
Material safety data sheet for HFC-227ea

Section 1: Identification of the material and supplier

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| Product name | HFC-227ea |
| Recommended use | Fire extinguishing agent |
| Supplier identification | Adkinns Inc. 5063 Commercial Circle, Concord, 94520 CA, USA Tel: +1 (650) 457 4580 www.adkinns.com |

Section 2: Hazards identification

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| Emergency overview | Misuses or intentional inhalation abuse can cause suffocation or death. Direct eye or skin contact with the liquid or cold gas can cause chilling or possibly frostbite on exposed tissues. |
| Acute Health Effects | Eyes Direct eye contact may cause severe burns or frostbite |
| | Skin Direct skin contact may cause severe burns or frostbite |
| | Inhalation Acts as an asphyxiant |
| | Ingestion Not considered a route of exposure |
| Chronic Health Effects | Not known. |
| Medical conditions aggravated by overexposure | Pre-existing disorders like cardiac, respiratory or central nervous system disorders may be susceptible to the effects of overexposure. |

Section 3: Composition/information on ingredients

| Chemical characterization | CAS-Number | EC-Number |
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| 1,1,1,2,3,3,3-Heptafluoropropane >99.9% | 431-89-0 | 207-079-2 |

Section 4: First aid measures

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| Inhalation | Move victim to fresh air; if necessary, provide artificial respiration or oxygen. Put victim at rest and keep warm. In the event of persistent symptoms, seek medical treatment. The use of epinephrine, sympathomimetics or other stimulants may increase susceptibility to cardiac sensitization |
| Skin contact | Thoroughly wash skin with soap and water. In case of skin irritation, consult a physician. |
| Eye contact | Immediately flush eyes with plenty of flowing water for 10 to 15 minutes holding eyelids apart. Check and remove any contact lenses. Immediately seek medical attention. |
| Ingestion | No information available |

Section 5: Firefighting measures

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| Extinguishing media | All conventional media are suitable |
| Advice for firefighters | Wear a self-contained breathing apparatus and chemical protective clothing. |

Section 6: Accidental release measures

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| Personal precautions | Ventilate affected area. Do not breathe vapor/aerosol. Wear appropriate protective equipment and keep unprotected people away |
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Section 7: Handling and storage

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| Handling | High-pressure gas. Do not puncture or incinerate cylinder. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide or drop. Use a suitable hand truck for cylinder movement. Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures and will easily fracture. |
| Storage | Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. |

Section 8: Exposure controls/personal protection

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| Engineering controls | Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. | |
| Acute Health Effects | Eyes | Tightly sealed goggles according to EN 166 |
| | Skin | Wear suitable protective clothing |
| | Inhalation | NIOSH/MSHA approved self-contained breathing apparatus for entry into areas where high concentrations may exist |
| | Hands | Wear protective gloves according to EN 374. Observe glove manufacturer's instructions concerning penetrability and breakthrough time. |

Section 9: Physical and chemical properties

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| Physical state | Gas |
| Molecular weight | 170.03 |
| Color | Colorless |
| Odor | Odorless |
| Flash point (PMCC) (°C/°F) | Not applicable |
| Special gravity | 1.4 |
| Boiling point | -16.36 °C |
| Vapor density | 6.04 |
| Vapor pressure at 20 °C | 58.8 psia |
| Critical pressure | 2912 kPa |
| Critical density | 0.621 kg/dm ³ |
| Critical temperature | 101.7 °C |

Section 10: Stability and reactivity

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| Reactivity | May cause strong exothermic reaction when exposed to freshly abraded aluminum surfaces at very high temperature or pressure. Chemically active metals: Potassium, calcium, powdered aluminum, magnesium and zinc. |
| Chemical stability | Stable under recommended storage conditions. |
| Conditions to avoid | Avoid contact with strong alkali or alkaline earth metals, finely powdered metals such as aluminum, magnesium and zinc. |
| Hazardous decomposition products | Hydrogen fluoride, hydrofluoric acid, carbonyl fluoride, carbon monoxide and carbon dioxide |

Section 11: Toxicology

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| Acute toxicity (oral) | Lack of data |
| Acute toxicity (dermal) | Lack of data |
| Acute toxicity (inhalative) | Lack of data |
| Skin corrosion/irritation | Lack of data |
| Eye damage/irritation | Lack of data |
| Sensitization to the respiratory tract | Lack of data |
| Skin sensitization | Lack of data |
| Genotoxicity | Lack of data |
| Carcinogenicity | Lack of data |
| Reproductive toxicity | Lack of data |
| Aspiration hazard | Lack of data |

Section 12: Ecological information

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| Ozone depletion potential | 0 |
| Global warming potential | 3500 |

Section 13: Disposal consideration

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| Waste disposal | Products removed from the cylinder must be disposed of in accordance with appropriate Federal, State, and local regulations. Do not dispose of locally. Do not dispose of the product in the domestic waste or at any waste collection places. |
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Section 14: Transport Information

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| Emergency action code | UN | 3296 |
| | Class | 2.2 |
| | Hazard label | Compressed nonflammable gas |
| | Packing Group | Not applicable |

Section 15: Regulatory information

Not classified as dangerous according to Directive 67/548/EEC & Directive 1999/45/EEC

Section 16: Other information

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|-------------|------------------------|------|
| NFPA | Health | 1 |
| | Flammability | 0 |
| | Reactivity | 0 |
| | Special Hazards | None |

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|-------------|---------------------|---|
| HMIS | Health | 1 |
| | Flammability | 0 |
| | Reactivity | 0 |
| | Protection | X |

Disclaimer The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and believe. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release. It is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.