

Fire Extinguishers

Types of Fires



Ordinary Combustibles

paper, wood, cloth,
rubber and many plastics



Flammable Liquids

oils, gasoline, grease, solvents,
lacquers and some paints



Energized Electrical Equipment

electrical sources which are
still supplied with power



Cooking Oils

vegetable or animal oils and fats



As shown above, fire extinguisher labels display letters and/or symbols that indicate the types of fires they can effectively extinguish. If there is a slash through any of the letters and/or symbols, **do not** use the fire extinguisher on that type of fire.

Common Types of Fire Extinguishers



Multipurpose (ABC) Dry Chemical

Multipurpose (ABC) dry chemical extinguishers contain an ammonium phosphate base which can be used on all types of fires and is the least expensive of the extinguishing agents. The most common size is 2:A-10:B-C and weighs about five pounds.



Wet Chemical (K)

The Class K extinguisher is the ideal choice for use on cooking appliances including deep fat fryers and solid fuel cooking appliances. They contain a low PH potassium acetate base. The extinguishing agent discharges as a fine mist which helps prevent grease splash and fire reflash while cooling the appliance.



Clean Agents

Clean agent fire extinguishers do not leave a residue and are rated ABC or BC depending on size. Halon 1211 is a clean agent that is commonly found around computer systems and electronic equipment. Because of environmental concerns, fire extinguishing clean agents known as halocarbons are now the recommended alternative.



Carbon Dioxide (CO₂)

CO₂ extinguishers may be used on most mechanical and electrical fires. Because they are less effective on ordinary combustible (class A) fires, CO₂ fire extinguishers are usually only rated BC depending on the size of the extinguisher.



Pressurized Water

Pressurized water extinguishers are designed for use on ordinary combustible (class A) fires only. Use of water on fires involving flammable liquids and energized electrical equipment can be very dangerous.

Fire Extinguisher Operation

If you attempt to fight the fire, remember the acronym P.A.S.S.

Pull the Pin

A small pin inserted through the handle of the fire extinguisher prevents accidental discharge. It is held in place by a thin plastic strap which will break easily when the pin is pulled or twisted.

Aim the Extinguisher

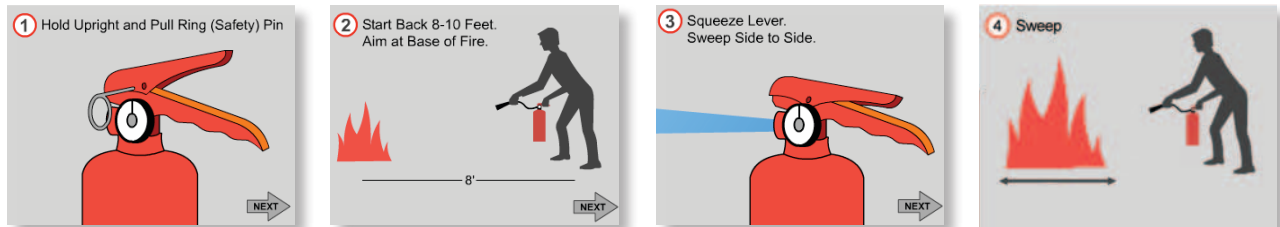
Point or aim the extinguisher at the base or front edge of the fire.

Squeeze the Handle

Squeeze the handle to discharge the fire extinguisher.

Sweep from Side to Side

Keep the extinguisher aimed at the base of the fire and sweep side to side, pushing the fire away from you.



Safety Precautions

Keep in mind the following safety precautions if attempting to extinguish a fire:

- Be sure you have the correct fire extinguisher for the type of fire and know how to use it.
- In commercial kitchens with built-in fire protection systems, the system should be activated before attempting to use a portable fire extinguisher.
- Maintain your exit. Leave yourself a way out in case the fire gets out of control.
- Have a back-up person standing by whenever possible in case assistance is needed.
- Stop and leave the area immediately if you experience any physical problems such as dizziness or difficulty breathing.
- Even if you think a fire is out, call the fire department to inspect the area. A fire may reignite or may still be smoldering where it cannot be seen.
- If a fire extinguisher has been used and is rechargeable, have it serviced before returning it to original location.



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Santa Clara County Fire Department

A California Fire Protection District serving
Santa Clara County and the communities of Campbell, Cupertino,
Los Altos, Los Altos Hills, Los Gatos, Monte Sereno, Morgan Hill, and Saratoga

408.378.4010

D Fire Extinguishers



Magnesium, Titanium,
Potassium, Sodium, etc.



Class D Fires
Yellow



Sodium Chloride
powder

Certain metals are extremely combustibile and must be used with caution and appropriate safety measures. These metals include magnesium, potassium, sodium titanium, alkyllithiums, Grignards, and diethylzinc. These chemicals react violently with water, air, and other chemicals and cause class D fires, which burn at high temperatures. As such, typical fire extinguishers are not sufficient for this type of fire; labs working with combustibile metals must have a type D extinguisher available.

D extinguishers contain a sodium chloride or graphite metal-based powder. When discharged on a fire, the heat causes the powder to cake and form a crust which excludes air and dissipates the heat.

The type of class D extinguisher needed depends on the flammable metals present in the room. Lithium and lithium alloy metals require the graphite extinguishers (Lith-X extinguishers), while the magnesium, sodium, potassium, uranium and powdered aluminum fires are better extinguished using the sodium chloride based extinguishers (Met-L-X extinguishers). Occasionally, in place of extinguishers, a dry medium, a graphite based powder known as Pyrene G-1., is kept in buckets near the work area for extinguishing fires.

If there is concern about the chemicals discharged from the extinguishers, information regarding specific extinguisher types is available on the Extinguisher MSDS [\[link\]](#) page.

Using a D fire extinguisher is slightly different from using the typical PASS technique:

Pull the pin. Holding the extinguisher with the nozzle pointing away from you, pull out the pin (usually located below the trigger).

Hold nozzle over fire. The 6-foot reach of the extension applicator hose and the squeeze grip valve allows placement of the dry powder exactly where it will be most effective. Remember – extinguishers are designed to be operated in an upright position. Always hold the extinguisher vertically. Never cradle it horizontally or at an angle. If the extinguisher is too heavy to hold properly, place it on the floor next to you and operate.

Squeeze the discharge lever. Squeeze slowly and evenly. This action will release the dry chemical and expel it through the discharge nozzle.

Apply the dry powder. Completely cover the burning metal with a thin layer of powder. Once control is established, take a position that is in close range. Throttle the stream with the nozzle valve to produce a soft, heavy flow. Cover the metal completely with a heavy layer of powder. Be careful not to break the crust formed by the powder. Slowly open the nozzle of the extinguisher.