MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: KLEA®507A

Product Use: Refrigerant

Alternate Names: R 507A; Blend of 1,1,1-Trifluoroethane/Pentafluoroethane; R 143a/R 125; HFC 143a/HFC 125; HFA 143a/HFA 125; Hydrofluorocarbon 143a/ Hydrofluorocarbon 125

Manufacturer: Mexichem Fluor Inc.
4990B ICI Rd. / P.O. Box 30
St. Gabriel, LA 70776

Medical Emergency (24 hr.): 800-298-9164
Transportation Emergency (24 hr.): CHEMTREC 800-424-9300
(outside U.S. 703-527-3887)
Product Information: 800-424-5532

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:	%(Wt)	OSHA PEL
1,1,1-Trifluoroethane (CAS 420-46-2)	50	Not listed
Pentafluoroethane (CAS 354-33-6)	50	Not listed

3. HAZARD IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION! This product is a clear, colorless, liquefied gas with a faint ether-like odor. Contents under pressure. Cylinders may rupture and rocket under fire conditions. Thermal decomposition can produce toxic and corrosive gases. Vapors are heavier than air. May cause asphyxia. Liquid splashes or spray may cause freeze burns (frostbite). High vapor concentrations may cause dizziness or more severe anesthetic effects. Very high exposures can cause potentially fatal abnormal heart rhythm. Read the entire MSDS for a more thorough evaluation of the hazards.

POTENTIAL HEALTH EFFECTS:

Ingestion: Extremely unlikely to occur in use.

Eye contact: Liquid splashes or spray may cause freeze burns.

Skin contact: Liquid splashes or spray may cause freeze burns.

Skin absorption: This product will probably not be absorbed through human skin.

Inhalation: Exposure to high vapor concentrations may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations can cause anesthetic effects progressing from dizziness, weakness, nausea, to unconsciousness. It can act as an asphyxiant by limiting available oxygen.

Other effects of overexposure: None expected.

4. FIRST AID MEASURES

Skin: Immediately wash with plenty of warm water (do not rub). Thaw affected area with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in case of freeze burns. If symptoms (irritation or blistering) develop, get medical attention.

Eyes: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Hold eyelids open during flushing. Have eyes examined and treated by medical personnel.

Ingestion: Highly unlikely, but should this occur, freeze burns will result. Do not induce vomiting unless instructed to do so by a physician.

Inhalation: Move victim to fresh air. Keep warm and at rest. If breathing is labored, give oxygen. If only breathing has stopped, give artificial respiration with a pocket mask equipped with a one-way valve to prevent exposure to product or body fluids. If breathing has stopped AND there is no pulse, give cardiopulmonary resuscitation (CPR). Get immediate medical attention.

Note to physician: Symptomatic and supportive therapy, as indicated. Administration of epinephrine or similar sympathomimetic drugs should be with special caution and only in situations of emergency life support as cardiac arrhythmias may result.

5. FIRE FIGHTING MEASURES

Flash Point: Does not flash.
Flammable Limits (Lower): Not applicable.
Flammable Limits (Upper): Not applicable.
Auto Ignition Temperature: Not available.

Hazardous Reactions: Reacts with finely divided metals such as aluminum, zinc, magnesium, and alloys containing more than 2% magnesium. Can react violently if in contact with alkali metals and alkaline earth metals such as sodium, potassium, or barium.

During a fire the product can form toxic and corrosive gases such as hydrogen fluoride.

Fire and Explosion Hazards: Compressed liquefied gas. Containers may burst under intense heat. Ruptured cylinders may rocket or fragment. Heavy vapor may suffocate.

This product is not flammable in air under ambient conditions of temperature and pressure. Certain mixtures of this product and air, when under pressure, may be flammable. Certain mixtures of this product and chlorine may be flammable or reactive under some conditions.

Extinguishing Media: As appropriate for surrounding materials/equipment.

Fire Fighting Procedures: Water spray should be used to cool containers.

Fire Fighting Protective Equipment: Use self-contained breathing apparatus with a full-face piece and special protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Contents under pressure. Ruptured cylinder may rocket or fragment. This product is a liquefied gas, which exits the container at temperatures capable of causing freeze burns (frostbite).

Precautions should take into account the severity of the leak or spill.

