# ESSENTIAL 29: Fire Extinguisher Basics



Key Takeaways:
– Learning fire extinguisher basics
– Considering conditions to decide whether to evacuate or fight the fire
– Learning the techniques used to extinguish a fire

Course Description
One of the most reliable ways to put out fires in the workplace is fire extinguishers. Although they are not a requirement, employers who choose to use fire extinguishers must train workers in general fire extinguisher use to comply with OSHA standards.

Why should you train for portable fire extinguisher safety?
Here's a real incident: in August of 2012, four workers were hospitalized after a flammable solvent used for cleaning machines ignited. The facility's employer, a Connecticut urethane coating and laminate fabric manufacturer, was cited for alleged serious and repeat violations of workplace safety standards, with proposed penalties of $74,000.

OSHA discovered that the employer failed to take adequate precautions to eliminate potential ignition sources. The violations around the incident involved an inoperable fire alarm system, no assurance that fire precaution procedures were in place, improperly grounded machinery, a lack of hazard inspections, a lack of personal protective equipment for workers, and failure to provide and record adequate fire extinguisher training.

There have to be three basic ingredients for fires to start: fuel, means of ignition, and oxygen. The fuel is what's will burn (e.g. paper, oil on a stove, metal shavings). The ignition source, perhaps a spark, cigarette cinders, lightening, heat, or even static electricity, will provide the initial energy to start the fire. Lastly, oxygen is necessary to sustain combustion. Any time all three ingredients are present, fire happens. If just one is missing, then the fire will subside or be extinguished.

Working on this principle, a portable fire extinguisher cools the burning fuel and removes the heat, displaces or removes oxygen, or stops the chemical reaction so the fire does not continue to burn.

There are five classes of fires and various fire extinguishers associated with

each one. It is crucial that the fire extinguisher used is the right type for the fires your workforce is anticipating.

Class A Fire Extinguisher
– Extinguishers in this class contain substances that cool the fuel or displace oxygen needed for combustion. In order to be effective, the extinguishing agent needs to penetrate the burning material.

Class B Fire Extinguisher
– the agents in these extinguishers are chemical foam and carbon dioxide, CO2, which smother or exclude oxygen as needed. These extinguishers are effective on Class B fires because they break the uninhibited chemical chain reaction.

Class C Fire Extinguisher
With this extinguisher, it coats the fuel with a thin layer of fire retardant powder, separating the fuel from the oxygen. Also, fire retardant chemical powder works to interrupt the chemical reaction, which makes these extinguishers extremely effective at extinguishing an electrical fire.

Class D Fire Extinguisher
Many Class D fire extinguisher agents are available; some will handle multiple types of metals, and others will not. Majority of Class D extinguishing agents are dry chemicals like sodium chloride or a copper or graphite base.

Class K Fire Extinguisher
This extinguisher agent is a low pH wet chemical that discharges as a fine mist, coating the surface of the burning liquid to help smother the flames, which prevents grease splashes and fire re-flashes, in addition to cooling the equipment.

PASS – An acronym for effective fire extinguisher safety.
– P is for PULLing the pin. If you didn’t know, the handle can’t be squeezed if the pin hasn’t been pulled.
– A is for AIMing at the base of the fire, which is critical.
– S is for SQUEEZEing the handle, thus discharging the extinguishing agent.
– S is for SWEEPing from side to side at the base of the fire, then continuing to move forward until the fire is extinguished.