

CUSTOMER TRAINING SERIES

POINTS OF INTEREST:

- Recent changes to commercial cooking operations have presented major challenges to dry chemical fire extinguishers and systems.
- Wet chemical commercial hood suppression systems have proven to be the most effective method of extinguishing commercial cooking fires.
- Only the Class K Fire extinguisher is compatible with wet chemical agents.
- Every kitchen should have a Class K extinguisher located in it to supplement the suppression system.
- The use of a multi-purpose ABC extinguisher may prove ineffective to extinguish a class K fire and can also result in damage to cooking appliances.

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Class K Fire Extinguishers

Learning Objective: The student shall be able to understand the proper application for a Class K extinguisher.

Almost all fires are small in their early stage and can be put out quickly if the proper fire extinguisher is available, and the person discovering the fire has been trained to use the extinguisher.

Most people are familiar with “ABC” extinguishers. These extinguishers have proven to be very effective in extinguishing the fires that they are designed for, that is class A, B, and C fires. However, **they are not designed to be used for class K kitchen fires.**

Class K fires most often occur where cooking media (fats, greases, and oils) are used. These are most often found in commercial cooking operations.

Class K Extinguishers work on the principle of saponification. Saponification takes place when alkaline mixtures such as potassium acetate, potassium citrate, or potassium carbonate are applied to burning cooking oil of fat. The alkaline mixture combined with the fatty acid create a soapy foam layer on the surface which holds in the vapors and steam and extinguishes the fire.

Recent changes to commercial cooking operations have presented major challenges to dry chemical fire extinguishers and systems.

Changes in frying oils from animal fats to vegetable oils have reduced the ability of dry chemicals to extinguish many kitchen fires.

Since vegetable oils have lower fatty acid content, many vegetable oils will prevent the “foam blanket” from developing completely. This inhibits the extinguishing agent by allowing vapors and steam to release.

In addition, newer efficient fryers retain heat much longer than in the past. Vegetable oils have a much higher auto-ignition temperature than animal fats. Therefore, dry chemical agents have trouble preventing a re-flash from occurring and cannot pass the current test standards for fryers because of the retained heat. Heat breaks down the weaker foam layer created, making it necessary to cool the oils in addition to the foam layer.

To address these issues, wet chemical agents were introduced and are now required in all new Type I hood fixed fire suppression systems. (ANSUL systems for example).

These agents are alkaline by nature and are the only extinguishing agents listed for suppression of fires in commercial cooking because of their ability



Typical 6 Liter Class K Wet Chemical Fire Extinguisher.

to maintain the foamy layer enough to allow complete cooling. In addition, these wet chemical agents pose minimal damage threat to hot appliances.

Only the class K fire extinguisher is compatible with the wet chemical agents.

The use of a multi-purpose ABC extinguisher threatens the foamy layer and cooling ability of the wet chemical agent, and consequently can result in damage to cooking appliances.

Fire extinguishers are placed in relation to the hazards they are to protect. Every commercial kitchen should have a Class K extinguisher located in it to supplement the suppression system. It is best to use this extinguisher rather than dry chemical alternatives.