EXPELLANTS FOR FIRE EXTINGUISHERS

Expellant

What is an expellant? It is an inert gas that provides the internal pressure in a fire extinguisher to expel the extinguishing medium e.g. Dry chemical powder, water, foam. The expellant for a stored pressure (STP) fire extinguisher is the gas inside the unit that pressurises the extinguisher. The expellant gas pressure is recorded on the STP units gauge. The cartridge operated type fire extinguisher has the expellant gas inside a cartridge which is released manually into the extinguisher when pressure is required to expel the extinguishing medium.

SANS 1910 - 4.5.5 Expellant
Only expellant specified below, or mixtures thereof, shall be used. The maximum water content shall be as specified, except when used in stored pressure water-based extinguishers.

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Expellant	
Types	**Maximum water content % mass fraction**
Air[a] (for water type extinguishers only)	**0,006**
Argon	**0,006**
Helium	**0,006**
Nitrogen	**0,006**
[a] Not to be used on dry chemical powder (DCP) extinguishers.	

Bursting Pressure
Low pressure fire extinguishers have a bursting pressure of not less than (55 Bars) 5500Kpa

Stored Pressure Fire Extinguishers
Nitrogen (N2) is extensively used for pressuring STP fire extinguishers as it is a dry gas and will not contaminate a dry powder extinguishing medium. It is also the cheapest of all the acceptable gases dictated by SANS1910.
N2 is transported in very high pressure cylinders (200 Bar) 20000Kpa and a pressure reducing Regulator **must** be used to pressurise an STP fire extinguisher to its specified Internal pressure (normally 14Bars in S.A.) 1400Kpa
Only fully trained servicemen shall pressurise an STP extinguisher with an N2 pressurising rig.

Cartridge Operated Type Fire Extinguishers
CO2 gas is used to pressurise the cartridge of a cartridge type fire extinguisher but the CO2 gas will only be manually discharged into the extinguisher when required, thus having no contact with the extinguishing medium until discharge of the medium is desired.

CO2 must not be used to pressurise an STP extinguisher for the following reasons:

1. CO2 is a wet gas even if the cylinder has no syphon tube and the pressure only is used. It will still contaminate dry powder
2. Using this method means you are not using a pressure regulating device (required by SANS 1475 part one)
3. CO2 has a operating pressure varing from approx 47 Bars to 67 Bars(4700Kpa to 6700Kpa), dpending on the CO2 cylinder temperature. (see burst pressure of a low pressure vessel)

CO2 is a wet gas and Dry Chemical Powder (DCP) is hydroscopic (attracts moisture), this causes the DCP to go lumpy or hard. An STP, DCP fire xtinguisher will then fail to operate successfully.

Presented By: Name:_____	Date _____	Signature _____

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