

Material Safety Data Sheet

1. Product and Company Identification

260

KLEA® 508A (KLEA 5R3)

General Use: Refrigerant

Alternative names: Blend of Trifluoromethane/Hexafluoroethane: R23/R116: HFC 23/PFC 116

INEOS Fluor Americas LLC
4990B ICI Rd. / P.O. Box 30 ***
St. Gabriel, LA 70776 ***

Issue Date: 12/31/01
Rev. 10
BPCS: 260

Medical Emergency (24 hr.): 800-298-9164
Transportation emergency (24 hr.): CHEMTREC 800-424-9300
Product Information: 800-275-5532

2. Composition/Information on Ingredients

| <u>Ingredients</u> | <u>% (Wt)</u> | <u>OSHA PEL</u> |
|--------------------------------|---------------|-----------------|
| Trifluoromethane (CAS 75-46-7) | 39 | Not listed |
| Hexafluoroethane (CAS 76-16-4) | 61 | Not listed |

3. Hazards Identification

Emergency Overview:

Appearance: Colorless liquified gas blend with high vapor pressure

Physical hazards*: Compressed liquified gas

Health hazards*: Harmful (central nervous system depression, cardiac arrhythmias)

*Hazard summary as defined by OSHA Hazard Comm. Std., 29 CFR 1900. 1200.

Potential Health Effects:

General: The health hazard assessment is based on toxicity studies together with information from a search of the scientific literature.

Ingestion: Extremely unlikely to occur in use,

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

Skin contact: The liquid form of this product may cause freeze burns (frostbite-like lesions).

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

Inhalation: Exposures to very high vapor concentrations can induce anesthetic effects progressing from dizziness, weakness, nausea to unconsciousness. It can act as an asphyxiant by limiting available oxygen. Very high doses can cause abnormal heart rhythm which is potentially fatal.

Other effects of overexposure: None expected.

4. First Aid Measures

Skin: Thaw affected area with water. Remove contaminated clothing. Caution: clothing may adhere to the skin in case of freeze burns. After contact with skin, wash immediately with plenty of warm water. 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. Have eyes examined and treated by medical personnel.

Ingestion: Not applicable.

Inhalation: Remove victim to fresh air. Keep warm and at rest. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. In the event of cardiac arrest, apply external cardiac massage. Do not administer adrenaline or similar sympathomimetic drugs as cardiac arrhythmias may result. Get immediate medical attention.

5. Fire Fighting Measures

Flashpoint and method: Does not flash

Autoignition temperature: Not applicable

Flammable limits (STP): Nonflammable

General hazards: Compressed liquified gas. Heavy vapors can suffocate.

Firefighting instructions: Not applicable. Use media suitable for surrounding fire. Use water spray to cool containers.

Firefighting equipment: Self-contained breathing apparatus with full facepiece and protective clothing.

Hazardous combustion products: Heavy vapors can suffocate. Highly toxic decomposition products (hydrogen fluoride).

6. Accidental Release Measures

Precautions should take into account the severity of the leak or spill. For large releases: Use recommended personal protection and evacuate unprotected personnel. Shut off the leak if without risk. Ventilate the spill area. If possible, dike and contain spillage. Prevent liquid from entering sewers, sumps or pit areas since vapor can create a suffocating atmosphere. Capture material for recycle or destruction if suitable equipment is available.

7. Handling and Storage

Storage temperature: Keep at temperature not exceeding 120 deg. F (49 deg. C)

Storage: Store in a cool area with good ventilation. Keep away from direct sunlight, heat and sources of ignition.

Handling: 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. Avoid KLEA 508A contact with flames or very hot surfaces.

8. Exposure Controls/Personal Protection

Exposure guidelines: No OSHA PELs and ACGIH TLVs have been assigned for trifluoromethane or hexafluoroethane. INEOS Fluor has established recommended occupational exposure limits of 1,000 ppm (8-hour TWA) for each of these ingredients. Exposures should be kept as low as reasonably practicable below the overall 1,000 ppm limit.

Engineering controls: Ventilate low-lying areas such as sumps or pits where dense vapors may collect. Use ventilation adequate to maintain safe levels. Provide eyewash station in work area.

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

Protective clothing: Impervious gloves if any possibility of skin contact with liquid. Additional protection may be required such as apron, arm covers, or full body suit, depending upon conditions.

Eye protection: Chemical tight goggles; full faceshield in addition if splashing is possible.

9. Physical and Chemical Properties

Appearance: Colorless liquified gas with high vapor pressure

Boiling point: -122.2 deg. F, -85.7 deg C.

Vapor pressure (mmHg): 12025 @ -20 deg. C

Vapor density (Air = 1): 3.35

Solubility in water: Insoluble

pH: Not applicable

Specific gravity: 1.25 at -20 deg. C

% Volatile by volume: 100

10. Stability and Reactivity

Stability: Stable under normal conditions.

Incompatibility: Finely divided metals, 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.

Hazardous polymerization: Will not occur.

11. Toxicological Information

Possible Human Health Effects:

Inhalation: High atmospheric concentrations may lead to anesthetic effects, including loss of consciousness. Very high exposures may cause an abnormal heart rhythm and prove suddenly fatal. Higher concentrations may cause asphyxiation due to reduced oxygen content of the atmosphere.

Toxicological Information (continued)

Skin contact: Liquid splashes or spray may cause freeze burns. Unlikely to be hazardous by skin absorption.

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

Ingestion: Highly unlikely-but should this occur, freeze burns will result.

Animal data:

Trifluoromethane (HFC 23):

For a 2 hour inhalation exposure, the approximate lethal concentration to rats was greater than 200,000 ppm.

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

HFC 23 was not mutagenic in the Ames bacterial assay.

No detectable effects were found in rats exposed to atmospheres of 10,000 ppm, or dogs exposed to 5,000 ppm, 6 hours per day for 90 days.

Hexafluoroethane (PFC 116):

For a 4 hour inhalation exposure, the approximate lethal concentration to rats was greater than 880,000 ppm.

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

The approximate EC50 for cardiac sensitization (arrhythmia) in dogs treated with adrenaline was an atmosphere of 50,000 ppm.

Exposure of rats for 23 hours per day for up to 37 weeks to an atmosphere of 200,000 ppm resulted in some changes in circulating enzymes, but no other effects attributable to treatment.

12. Ecological Information

Persistence and degradation: HFC 23 degrades slowly and PFC 116 very slowly in the lower atmosphere. 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 VOC. Is not 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, KLEA 508A should be recycled, reclaimed or destroyed whenever practicable.

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

14. Transport Information

DOT Hazard Description

Proper Shipping Name: REFRIGERANT GAS, NOS

(TRIFLUOROMETHANE/HEXAFLUOROETHANE MIXTURE R23/R116)

Hazard Class: 2.2

Identification Number: UN 1078

Packing Group: None

Hazardous Substance (RQ): None

Placard/Label: NONFLAMMABLE GAS

15. Regulatory Information

TSCA (Toxic Substances Control Act) Regulations, 40 CFR 710: HFC 23 and PFC 116 are on the TSCA Chemical Substance Inventory.

CERCLA and SARA Regulations (40 CFR 355, 370, and 372): This product does not contain any chemicals subject to the reporting requirements of SARA Section 313 .

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

*** Indicate changes since prior revision.