Fire Extinguishers: Don't Guess—Suppress!

Know the Classes of Fires

Before selecting a fire extinguisher, identify the **class of fire** present in your work area:

- **Class A** - Ordinary combustibles (usually solids) such as wood, cloth, paper, rubber, and many plastics.
- **Class B** - Flammable liquids and gases such as gasoline, kerosene, paint, paint thinners, propane, etc.
- **Class C** - Energized electrical equipment, such as appliances, switches, panel boxes, power tools, etc.
- **Class D** - Combustible metals, such as magnesium, titanium, potassium, and sodium. These may react violently with water or other chemicals and must be handled with caution.

Match the Fire Class to the Correct Fire Extinguisher

Extinguisher Type	Effective Against	Notes
Water 	Class A fires only	Not suitable for electrical or flammable liquid fires
Dry Chemical (ABC) 	Class A, B, and C fires	Most common multi-purpose extinguisher
Carbon Dioxide (CO_2) 	Class B and C fires	Leaves no residue; ideal for electronics. Not effective for Class A fires.
Dry Powder (Class D) 	Class D fires	Specialized agent for metal fires; required where combustible materials are present

For Class D fires that have spread to ignite ordinary combustibles and/or flammable liquids, extinguish the metals with the Class D extinguisher, and use a Class ABC extinguisher on the other materials.

Best Practices in Labs

- Labs should have at least one ABC-rated fire extinguisher unless a specific hazard (e.g., metal fire) requires a specialized type.
- Fire extinguishers should always be readily available and unobstructed
- Do not use water-based fire extinguishers on electrical or flammable liquid fires.
- Make sure fire extinguishers are up to date with their annual inspection.
- For Class C fires, de-energize the equipment first if possible, then treat as Class A or B.
- Train lab members in the PASS technique:
  - ▷ **P**ull the pin
  - ▷ **A**im at the base of the fire
  - ▷ **S**queeze the handle
  - ▷ **S**weep side-to-side

Need Assistance?

Contact Research Safety if you need training on how to use a fire extinguisher or to evaluate lab hazards and determine if specialized extinguishers are needed.

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