



TULSTAR PRODUCTS, INC.

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MATERIAL SAFETY DATA SHEET

General Information

Company's Information: **TULSTAR PRODUCTS, INC.**
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Emergency Phone Number: CHEMTREC 800-424-9300 (24 hours)

Product Identification

Product Name: Trifluoropropene (HCF-1243zf)
Chemical Name: 3,3,3-Trifluoropropene
Synonyms: 3,3,3-Trifluoropropylene; TFP
Chemical Family: Halo-alkene
CAS Number: 677-21-4
Molecular Weight: 96.05
Formula: C₃H₃F₃

Physical & Chemical Characteristics

Boiling Point: -21.5°C at 760 mmHg
Evaporation Rate (BuOAc=1): NA (gas)
Vapor Pressure: 3380 mmHg at 20°C; 113.6 psia at 35°C
Melting Point: N/E
Vapor Density (Air=1): 3.3
Specific Gravity: 0.94 at 22.5°C
Solubility in Water: Insoluble
Appearance: Colorless gas

Fire & Explosion Hazard Data

Flash Point: Flammable gas
Flammable Limits: LEL=4.7
UEL=13.5
Extinguishing Media: Carbon dioxide, dry chemical, foam, water.
Special Fire Fighting Procedures: A self-contained breathing apparatus and full protective clothing should be worn when fighting fires. Keep cylinders cool with water spray.
Unusual Fire & Explosion Hazards: Toxic fumes or mists of fluoride may be produced on thermal decomposition and/or during combustion.

Reactivity Data

Stability: () Unstable (X) Stable
Conditions to Avoid: N/A
Incompatibility (materials to avoid): Strong oxidizers

Hazardous Decomposition Products: CO, CO₂, HF, NO_x generated during combustion.
Hazardous Polymerization: () May Occur (X) Will Not Occur
Conditions to Avoid: The product can polymerize in the presence of a strong initiator.

Health Hazard Data

Routes of Entry: Inhalation~yes Skin~no Ingestion~no
Health Hazards: To the best of our knowledge, the toxicity of this material has not been fully determined. It may be harmful if inhaled. The acute inhalation LC₅₀ in mice is reported to be 1691 g/m³/2 hours. No ill effects were reported in rats after a 7 hour exposure to 10,000 ppm. The human health effects of this product are expected to be similar to other liquefied gases including nitrogen, carbon dioxide, CFCs, HCFCs, and HBFCs. Therefore, direct skin or eye contact with the liquid or cold gas can cause chilling or possible frostbite of exposed tissue. Inhalation of high concentrations can be harmful or fatal due to oxygen deprivation. This material can cause central nervous system effects. In mutagenicity studies, 3,3,3-trifluoropropene has shown mutagenic effects. Other acute and chronic health hazards, as well as target organs, are not known.

Carcinogenicity: NTP~No IARC Monographs~No OSHA Regulated~No
Sign & Symptoms of Exposure: Symptoms similar to oxygen deprivation (headache, nausea, dizziness or loss of consciousness) may result from overexposure by inhalation. Cold, white or discolored skin or in severe cases blistering, can be a sign of frostbite caused by cold liquids or gases.

First Aid:
Inhalation: Remove victim to fresh air. If breathing is difficult, administer oxygen. If breathing has stopped, administer artificial respiration. Seek medical attention.
Ingestion: Not a normal route of entry.
Eye Contact: Flush with water for at least 15 minutes. Obtain medical attention.
Skin Contact: Splashes of liquefied gas may cause frostbite. Wash in warm water, seek medical attention.

Precautions for Safe Handling & Use

Released or Spilled: Shut off all sources of ignition. Evacuate area and allow to thoroughly ventilate before re-entry.
Water Disposal: Burn in approved incinerator in accordance with all local, state, and federal regulations.
Handling & Storing: Store cylinders in a cool, dry area out of direct sunlight. Avoid breathing vapors. Avoid skin contact.

Control Measures

Respiratory Protection: Self-contained breathing apparatus when exposure likely.
Ventilation:
Local Exhaust: Required
Mechanical: Required
Other: Handle in closed system when possible.
Protective Gloves: Use lined Neoprene gloves if handling liquid.
Eye Protection: Safety glasses or chemical splash goggles.

Other Protective Clothing or Equipment: Emergency shower and eye-wash station.
Work/Hygenic Practices: Wash after handling.

Regulatory Information

UN Number: 3161
DOT Shipping Name: Liquefied gas, flammable, nos (3,3,3-Trifluoropropene)
Hazard Class: 2.1-Flammable gas
Lists: RCRA-Not listed
CERCLA-Not Listed
SARA 313-Not Listed
WHIMS- Health (1)
Flammability (4)
Reactivity (1)
TSCA-Included on TSCA inventory