

MATERIAL SAFETY DATA SHEET

HFC236fa

FILE NO.: MSDS236fa A-Gas RemTec
MSDS DATE: December /2012

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: HFC236fa
SYNONYMS: Hexafluoropropane, HFC-236fa, SUVA 236fa™, FE-36™*
Product Use: Fire extinguishing agent

RECLAIMER: A-Gas RemTec
ADDRESS: 1100 Haskins Road
Bowling Green, OH 43402 USA
WWW.REMTEC.NET
Cage Code: 4LMC6



EMERGENCY PHONE: 1-800-633-8253 PERS in USA
INTERNATION EMERGENCY PHONE: 1-801-629-0667
OTHER CALLS: 1-419-867-8990
FAX PHONE: 1-419-867-3279

PREPARED BY: A-Gas RemTec

SECTION 2: HAZARD IDENTIFICATION

HAZARD CLASSIFICATION: Non Flammable Gas
SIGNAL WORD: WARNING
HAZARD STATEMENT: Gas under pressure.
Frost bite may occur from vapor stream.
Gas weighs less than air asphyxiation may occur in enclosed areas.
Inhalation may cause heart thumping, apprehension, lightheadedness, feeling of fainting, dizziness, weakness, loss of consciousness and death in high concentrations.
Individuals with preexisting cardiac, respiratory or central nervous system conditions may be susceptible to overexposure.

PICTORIAL: Gas Cylinder



OTHER HAZARDS:

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME: 1,1,1,3,3,3-Hexafluoropropane
CHEMICAL FAMILY: Fluorinated Hydrocarbon
CHEMICAL FORMULA: CF₃CH₂CF₃

CAS Number: 690-39-1
PERCENTAGE: greater than 99.0%

SECTION 4: FIRST AID MEASURES

EYES: Immediately flush eyes with water for at minimum of 20 minutes.
SKIN: Flush skin with warm running water for 20 minutes.
INGESTION: Not applicable
INHALATION: Remove victim to fresh air. Give symptomatic and supportive care.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Adrenalin is contraindicated in the treatment of overexposure. Due to possible disturbances of cardiac rhythm, catecholamine drugs, such as spinephrice should only be used with special caution in situation of emergency life support.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE PROPERTIES: Non flammable
FLASH POINT: Not applicable
AUTOIGNITION TEMPERATURE: Not applicable

NFPA HAZARD CLASSIFICATION: 0 = Minimal 1 = Slight 2 = Moderate 3= Serious 4 = Severe

HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 1



SECTION 5: FIRE-FIGHTING MEASURES CONTINUED

EXTINGUISHING MEDIA: HFC236fa is a fire extinguishing media. Use extinguishing media appropriate for surrounding fire.

PROTECTIVE EQUIPMENT: General fire fighting protective equipment.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Cylinders are equipped with pressure release devices to vent contents exposed to high temperatures. Cylinders may rupture under fire conditions. Cool cylinders with water spray.

HAZARDOUS DECOMPOSITION PRODUCTS: Combustion or heat of fire may produce hazardous decomposition. Gas will decompose in high heat forming toxic gases such as hydrogen fluoride and Carbonyl fluoride.

SECTION 6: ACCIDENTAL RELEASE MEASURES

IMMEDIATE RESPONSE: If the release is caused by an open valve and it is safe for operator to close, do so. If possible to transfer the remaining gas in the cylinder in a safe manner to a separate tank, do so. If the release cannot be isolated or closed and it is a significant amount, allow the gas to release in place or safely move cylinder to a safe area. Evacuate area in the event of a significant release in an enclosed area.

ACCIDENTAL RELEASE MEASURES: Keep unwind. Ventilate area, especially low places. Remove open flames and heating elements. Disperse gas with floor level forced air. Gas will evaporate.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Operators should be familiar with CGA pamphlet P-1 Safe Handling of Compressed Gases in Containers. Do not allow cylinders to be stored in areas where heat may rise over 130°F

OTHER PRECAUTIONS: Use properly rated DOT or ASME cylinders/tanks. Do not fill cylinders if inspection date has expired. Cylinders that have been previously filled to inspection expiration date may still be shipped in accordance with CFR.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Proper recovery equipment with trained operator to be utilized.

VENTILATION: Use adequate mechanical ventilation.

RESPIRATORY PROTECTION: If non-routine use or emergency occurs or in low or closed area use Niosh/MSHA approved respirator or supplied air respirator or SCBA, as required. Use in accordance with 20 CFR 1901-134

EYE PROTECTION: Safety glasses with side shields or Chemical splash goggles.

SKIN PROTECTION: Avoid bare skin to protect against frostbite.

HAND AND FOOT PROTECTION: Rubber or Heavy leather gloves and safety shoes when handling cylinders.

WORK HYGIENIC PRACTICES: Wash hands after use and before eating or drinking.

