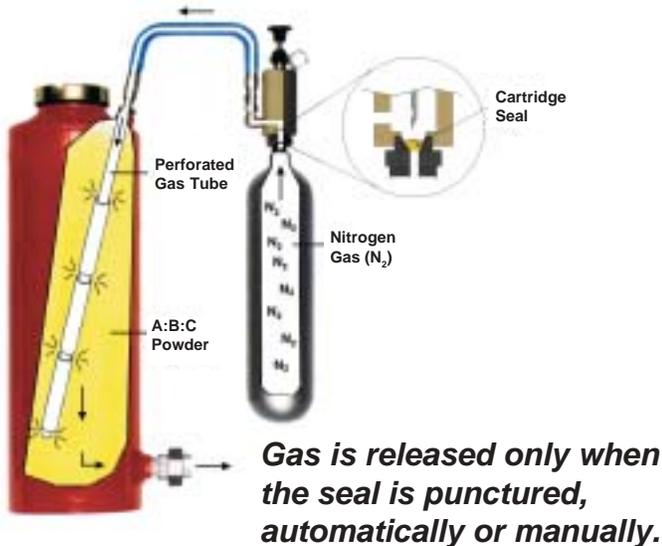


SIDE CARTRIDGE vs. STORED PRESSURE OPERATED EXTINGUISHERS

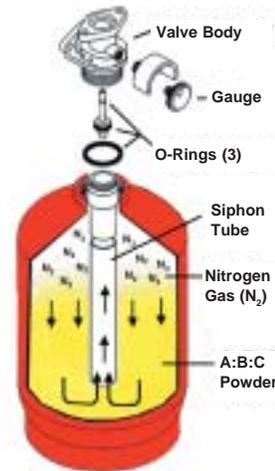
AFEX FAQ's

FREQUENTLY ASKED QUESTIONS

AFEX Side Cartridge Technology



Typical Stored Pressure Extinguisher



1. WHAT IS THE DIFFERENCE BETWEEN STORED PRESSURE AND SIDE CARTRIDGE OPERATED EXTINGUISHERS?

Stored pressure extinguishers have the compressed nitrogen gas that is used as the propellant for the dry chemical agent stored in the same canister as the dry chemical. *Side cartridge* operated units store the dry chemical in a non-pressurized container and the compressed nitrogen gas in a separate cartridge. Only at the time of actuation is the extinguisher under pressure and then only briefly.

2. DOES THE A:B:C DRY CHEMICAL COMPACT IN EITHER OF THEM?

Settling and compaction are common to both stored pressure and side cartridge operated extinguishers when they are installed on vehicles. This is a result of the vibration inherent to that application. *Side Cartridge* units are designed to fluff the powder before discharge. The gas passes through perforations in the gas tube, breaking up and fluffing the powder before discharge.

3. DOESN'T A STORED PRESSURE EXTINGUISHER KEEP THE DRY CHEMICAL IN SUSPENSION?

No. The specific gravity of nitrogen is .97 and the specific gravity of A:B:C powder is 1.8. In an extinguisher, these materials will settle according to their specific gravity, with the heaviest settling to the bottom. As the A:B:C powder is heavier than the nitrogen gas, such a mixture will not stay in suspension.

4. IF THE POWDER COMPACTS, HOW DOES THIS AFFECT THE DISCHARGE OF THE EXTINGUISHER?

In *side cartridge* operated extinguishers the nitrogen gas is introduced to the extinguisher through a tube with gas escape ports designed to break up and fluidize the dry chemical before it is forced out the extinguisher to the distribution network. Stored pressure units depend upon the downward pressure of the nitrogen gas to force the compacted powder back up a siphon tube and out the extinguisher.

AFEX *Fire Suppression Systems*

AFEX FAQ's Continued

Side Cartridge Technology

5. HOW ARE THESE EXTINGUISHERS INSPECTED? DOES THE INSPECTION REQUIRE SPECIAL EQUIPMENT?

The National Fire Protection Association, in its Standard No. 17, the Standard for Dry Chemical Extinguishing Systems, outlines the monthly and semi-annual inspection requirements for both stored pressure and side cartridge operated systems.

Stored pressure extinguishers must be de-pressurized, the valve assemblies rebuilt and the dry chemical removed and replaced every six years. No other inspections are required to determine if the dry chemical has been contaminated, is clumped, or if the siphon tube has been damaged. Because special equipment is required to perform this service, the extinguisher must be removed from the installation and taken to a service facility.

The dry chemical in *side cartridge* operated units is to be inspected every six months. This can be done quickly on site by simply removing the extinguisher cap. The Dry Chemical needs to be replaced *only* if it is clumped or shows evidence of moisture.

6. HOW IMPORTANT IS IT TO HAVE A GAUGE ON THE EXTINGUISHER? ARE THEY RELIABLE?

Pressure gauges are used on stored pressure units to indicate if they are properly charged. However, experience has shown that those gauges are not reliable indicators of the working condition of the extinguisher. These inexpensive gauges are known to have the pointer stick to the lens of the gauge and to have the bordon tube (which controls the movement of the indicator needle) take a memory set and cause the needle not to move. The accuracy of these gauges is reflective of their cost - less than \$1 each. Relying on these gauges to indicate the readiness of the system, or even just the extinguisher, would be risky.

The working condition of a fire suppression system cannot be revealed simply by the status of a pressure gauge. The condition of the actuation hose, the condition of the sensors and detection system, and the condition of

the distribution system are key issues as well. There is no substitute for a thorough examination of the system on a regular periodic basis for assessing its readiness.

7. HOW LIKELY IS IT THAT THE NITROGEN WILL LEAK OUT OF EACH TYPE OF UNIT?

Stored pressure extinguishers depend upon rubber "O" rings on the valve stem and in the valve assembly to seal the compressed nitrogen gas in the extinguisher. These "O" rings can be deformed by vibration or improper installation, allowing the pressure to leak. These units have a vent check on the control head whose purpose is to bleed off any pressure that can cause the control head to pre-maturely discharge the agent cylinder. Pressure gauges are installed on stored pressure units to monitor the rate of leakage. *Side cartridge* units are sealed with a bronze disc. These units need only to be weighed to verify they are properly filled.

8. HOW DO I DECIDE WHICH IS BETTER FOR MY APPLICATION?

The difference between side cartridge and stored pressure extinguishers is found in more than just their design. Each type will do well when used in the right application and in the right environment. The secret is knowing when and where to use each type. The state of the art *side cartridge* units are preferred industry wide in the heavy mobile equipment market for the following reasons:

- **heavy duty construction,**
- **simple design eliminates failure points,**
- **easily serviced on-site,**
- **low maintenance,**
- **no special tools required,**
- **over 30 years of vehicle fire protection.**

Stored pressure units share their niche with side cartridge operated units as hand held portable extinguishers, and in stationary situations such as protecting restaurant range hoods and electrical switching stations.