Fire Extinguisher Training

University Environmental Health & Safety
Fire Extinguishers

After training you will be:

- Aware of the importance of portable fire extinguishers as a fire fighting tool
- Familiar with the common types of extinguishers
- Respectful of the limitations of equipment and operator
- Knowledgeable of the steps to be taken when a fire is discovered
- Capable of using this knowledge in other areas of their lives
Decision Making

- When faced with a fire, you must make some split second decisions:
  - Do I want to put out this fire?
  - How do you operate this thing, anyway?
  - Do I need help?
Decision Making

- Time is critical in any first-aid fire situation.... You must be able to make split-second decisions with confidence.

  - Are the capabilities of this extinguisher sufficient for the size of the fire?
  - Does the fuel source make the fire too hazardous for this extinguisher?
  - Is the extinguisher the proper type for this type of fire?
  - Is there a safe way to turn off or remove the fuel source?
  - Do environmental conditions indicate that fighting this type of fire would endanger others or me?
Decision Making

- When seconds count......

- Even a willing operator cannot successfully extinguish a fire unless they know how to actuate the available equipment.
The Task at Hand

- **Task:** Operate common types of first-aid fire extinguishing equipment (portable fire extinguisher).
- **Condition:** Given a common type A, B or C or combination extinguisher.
- **Standard:**
  - Assess conditions and whether to use the portable extinguisher or evacuate the area
  - Determine the fire classification (A, B, C, or D)
  - Interpret extinguisher pictographs
  - Use P.A.S.S. to extinguish fire
- **Step by step sequential pictures and drawings should provide you with a useful guide to the activation and operation of this equipment**
Square Footage

The novice should be able to extinguish a 480 square foot of fire, while an expert could put out a 1200 square foot fire with the same extinguisher. After the first training session the novice should be able to put out an additional 50% or 240 additional square feet of fire.
Common Types of Fires

There are FOUR common types or classes of fire:

- Class A - Combustible material
- Class B - Flammable liquid
- Class C - Electrical
- Class D - Combustible metals
Class A

CLASS "A":

• Class "A" type fires involve ordinary combustibles
• Examples: wood, paper, cloth, rubber, and many plastics.
Class B

CLASS "B":

• Class "B" type fires involve flammable liquids such as:
• Examples: gasoline, oil, grease, tar, oil-based paints, lacquer, and flammable gases.
Class C

CLASS "C":

- Class "C" type fires involve energized electrical equipment
- Examples: wiring, fuse boxes, circuit breakers, machinery, and appliances.
Class D

CLASS "D":

- Class "D" type fires involve combustible metals such as magnesium, titanium, sodium, etc.
Fire Extinguisher Labeling

Letter symbols and picture symbols make it easy to select the proper extinguisher for the type of fire.

<table>
<thead>
<tr>
<th>LETTER SYMBOL</th>
<th>TYPES OF FIRES</th>
<th>PICTURE SYMBOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>For wood, paper, cloth, trash and other ordinary materials.</td>
<td>![Illustration of a cup on fire]</td>
</tr>
<tr>
<td>B</td>
<td>For gasoline, grease, oil, paint and other flammable liquids.</td>
<td>![Illustration of a box on fire]</td>
</tr>
<tr>
<td>C</td>
<td>For live electrical equipment.</td>
<td>![Illustration of a plug on fire]</td>
</tr>
<tr>
<td>D</td>
<td>For combustible metals.</td>
<td>![Illustration of a metal piece on fire]</td>
</tr>
</tbody>
</table>
Pictograph Labeling

Newer extinguishers now carry a Pictograph Labeling System
Pictograph Labeling

- Pictograph Labeling

![Extinguisher for Class A (B and C are blacked out)](image-url)
Pictograph Labeling

- Pictograph Labeling
Pictograph Labeling

- Pictograph Labeling
Types of Fire Extinguishers

- **Extinguisher types**
- The fire equipment manufacturers refer to three basic types of hand portable fire extinguishers:
  - 1. Stored pressure
  - 2. Cartridge operated
  - 3. Sealed pressure
Types of Fire Extinguishers

- The difference lies mainly in the sealing method and the means by which the container is pressurized.
Types of Fire Extinguishers

- Classified as either stored pressure or cartridge operated, they are additionally classified by Underwriters Laboratory (UL) as:
  - ABC - (Ammonium Phosphate).
  - BC - (Sodium Bicarbonate; Purple K). or
  - D - (Super D or Sodium Chloride), Copper, or G-Plus (Graphite).
Types of Fire Extinguishers

- Stored pressure
  - In stored pressure models, the expellant gas and extinguishing agent are stored in a single chamber and discharge is directly controlled by the valve.
Types of Fire Extinguishers

