

# PUTTING OUT FIRES

## FIRE BASICS: HANDOUT

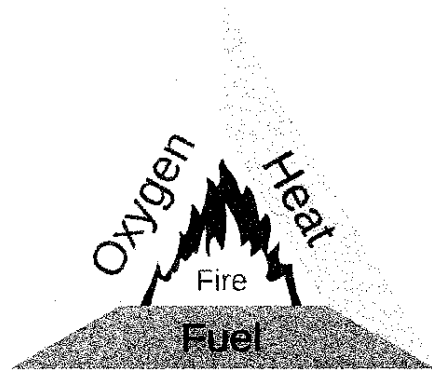


FEMA

### Fire Triangle

Fire requires the following three elements to exist:

- **Heat:** Heat is required to elevate the temperature of a material to its ignition point. Sources of heat include matches, stoves, sparks, etc.
- **Fuel:** The fuel for a fire may be a solid (e.g., coal, wood, paper, cloth, hay, etc.), liquid (e.g., gasoline, kerosene, alcohol, paint, cooking oil, etc.), or gas (e.g., propane, natural gas, butane, etc.). The type and quantity of the fuel will determine which method should be used to extinguish the fire.
- **Oxygen:** Most fires will burn vigorously in any atmosphere of at least 20 percent oxygen. Without oxygen, most fuels could be heated until entirely vaporized, yet would not burn.



These three elements, called the "fire triangle," create a chemical exothermic reaction, which is fire.

**What are some examples of heat and fuel in this room?**

### Classes of Fire

Knowing the type of fuel helps determine what kind of fire extinguisher to use and how to use it. There are five common classes of fires:

Fire Class	Fuel
A	Ordinary combustibles such as paper, cloth, wood, rubber, and many plastics
B	Flammable liquids (e.g., oils, gasoline) and combustible liquids (e.g., charcoal lighter fluid, kerosene)
C	Energized electrical equipment (e.g., wiring, motors) – when the electricity is turned off, the fire becomes a Class A fire
D	Combustible metals (e.g., aluminum, magnesium, titanium)
K	Vegetable oils, animal oils, or fats in cooking appliances

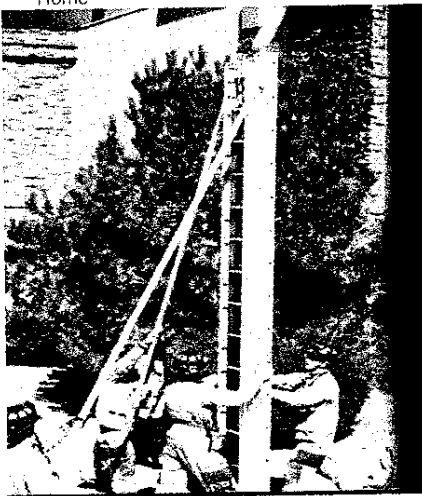
Source: U.S. Fire Administration

It is very important to identify the type of fuel feeding the fire to select the correct method and agent for extinguishing the fire.

**Never use water on a fire unless you know what is burning.** Water conducts electricity, causing the problem to spread and cause more shorting in the equipment. Water will also move burning oil, gas, and other petroleum products into new areas to ignite.



Residential  
How Do I?  
Commercial Services  
Your Fire Department  
Administrative Notice  
Links  
Gallery  
Comments/Suggestions  
Safety Message  
RMF Blog  
Home  
Residential  
How Do I?  
Commercial Services  
Your Fire Department  
Administrative Notice  
Links  
Gallery  
Comments/Suggestions  
Safety Message  
RMF Blog  
Home



## Kitchen Grease Fire

### Kitchen Fire Safety:

At Fire Fighting Training schools they demonstrate this with a deep fat fryer set in an open field. An instructor would don a fire suit and using an 8 oz cup at the end of a 10 foot pole toss water onto the grease fire. (The results got the attention of the students.) The water, being heavier than the oil, sinks to the bottom where it instantly becomes superheated. The explosive force of the steam blows the burning oil up and out. On the open field, it became a thirty foot high fireball that resembled a nuclear blast. Inside the confines of a kitchen, the fireball hits the ceiling and fills the entire room.

Also, do not throw sugar or flour on a grease fire. One cup creates the explosive force of two sticks of dynamite.

### Extinguishing a Grease Fire

Grease fires happen when collections of oil or grease on a stove, oven or fryer get hot enough to ignite. Grease fires are extremely dangerous because the fuel source (the grease) is a liquid, and easily splashed. Grease fires burn very hot and can quickly spread to cabinets or other flammable areas of the kitchen.

The most important thing you can do to prevent a fire in the kitchen is to stay put while cooking. The NFPA reports that unattended cooking is the leading cause of home cooking fires. Stay by the stove and be prepared for flames.

You only have a few moments to either put out a grease fire or escape the house.

#### Here's How:

1. **DO NOT USE WATER ON A GREASE FIRE!** (see *Tips*) Start evacuating everyone from the building. Fires spread extremely fast and can overwhelm victims in minutes. Treat burns only after evacuating the building.
2. **Turn off the Burner!** The fire might go out with this simple step.
3. Call 911. There's no reason to wait, Rocky Mountain Fire will be there to assist even if you manage to get the fire out.
4. The easiest way to smother a grease fire is to cover it with a pan lid. Be careful with glass lids; they can break from the extreme heat of open flame.
5. Grease fires can also be smothered with baking soda, but it takes a lot of baking soda to do the trick. Unless the baking soda is easily accessible, it's usually easier to quickly find a lid.
6. A dry chemical fire extinguisher will also work, but it will contaminate your kitchen and food. Class K fire extinguishers are available to put out grease and other kitchen fires, but they are usually only found in commercial kitchens.
7. A newly developed fire extinguishing spray is now available. Highly effective on common household fires including grease fires. Dispensed from a common aerosol spray can.