

## FAQ (frequently asked questions) + answers

This document is aimed at those giving sales presentations to enable them to answer queries raised by the audience.

- 1) Why does Fike come out with ANOTHER gas/agent?
  - A) FE-25 is the best fit for Halon replacement for minimum disruption to the system user at a competitive price. The FE-25™ is complementary to the FE-227™ product. FE-25™ satisfies the immediate need in the EU community to decommission existing Halon systems without requiring a complete new installation. The pipe work can be reused with minimal disruption to the protected facility.
- 2) Is HFC125 available long-term?
  - A) FE-25™ has the lowest environmental impact of any of the HFC products which have been commercialised in the fire protection industry. We believe that FE-25™ supplies the best combination of benefits to the end-user from an environmental and commercial perspective for the replacement of Halon in existing systems. HFC-125 is also a significant component of many of the refrigeration blends being used today to replace CFCs. In total, we believe the benefits of FE-25™ and its utility in many applications make it likely to have long-term viability in the fire protection industry. Existing HFC-227ea filling facilities can refill FE-25 and FE-25 is available world-wide.
- 3) Will HFC be banned in the future (rumours spread by the inert gas people)?
  - A) There are no plans to ban the use of HFCs for fire protection. The European Commission sponsored a study that showed that fire protection use of HFCs was essentially non emissive and minuscule compared to other uses. The Kyoto Protocol, which manages the control of Global Warming Gases, does NOT in any way require the phase-out of HFCs for fire protection.
- 4) Is it dangerous to use a gas over its NOAEL (no observable adverse effect level)?
  - A) FE-25 is one of the most extensively tested gases. The PBPK model shows that the take-up of gas in the blood is very slow and that with an appropriate egress time from a protected space the gas is perfectly safe. In simple terms, the PBPK model incorporates the “time” factor when evaluating acceptable human exposures. Most of the halon systems installed in the past were designed at concentrations above Halon 1301’s NOAEL.
- 5) Can someone stay in the protected space after a discharge?
  - A) As with all fire situations people should move away from a fire rather than towards it. The products of combustion are extremely noxious and we recommend all personnel evacuate a space prior to discharge. The standards recommend that all personnel leave a protected space within 5 minutes of the discharge of extinguishant.
- 6) What is the right concentration to use?
  - A) Fike and DuPont have undertaken extensive testing, much of it in front of independent authorities to determine the correct concentrations. The majority of installations are Class A fuels which require a Minimum Extinguishing

Concentration (MEC) of 6.7%. Adding the factor of safety gives design concentrations of 8% in the USA Specified and 8.7% in the European Specified markets. Class B type fuels will generally require higher concentrations.

- 7) How does HFC125 extinguish the fire? How does the chemical reaction take place?
- A) The unique mechanism FE-25 relies upon, is its ability to absorb, at a molecular level, the heat energy from the combustion reaction. The ability of FE-25 to absorb heat faster than the amount of heat generated by the combustion reaction essentially ceases the combustion reaction since it cannot sustain itself. The ability of FE-25TM to form free radicals, which chemically interfere with the chain reaction of the combustion process, also aids in the extinction of the fire.

Extinguishing mechanism comparison

	Halon	FE-25	Inert	Foam
Oxygen depletion			100%	
Heat absorption	15%	67%		
Reaction interruption	85%	33%		
Reaction barrier				30%
Cooling				70%

- 8) What are the end products after the fire has been extinguished?
- A) HFC-25 systems are aimed at the market that requires early detection and early extinguishing to minimise fire and smoke damage. Keeping the fire small avoids noxious products of combustion of an unchecked fire. The FE-25 is a very stable chemical, which only decomposes in the presence of fire to extinguish it (as did Halon). Very low concentrations of HF can be formed, however they are usually at lower concentration levels than the toxic combustion products of the fire itself. Refer to separate paper on the subject.
- 9) Is HFC125 safe for the environment? Who says so?
- A) FE-25 has a zero ozone depletion potential and a short atmospheric lifetime. Over the other HFC alternatives it offers the smallest impact and best combination of performance and environmental impact for existing Halon 1301 systems.
- 10) What is the PBPK model for HFC125?
- A) The PBPK model is intended to incorporate the time of exposure factor with the toxicity of a specific chemical to determine a safe use level for fire protection. This model is considered to be the “best available toxicity” modelling. For HFC-125, this model would suggest that HFC-125 could be used up to 11.5% providing a person could reasonably egress a room in 5 minutes or less. However, to be conservative, the NFPA 2001 Standard and the preliminary ISO 14520 Standard limits the allowable concentration for areas where people are normally present at 10% providing egress can be reasonably be expected in 5 minutes or less.
- 11) What is the difference between FE-25 and FE-227?
- A) FE-25 has system flow properties very similar to those for Halon 1301, hence when used as a replacement for Halon 1301 in existing systems, in many instances the existing hardware requires minimal modification. FE-25 systems are very competitive against Inert gas systems.