- **Stored pressure**
  - These units have the advantage of being easily inspected since most are equipped with a pressure gauge indicating that the unit is ready for use.
Types of Fire Extinguishers

- **Stored pressure**
  - Once used this unit requires special recharging equipment and is normally returned to the fire department for recharge
  - Generally carry Water or AFFF (Foam)
Types of Fire Extinguishers

- **Cartridge operated**

  - With cartridge operated fire extinguishers, the expellant gas is stored in a separate cartridge located within or adjacent to the shell containing the extinguishing agent.
Types of Fire Extinguishers

- Cartridge operated - cont.
  - The extinguishers are actuated by releasing the expellant gas which in turn expels the extinguishing agent. The discharge is then controlled by a valve which is generally located at the end of a discharge hose.
Types of Fire Extinguishers

- **Cartridge operated - cont**
  - Since these units are not under expellant gas pressure until actuated, a pressure gauge is of little use and inspection must be accomplished by weighing the gas cartridge and checking the condition of the dry chemical agent.
Types of Fire Extinguishers

- Cartridge operated - cont
  - Once used, however, recharge is accomplished by simply refilling the container with extinguishing agent and replacing the gas cartridge.
Types of Fire Extinguishers

- **Sealed pressure**
  - Sealed pressure fire extinguishers are much the same as stored pressure units and are often referred to as disposable-non refillable types.
Types of Fire Extinguishers

- Sealed pressure - cont.
  - The expellant gas and extinguishing agent are both stored in a single chamber, but differ from stored pressure units in that sealing is accomplished by means of a frangible metal disc as opposed to a valve.
Types of Fire Extinguishers

- **Wheeled Units**
  - Wheeled units are also considered portable extinguishers and are nitrogen cylinder operated dry chemical units. They are available in sizes ranging from 75 pounds to 350 pounds. They can be used on Class A, B and C fires depending on the agent used.
Fire Extinguishers

- **Maintenance:**
The best piece of equipment will not operate if it is not recharged and maintained properly. History has proven that nearly every fire extinguisher failure can be traced back to human negligence.
Fire Extinguishers

- Portable fire extinguishers must be visually inspected monthly. The inspection should assure that:
  - Fire extinguishers are in their assigned place;
  - Fire extinguishers are not blocked or hidden;
  - Fire extinguishers are mounted in accordance with NFPA Standard No. 10 (Portable Fire Extinguisher);
  - Pressure gauges show adequate pressure (CO2 extinguisher must be weighted to determine if leakage has occurred);
  - Pin and seals are in place;
  - Fire extinguishers show no visual sign of damage or abuse
  - Nozzles are free of blockage.
Fire Extinguishers

Safety Tips: Portable Fire Extinguishers

- This is a brief overview of the important points of using a portable fire extinguisher. Fire can be devastating, but when used properly, a fire extinguisher can save lives and property.
Using a Fire Extinguisher

- The P.A.S.S. word is a method for operating most common fire extinguishers. It is a four step method.
P.A.S.S. Method

- Utilize the P.A.S.S method.
  - {P}  Pull, remove the pull pin.
  - {A}  Aim, point the nozzle at the base of the fire.
  - {S}  Squeeze, depress the lever to start the discharging of the chemical.
  - {S}  Sweep, move the extinguisher with a sweeping motion at the base of the fire until the fire is out.
P.A.S.S. Method

- Pass Method

- "P" stands for PULL the pin.

- This will unlock the operating handle and allow you to discharge the extinguisher.
P.A.S.S. Method

- Pass Method

- "A" stands for AIM

- at the base of the fire.
P.A.S.S. Method

- Pass Method

- "S" stands for SQUEEZE

- the operating handle. This will discharge the fire fighting agent.
P.A.S.S. Method

- Pass Method
- "S" stands for SWEEP
- from side to side. Move carefully in on the fire, aiming at the base, sweep back and forth.
Remember...

- MAKE SURE TO TEST THE FIRE EXTINGUISHER BEFORE ENTERING THE DANGEROUS AREA SURROUNDING THE FIRE

- ALWAYS BACK AWAY FROM A FIRE THAT YOU BELIEVE YOU HAVE EXTINGUISHED
Remember...

The average hand portable extinguisher will only operate for **30 seconds** ----- There is NO TIME to learn during an actual emergency.
Procedures

- IN CASE OF FIRE
  - Evacuate the area or building
  - Call the fire department
  - Make sure the fire is small
  - Make sure you have a clear way out
Fire Extinguishers

- It is reckless to fight the fire if ALL of these conditions do not exist. Instead leave the building closing the doors behind you to slow the spreading of the fire and smoke.
Thank You