Other Protective Equipment: Avoid breathing vapors. avoid contact with skin and eyes. Use with sufficient ventilation to keep employee exposure below recommended exposure limits.

Work Hygienic Practices: Wash thoroughly after handling. Wash contaminated clothing before reuse.

NOTE TO PHYSICIAN: This material may make the heart more susceptible to arrhythmias. Catecholamines such as adrenaline, and other compounds having similar effects, should be reserved for emergencies and then used only with caution.

===== Physical/Chemical Properties =====

Molecular weight 97.6

Boiling point -47 °C

Critical temperature 72 °C

Relative density, gas 3.4 (air=1)

Relative density, liquid 1.07 (water=1) Vapour

Pressure 20°C 11 bar(a).

Solubility mg/l water No reliable data available.

Appearance/Colour Colourless gas

Odour Ethereal

Poor warning properties at low concentrations.

Other data Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

===== **Stability and Reactivity Data** =====

Stability and reactivity

Stable under normal conditions.

Thermal decomposition yields toxic products which can be corrosive in the presence of moisture.

Incompatible materials:- Alkali metals. May react with aluminium.

===== **Toxicological Information** =====

General May produce irregular heart beat and nervous symptoms.

===== **Ecological Information** =====

General When discharged in large quantities may contribute to the greenhouse effect.

Global warming factor 0.95 (R11=1)

===== **Disposal Considerations** =====

General

Avoid discharge to atmosphere.

Do not discharge into any place where its accumulation could be dangerous.

Refer to supplier's waste gas recovery programme. Contact supplier if guidance is required.

===== **MSDS Transport Information** =====

Transport Information:

DOT/IMO:

Proper shipping name: Liquefied gas, N.O.S. (pentafluoroethane, Trifluoroethane and tetrafluoroethane).

Hazard Class: 2.2.

UN No.:3337

DOT/IMO LABEL: Nonflammable Gas.

Shipping containers: Tank cars, Cylinders, Tank trucks.

Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Before transporting product containers ensure that they are firmly secured and:

- cylinder valve is closed and not leaking
- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

===== **Other informations** =====

Ensure all national/local regulations are observed.

Contact with liquid may cause cold burns/frost bite.

Asphyxiant in high concentrations.

Keep container in well ventilated place.

Do not breathe the gas.

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Users of breathing apparatus must be trained.

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Refex Industries Limited

Issuing Date: 19/01/2023

Revision Date: 19/01/2026

Disclaimer (provided with this information by the compiling agencies):

This information is formulated for use by elements of the Department of Defense. Any person utilizing this document should seek competent professional advice to verify and assume responsibility for the suitability of this information to their particular situation.

REFEX INDUSTRIES LTD

1/171, Old Mahabalipuram Road,
Thiruporur-603110, Chengalpatt Dt

Phone: +91 44 49971260