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HFC-227EA DATA SHEET

APPLICATION/DESCRIPTION

HFC-227ea provides superior fire protection in a wide range of applications from sensitive electrical equipment to industrial applications using flammable liquids. HFC-227ea is ideal for applications where clean-up of other media presents a problem, where weight versus suppression potential is a factor, where an electrically non-conductive medium is needed and where people compatibility is an overriding factor. When environmental impact is a consideration, HFC-227ea is particularly useful. It has zero ozone-depleting potential, low global warming potential and a short atmospheric lifetime. These characteristics make it suitable for new installations for Halon 1301 replacement applications.

HFC-227ea is an odorless, colorless, liquefied compressed gas. (See Physical Properties Table for additional information). It is stored as a liquid and dispensed into the hazard as a colorless, electrically non-conductive vapor that is clear and does not obscure vision. It leaves no residue and has acceptable toxicity for use in occupied spaces at design concentration. HFC-227ea extinguishes a fire by a combination of chemical and physical mechanisms. HFC-227ea does not displace oxygen and therefore is safe for use in occupied spaces without fear of oxygen deprivation.

Performance

HFC-227ea is an effective fire extinguishing agent that can be used on many types of fires. It is effective for many surface fires, such as flammable liquids, and most solid combustible materials.

On a weight-of-agent basis, HFC-227ea is a very effective gaseous extinguishing agent. The HFC-227ea extinguishing concentration for normal Class A combustibles is 6.25 - 7% by volume. The minimum design concentration for total flood applications should be in accordance with NFPA 2001.

Specifications

HFC-227ea is manufactured to these specifications:

- Mole%: 99.0 Minimum
- Acidity, ppm by weight: 3.0 Maximum
- Water content, % by weight: 0.001 Maximum
- Non-volatile residues, gram/100mL: 0.05 Maximum

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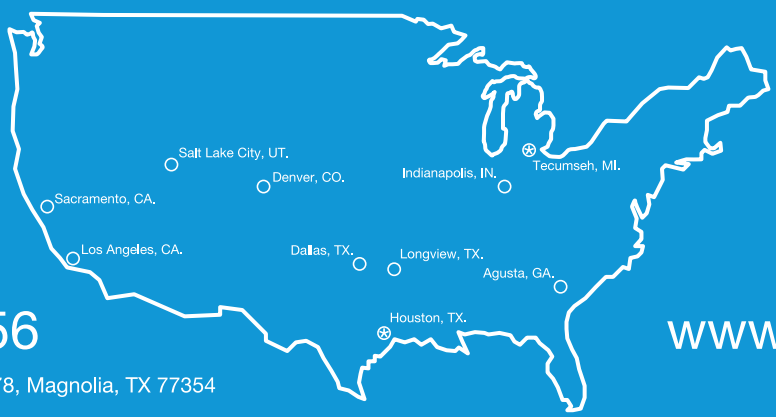
Toxicity

The toxicology of HFC-227ea compares favorably with other suppression agents. The LC50 of HFC-227ea is greater than 800,000 ppm. HFC-227ea has been evaluated for cardiac sensitization via test protocols approved by the United States Environmental Protection Agency. Test results show that cardiac tolerance to HFC-227ea is higher than that of other suppression agents and is acceptable for safe use in occupied spaces. HFC-227ea will decompose to form halogen acids when exposed to open flames. The formation of these acids is minimized by using early warning detection systems and proper system installation. When properly applied and installed, the generation of these by-products of HFC-227ea should be minimal.

PHYSICAL PROPERTIES

- Chemical Name: Heptafluoropropane (CF3CHFCF3)
- Molecular Weight: 170.03
- Boiling Point @ 760 mm Hg: 2.55oF (-16.4oC)
- Freezing Point : -204oF (-131.1oC)
- Critical Temperature: 215oF (101.7oC)
- Critical Pressure (psia): 422 psia (2912 kPa)
- Critical Volume (ft3/lbm) (cc/mole): 0.0258 (274)
- Critical Density (lbm/ft3): 38.8 (621 kg/m3)
- Specific Heat, Liquid (BTU/lb-Fo) @ 77oF (25oC): 0.283 (1.184 kj/kg/oC)
- Specific Heat, Vapor (BTU/lb-oF) @ constant pressure of 1 ATM @ 77oF (25oC): 0.1932 (0.808 kj/kg/oC)
- Heat of Vaporization (BTU/lb) at Boiling Point: 57.0 (132.6 kj/kg)
- Thermal Conductivity (BTU/h ftoF) of Liquid @ 77oF (25oC): 0.040 (0.069 w/moC)
- Viscosity, Liquid (lb/ft hr) @ 77oF (25oC): 0.443 (0.184 centipoise)
- Vapor Pressure (psia) @ 77oF (25oC): 66.4 (457.7 kPa)
- Ozone Depletion Potential: 0
- Estimated Atmospheric Lifetime (years): 31-42
- LC50 (Rats; 4hrs - ppm): >800,000



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