EXPOSURE GUIDELINES:

	<u>ppm</u>
OSHA AEL	1000 ppm
ACGIH TLV-TWA:	8 hours

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquefied Gas under pressure

APPEARANCE: Clear - colorless

ODOR: None

MOLECULAR WEIGHT: 152.04

SPECIFIC GRAVITY (H2O = 1): 1.37 gm/cc

MELTING/FREEZING POINT @ 1 ATM: -153°F (-103°C)

BOILING POINT: 29.5°F (-1.4°C)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES CONTINUED

EVAPORATION RATE: Not Applicable
VAPOR PRESSURE: 39.5 PSIA @ 77°F (25°C)
CRITICAL PRESSURE: 464 psia
CRITICAL TEMPERATURE: 259.9°F (124.9°C)
VAPOR DENSITY (AIR = 1): 6.43 lb/ft³ @ 77°F (25°C)
LIQUID DENSITY: 84.89 lb/ft³ @ 77°F (25°C)
SOLUBILITY IN WATER: 2100 ppm
AUTO IGNITION TEMPERATURE: Not Applicable
DECOMPOSITION TEMPERATURE:
VISCOSITY LIQUID: Not Applicable

SECTION 10: STABILITY AND REACTIVITY

REACTIVITY: Incompatible with strong bases, metallic sodium, potassium lithium.

STABILITY: Stable

CONDITIONS TO AVOID (STABILITY): Avoid high heat (above 125°F (52°C)) on cylinders.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Thermal decomposition product include halogenated compounds, carbon monoxide and carbon dioxide.

HAZARDOUS POLYMERIZATION: Not Applicable

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

ROUTES OF ENTRY: Inhalation: Yes Skin: No Ingestion: No

ACUTE TOXICITY: LD50-LC50 Mixture – 4HR LC50 (RAT) > 457,000 PPM

REPRODUCTIVE/DEVELOPMENT TOXICITY: No effects

CARCINOGENICITY: Not listed as a carcinogen by NTP, IARC, or OSHA

DESCRIPTION OF SYMPTOMS: Inhalation of high concentration may lead to unconsciousness and possible death. Effects of overexposure by inhalation may include non specific discomfort, such as nausea, headache, or weakness, or temporary central nervous system depression with effects such as dizziness, headache, confusion, in coordinate, and loss of consciousness. Higher exposures by inhalation may cause temporary alteration the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

Individuals with pre-existing diseases of the central nervous or cardiovascular system may have increased susceptibility to the toxicity of excessive exposure.

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: HFC236fa is a Global Warmer and has a Global Warming Potential (GWP) of 6,300.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Send cylinder with residual gas to a halon reclamation facility for recovery and/or disposal. Contact A-Gas RemTec for reclamation or disposal.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION

PROPER SHIPPING NAME: Liquefied Gas, N.O.S. (1,1,1,3,3,3-Hexafluoropropane)
HAZARD CLASS: 2.2, Non-Flammable Gas
UN NUMBER: UN3163
PACKING GROUP: Not Applicable
LABEL STATEMENT: Class 2.2 (Non-Flammable)
BOL: UN3163, Liquefied Gas, N.O.S. (1,1,1,3,3,3-Hexafluoropropane), 2.2



SECTION 14: TRANSPORT INFORMATION CONTINUED

Other: Avoid transport in vehicles where the load space is not separated from the driver's compartment. Ensure Vehicle driver is aware of the potential hazards of the containers and what action to take in the event of an accident or an emergency.

Prior to transporting cylinders ensure that they are firmly secured and;
Cylinder valve is closed and not leaking
Valve outlet cap nut or plug (if provided) is correctly connected

WATER TRANSPORTATION: Same as above

AIR TRANSPORTATION: Cargo Aircraft Only 150kg maximum net/pkg

SECTION 15: REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS
TSCA (TOXIC SUBSTANCE CONTROL ACT): HFC236fa is listed in the TSCA Inventory

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): Reportable Quantity (RQ): Not Applicable

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):
SECTIONS 302/304: Not Applicable
SECTIONS 311/312: Immediate Health: No, Pressure: Yes, Delayed Health: No, Reactivity: No, Fire: No
SECTIONS 313: Not Applicable

INTERNATIONAL REGULATIONS:
CANADIAN DSL/NDL: HFC236fa is not specified on the DSL Inventory
CANADIAN WHMIS: HFC 236fa is categorized as a Controlled Product, Hazard Class A, Compressed Gas.
EINECS LISTING (EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES):
All ingredients of HFC236fa are listed.

SECTION 16: OTHER INFORMATION

ABBREVIATIONS: DSL – Domestic Substance List
NDL – Non-Domestic Substance List
WHMIS - Workplace Hazardous Materials Information System

PREPARATION INFORMATION: A-Gas RemTec
DATE PREPARED: December 2012

DISCLAIMER: Details given in this document are for information purposes only and are believed to be correct. Information is provided without warranty. A-Gas RemTec is not liable for any damage which may result from the use or reliance on this information.

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