Lab Safety Topics

Types of Fires

Many fires are small at origin and may be extinguished by the use of portable fire extinguishers. The proper type of extinguisher for each class of fire will give the best control of the situation and avoid compounding the problem. The classification of fires given here is based on the type of material being consumed.

CLASS A FIRES: Fires in ordinary combustible materials, such as wood, cloth, paper, rubber and many plastics. Almost any fire extinguisher is effective on a CLASS A fire, but water is the best extinguishing agent.

CLASS B FIRES: Fires in flammable liquids, gases, oil, paint and greases. Foam, dry chemical or CO2 extinguishers are the most effective on CLASS B fires. Do NOT USE WATER.

CLASS C FIRES: Fires which involve energized electrical equipment where the electrical non-conductivity of the extinguishing agent is of importance. Use Carbon Dioxide or Dry Chemical extinguishers. DO NOT USE WATER.

CLASS D FIRES: Fires in combustible metals, such as magnesium, zirconium, sodium, lithium, zinc and potassium. Use extinguishing agent at safety stations or sand, or vermiculite.
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Types of Fire Extinguishers

**Carbon Dioxide (CO2) Extinguishers**

These extinguishers are intended primarily for use on CLASS B and CLASS C fires. They have a limited range; thus, initial application must start reasonably close to the fire.

On all fires the discharge should be directed at the base of the flames using care not to spread the fire by blasting burning materials around the area. CO2 discharge should be applied to the burned surface even after the flames are extinguished, to allow added time for cooling and to prevent possible re-flash.

On flammable liquid fires, best results are obtained when the discharge from the fire extinguisher is employed to sweep the flame off the burning surface, applying the discharge first at the near edge of the fire and gradually progressing forward, moving the discharge horn from side to side.

**Dry Chemical (ABC) Extinguishers**

Dry chemical extinguishers are intended for use on CLASS A, CLASS B, and CLASS C fires.

The discharge should be directed at the base of the flames. Best results are obtained by attacking the near edge of the fire and progressing forward, moving the nozzle rapidly with a side-to-side sweeping motion with care not to blast flaming liquid around the area.

Discharge should be continued after flames are extinguished to prevent possible re-flash.

For CLASS A fires the discharge should be continued intermittently to coat flowing areas of CLASS A materials.

**Dry Powder Extinguishing Agent (D)**

Dry powder extinguishing agent is intended primarily for use on metal fires.
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The application of the agent should be of sufficient depth to adequately cover the fire area and provide a smothering blanket. Additional applications may be necessary to cover any hot spots which develop. Care should be taken to avoid scattering the burning metal.

Where the burning metal is on a combustible surface, the fire should be covered with powder, then a two inch layer of powder spread out nearby and the burning metal moved onto this layer, with more powder added as needed.