Move unprotected personnel upwind of leaking container. Ventilate the spill area. Use recommended personal protection and shut off the leak, if without risk. If possible, elevate leak position to highest point of container (should leak gas, not liquid). Water should never be put on leak nor should cylinder be immersed. If possible, dike and contain spillage. Prevent liquid from entering sewers, sumps, or pit areas since vapor is heavier than air and can create a suffocating atmosphere. Capture material for recycle or destruction if suitable equipment is available.

Notify applicable government authority if release is reportable or could adversely affect the environment.

7. HANDLING AND STORAGE

Handling: Wear appropriate personal protective equipment. A safety shower and eyewash station should be nearby and ready for use.

This product is a liquefied gas, which exits the container at temperatures capable of causing freeze burns (frostbite). Ensure personnel are trained in handling and storing cylinders. Secure containers at all times. Keep containers closed when not in use.

Ensure there is adequate ventilation or use proper respiratory protection in poorly ventilated or confined areas. Avoid causing and inhaling high concentrations of vapor. Atmospheric levels should be controlled to below the occupational exposure limit and kept as low as practicable.

Prevent liquid or vapor from entering sumps or sewers since vapor is heavier than air and may form suffocating atmospheres.

Do not put mixtures of this product with air or oxygen under pressure; do not use such mixtures for leak or pressure testing.

Avoid contact with flames or very hot surfaces. Do not heat containers.

Liquid transfers between containers may generate static electricity. Ensure adequate grounding.

Avoid trapping liquid between closed valves or overfilling containers as high pressures can develop with an increase in temperature.

Storage Requirements: Keep containers tightly closed, in a cool, well-ventilated place. Keep containers dry. Keep away from incompatibles, open flames, hot surfaces, welding operations, and other heat sources.

Storage Temperature: Store at temperature not exceeding 125°F. (52°C.).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:

1,1,1-Trifluoroethane (HFC 143a)

Mexichem Fluor Guideline	1000 ppm 8 hour TWA
WEEL (AIHA)	1000 ppm 8 hour TWA

Pentafluoroethane (HFC 125)

Mexichem Fluor Guideline	1000 ppm 8 hour TWA
WEEL (AIHA)	1000 ppm 8 hour TWA

No ACGIH TLV or OSHA PEL has been established for any of the components.

Minimize exposure in accordance with good hygiene practice.

PREVENTIVE MEASURES:

Engineering Controls: Use ventilation to maintain safe levels. Where appropriate engineering controls are not in place or are inadequate, wear suitable respiratory equipment.

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: Use chemical safety goggles or safety glasses and a face shield when there is potential for eye contact.

Skin Protection: Take all precautions to prevent skin contact. Use gloves and protective clothing made of material that has been found by user to be impervious under conditions of use to prevent the skin from becoming frozen from contact with liquid. User should verify impermeability under normal conditions of use prior to general use. Additional protection such as an apron, arm covers, or full body suit may be needed depending on conditions of use.

Respiratory Protection: Not normally needed if controls are adequate. If needed, use NIOSH/MSHA approved respirator for organic vapors. For high concentrations and oxygen-deficient atmospheres, use positive pressure air-supplied respirator.

Other Protection: Shower and eye wash station.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless, liquefied gas
Boiling point: -52.8°F, -47.1°C
Vapor pressure (mmHg at 20°C.): 8485
Vapor density (air = 1): 3.5
Solubility in water: Insoluble
pH: Not applicable
Density (g/ml): 1.10 at 20°C.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions.

Incompatibility: Reacts with finely divided metals such as aluminum, zinc, magnesium, and alloys containing more than 2% magnesium. Can react violently if in contact with alkali metals and alkaline earth metals such as sodium, potassium, or barium.

Hazardous Decomposition Products: Hydrogen fluoride by thermal decomposition and hydrolysis.

Conditions to Avoid: Keep away from heat, sparks, and flame. Avoid high temperatures.

Hazardous polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

POSSIBLE HUMAN HEALTH EFFECTS:

Routes of exposure: Inhalation, ingestion, eye, and skin contact.

Inhalation: Exposure to high vapor concentrations may cause an abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations can cause anesthetic effects progressing from dizziness, weakness, nausea, to unconsciousness. It can act as an asphyxiant by limiting available oxygen.
Ingestion: Highly unlikely, but should this occur, freeze burns will result.
Eye contact: Liquid splashes or spray may cause freeze burns.
Skin contact: Liquid splashes or spray may cause freeze burns.
Other effects: None anticipated.

