

# Obtaining the Most From Fire Extinguisher Training

BY J. R. NERAT

When it comes to fire extinguisher training, many different objectives exist, and many different levels of live fire training are being conducted within the industry. Extinguisher training is available from a variety of sources that include fire departments, equipment companies, community colleges, and universities as well as specialized consulting companies. Depending on the desired level and quality of the training program provided, the costs associated with them will also differ greatly. The key issue for safety management is just how applicable and realistic this training should be for their specific operation.

A fire extinguisher training syllabus should reflect the potential types of fire situations a company might have and could present to its employees. Most fire training programs typically cover the basic fundamentals of extinguisher operation and fire classifications, and provide small pan fire exercises to meet minimum training requirements. While this training may fulfill various training requirements, it might not sufficiently address the practical needs associated with many industrial applications.



## Practical Training Evolutions

Many industrial applications having various combinations of fuels and potential burning configurations should not only anticipate these fire situations, but also ensure that employee fire training evolutions adequately address them.

Because the burning characteristics of some fuels may react differently with various extinguishing agents, it is important that extinguishing agent limitations also be addressed within training programs. Flammable liquid fuel fires typically occur in several different burning configurations, which may not only affect the selection of the best extinguisher agent, but also dictate the application technique necessary to successfully accomplish extinguishment.



cleanly that they do not produce any visible smoke or flame. This characteristic makes them undetectable during bright daylight hours. When sodium bicarbonate-based dry chemical extinguishing agents are discharged into these burning areas, they help identify the existence and limitations of such fires by turning the otherwise invisible flames a bright orange. Training programs at sites having clean burning fuels should teach responders how to check hazard areas with an upwind agent discharge *prior* to attempting any passage or egress through them.

While conducting live fire training exercises using flammable liquids within various pan fires provides employees an excellent understanding of how to use extinguishers properly, such situations do not typically represent the fires commonly encountered in most workplaces.

Reviewing past fire situations that have occurred in a specific facility or site can provide a useful insight as to the best types of fire extinguisher training props. History has shown that using a more realistic fire prop to train an employee results in a better chance that he or she will accomplish successful extinguishment during real emergency situations.

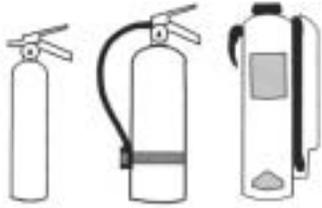


Today, many companies also utilize fuels having some unique burning properties. Water miscible or "polar solvent" fuels such as methanol alcohol burn so

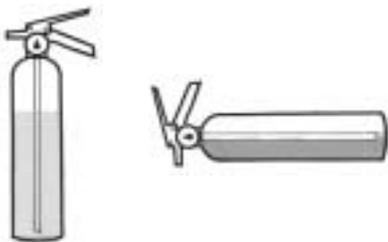


## Hardware Application Training

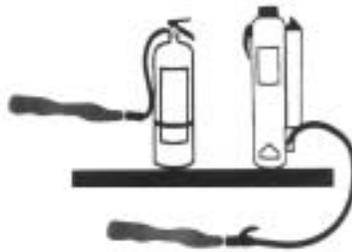
Besides simply addressing fundamental fire extinguisher operation principles, it is also very beneficial for an extinguisher operator to understand the various application limitations typically associated with different hardware design concepts.



*Stored pressure* extinguisher designs have an internal siphon tube to draw up and expel the extinguishing agent, which requires the agent cylinder to be kept in a vertical position in order to obtain optimum agent discharge. When the extinguisher is tilted or held horizontally, the internal pressurization gas quickly vents, leaving the extinguishing agent in the cylinder. For this reason, models having a “flexible discharge hose” are best for fighting fire situations where the discharge of the extinguishing agent in an upward or downward direction is necessary. The “fixed nozzle” stored pressure extinguisher hardware designs are generally only suited for fighting fire situations occurring on horizontal surfaces.



*Cartridge operated* portable extinguisher model designs feature some additional important hardware firefighting characteristics, such as the ability for operators to facilitate “one hand” discharge and “below deck” directional agent discharge control. One hand discharge control can be important for emergency standby or fire situations, where the use of one hand may be necessary for radio communications, opening doors or panels, operating process controls, and closing fuel valves.



Having end-of-hose extinguishing agent discharge control is important for fire situations that may occur under decking, where lowering an extinguisher down into a hazard area to accomplish directional discharge is not practical or safe. Typically cartridge operated portable designs and wheeled models all have discharge hoses that extend well below the bottom of an extinguisher, providing operators with the ability to discharge agents horizontally below a deck surface. This discharge characteristic is often necessary for properly addressing the multi-level fire hazard applications found in many production processes, assembly lines, industrial machinery, large off-road vehicles, and onboard ships.

*Wheeled fire extinguisher* models containing larger agent capacities are also considered portable fire extinguishers, which presents a whole new dimension to the effective range and fire extinguishment capabilities they provide employees. While the fire fighting techniques for the most part are the same, it is important for employees to understand how to properly mobilize, position, and place wheeled extinguishers into operation.

## Training Program Outline Recommendations

Besides meeting various minimum fire extinguisher employee training requirements identified in CFR-29 and NFPA-600, industrial fire brigade training programs should also consider addressing some of the following subject areas:

- Fundamentals of fire protection
- Fire classifications and symbology
- Fuel characteristics and properties
- Fire burning configurations and extinguishment techniques

- Fire extinguishing agent properties and limitations
- Extinguisher hardware characteristics and operation
- Review past fire history of the facility and known potential fire hazards
- Provide realistic live fire training evolutions ❖

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