DUPONT™ FM-200® CLEAN AGENT

FM-200 is also known by its ASHRAE designation HFC-227ea

Data Sheet

APPLICATION/DESCRIPTION

FM-200 provides superior fire protection in a wide range of applications from sensitive electrical equipment to industrial applications using flammable liquids. FM-200 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, FM-200 is particularly useful. It has zero ozone-depleting potential, low global warming potential and a short atmospheric lifetime. These characteristics make it suitable not only for new installations using Fike's total flooding systems, but also for Halon 1301 replacement applications.

FM-200 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. FM-200 extinguishes a fire by a combination of chemical and physical mechanisms. FM-200 does not displace oxygen and therefore is safe for use in occupied spaces without fear of oxygen deprivation.

PERFORMANCE

FM-200 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, FM-200 is a very effective gaseous extinguishing agent. The FM-200 extinguishing concentration for normal Class A combustibles is 6.25 by volume. The minimum design concentration for total flood applications should be in accordance with NFPA 2001.

SPECIFICATIONS

FM-200 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

TOXICITY

The toxicology of FM-200 compares favorably with other suppression agents. The LC50 of FM-200 is greater than 800,000 ppm. FM-200 has been evaluated for cardiac sensitization via test protocols approved by the United States Environmental Protection Agency. Test results show that cardiac tolerance to FM-200 is higher than that of other suppression agents and is acceptable for safe use in occupied spaces. FM-200 will decompose to form halogen acids when exposed to open flames. The formation of these acids is minimized by using Fike early warning detection systems and proper system installation. When properly applied and installed, the generation of these by-products of FM-200 should be minimal.

APPROVALS

FM-200 complies with NFPA Standard 2001.

- UL Listed - Ex4623
- FM Approved - 3014476
- USCG 162.161/2/0

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PHYSICAL PROPERTIES

Chemical Name	Heptafluoropropane (CF_3CHFCF_3)
Molecular Weight	170.03
Boiling Point @ 760 mm Hg	3.9°F (-15.6°C)
Freezing Point	-204°F (-131.1°C)
Critical Temperature	215°F (101.7°C)
Critical Pressure (psia)	422 psia (2912 kPa)
Critical Volume (ft^3/lbm) (cc/mole)	0.0258 (274)
Critical Density (lbm/ft^3)	38.8 (621 kg/m^3)
Specific Heat, Liquid (BTU/lb-F°) @ 77°F (25°C)	0.283 (1.184 kj/kg/°C)
Specific Heat, Vapor (BTU/lb-°F) @ constant pressure of 1 ATM @ 77°F (25°C)	0.1932 (0.808 kj/kg/°C)
Heat of Vaporization (BTU/lb) at Boiling Point	57.0 (132.6 kj/kg)
Thermal Conductivity (BTU/h ft°F) of Liquid @ 77°F (25°C)	0.040 (0.069 w/m°C)
Viscosity, Liquid (lb/ft hr) @ 77°F (25°C)	0.443 (0.184 centipoise)
Vapor Pressure (psia) @ 77°F (25°C)	66.4 (457.7 kPa)
Ozone Depletion Potential	0
Estimated Atmospheric Lifetime (years)	31-42
LC50 (Rats; 4hrs - ppm)	>788,000

Form No. IV.1.02.01 April, 2010 Specifications are subject to change without notice.

U.S. and Foreign Patents Pending