Carcinogenicity: None of the ingredients are classified as carcinogenic by IARC, ACGIH, NTP, or OSHA.

ANIMAL DATA:

1,1,1-Trifluoroethane (HFC 143a)
The 4 hour inhalation LC50 in rats was greater than 590,000 ppm

Because of its volatility, HFC 143a has not been tested for skin or eye irritancy or skin sensitization.

No cardiac sensitization (arrhythmia) was seen in dogs pretreated with epinephrine and exposed to an atmosphere of 250,000 ppm (the NOAEL) and the threshold for an effect was 300,000 ppm.

No maternal toxicity or developmental effects were seen in rabbits or rats concurrently or following exposure during gestation at the highest level tested (40,000 ppm in each study).

Overall, HFC 143a is considered not to be genotoxic following testing in a range of in vitro tests and a mouse micronucleus assay.

No adverse effects of any kind were seen at the highest dose level of 40,000 ppm in a 90-day inhalation study in rats.

No adverse effects or increases in tumor incidences were seen in a chronic study in which male and female rats were dosed orally with 300 mg/kg-day for 52 weeks with a post exposure observation period of 73 weeks.

Pentafluoroethane (HFC 125)
The inhalation 4 hour LC50 in rats was greater than 800,000 ppm HFC 125.

Because of its volatility, this compound has not been tested for skin or eye irritancy, or skin sensitization.

The threshold for cardiac sensitization (arrhythmia) in dogs pretreated with epinephrine was an atmosphere of 75,000 ppm.

No developmental effects were seen in rabbits or rats following exposure during gestation to inhalation dose levels of 50,000 ppm.

HFC 125 showed no genetic toxicity in a range of *in vitro* tests or an *in vivo* mouse micronucleus assay.

No adverse effects were seen at the highest dose level of 50,000 ppm in a 90-day inhalation study in the rat.

12. ECOLOGICAL INFORMATION

Persistence and Degradation: HFC 143a and HFC 125 decompose slowly in the lower atmosphere (troposphere). Estimated atmospheric lifetimes are 52 and 29 years for HFC 143a and HFC 125, respectively. Products of decomposition will be highly dispersed and hence have a very low concentration. Components are not significant contributors to photochemical smog and are not considered to be VOCs. None of the components is considered an ozone-depleting chemical.

Effect on Effluent Treatment: Discharges of the product will enter the atmosphere and will not result in long-term aqueous contamination.

13. DISPOSAL CONSIDERATIONS

Disposal Method: Discarded product is not a hazardous waste under RCRA, 40 CFR 261. However, this product should be recycled, reclaimed, or destroyed whenever possible.

Container Disposal: For disposable (DOT 39) cylinders only. Do not distribute, make available, furnish, or reuse container when emptied of the original product. Open valve to remove pressure in the cylinder. Then puncture, drill, crush, or otherwise destroy empty cylinder and dispose of in a facility permitted for nonhazardous waste. Return all other containers to supplier.

Refrigeration Application: Subject to "no venting" regulations of Sections 608 and 609 of the Clean Air Act during the service or disposal of equipment.

14. TRANSPORT INFORMATION

DOT Hazard Description:
Proper Shipping Name: Refrigerant gas, N.O.S. (Pentafluoroethane, 1,1,1-Trifluoroethane)
Hazard Class: 2.2
Identification Number: UN 1078
Packing Group: None
Hazardous Substance (RQ): None
Placard/Label: Non-Flammable gas

15. REGULATORY INFORMATION

TSCA (Toxic Substances Control Act) Regulations, 40 CFR 710: All Ingredients are on the TSCA Chemical Substances Inventory.

CERCLA and SARA Regulations:

40 CFR 372: This product does not contain any chemicals subject to reporting requirements of SARA Section 313.

40 CFR 355: This product does not contain any "extremely hazardous chemical" subject to the requirements of SARA Section 312.

40 CFR 370: Hazardous properties as defined under the Hazard Communication Standard (29 CFR 1910.1200)

Health: Acute effects (CNS depression, cardiac sensitization).
Physical: Compressed liquefied gas.
(Actions may be necessary under SARA Section 311 – consult regulations for applicability).

16. OTHER INFORMATION

The information herein is given in good faith, but no warranty, expressed or implied, is made.