

Fact Sheet



What Can I Do - If My Commercial Kitchen Has a *Fire*?

Learning Objective: The student shall be able to explain the correct application of commercial kitchen Class K and ABC portable fire extinguishers.

In most cases, portable fire extinguishers are employed as “first-aid fire protection appliances” to be used to suppress small or early stage fires before the fire gets too big or the building fire sprinkler system activates. These extinguishers have been proven to be very effective on normal combustible or flammable liquid fires (gasoline, motor oil, etc.), which can be put out quickly. This works if the proper extinguisher is available and the person discovering the fire has been trained to use the extinguisher properly.

This is not the case in commercial kitchen applications where foods are cooked rapidly using cooking media (fats, greases, and oils), in deep fat fryers, tilt skillets, pans or griddles. Animal fats may reach temperatures from 325° F to 600° F before it burn or self-ignite. Different vegetable oils may vary in flame-point temperatures from, 390° F to 750° F before flame-point or self-ignition takes place. A specific danger to watch for is some deeply enclosed hot oils, e.g., deep fat fryers, may hold their self-ignition temperatures up to 20 to 30 minutes after flame-point has subsided. This fuel application is not conducive to dry powder or Class ABC type agents. These recent changes to commercial cooking operations have made dry chemical fire extinguishers and suppression systems obsolete for cook-top applications.

1. **A protective foam blanket.** Automatic fire suppression systems and Class K extinguishers now use wet-chemical agents to suppress fires. They are to be used in combination. Both 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 fat or cooking oil. The alkaline mixture combined with the fatty acid create a soapy foam layer or “foam blanket” on the oil surface which holds in the flammable vapors and steam to extinguish the fire and help to cool the cooking media. Should the foam blanket be incomplete or be removed, the fire will surely reignite.



2. **The Commercial Kitchen's Emergency Response Plan.** This plan generally summarizes how kitchen staff should respond during an emergency event such as a fire. It should designate *who* will pull the automatic fire suppression system and call 911, *who* will inform and evacuate patrons to locations of safety, and where staff will go out-of-harms-way to acknowledge that all are safe and accounted for.



3. **Fire extinguisher training.** Fire extinguisher training is to be taught annually. It should be presented by third party trainers to designated supervisors, and or staff members, and should include, Pull-station activation, Class ABC and Class K fire extinguishers, and evacuation management. OSHA requirements state:

1910.157(g)(3)

The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.

4. **What do I do with two fire extinguishers?**

Commercial kitchens generally have two fire extinguishers, so which fire extinguisher should I use? As a designated, trained brigade-responder, you know that normal combustible and stove top fires can be extinguished by simply turning off the heat, or using a pot-lid or a Class ABC fire extinguisher. Grease or oil fires under the hood, contained in vat type appliances must be considered *a hazardous fire event*, where the pull station-pull-ring shall be pulled to activate the fire suppression system. A trained extinguisher worker or firefighter would know, **the Class K fire extinguisher shall only be used after the fire suppression system has been activated** and the Class K agent only applied to fill or complete the "foam blanket" created by the suppression wet-chemical agent. The Class K fire extinguisher may be used by the responding fire department to complete their mission. ***The Class K fire extinguisher shall never be used in place of or to replace an ABC fire extinguisher.***

5. **Cooling Time.** When the foam blanket is applied to smother combustible vapors and cool surface oil to below ignition temperatures, the foam blanket shall not be disrupted or removed until the deep-seated oil within the frying container is cool. (Cooling approximately 35 to 45 minutes after applied heat has been removed.)

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