

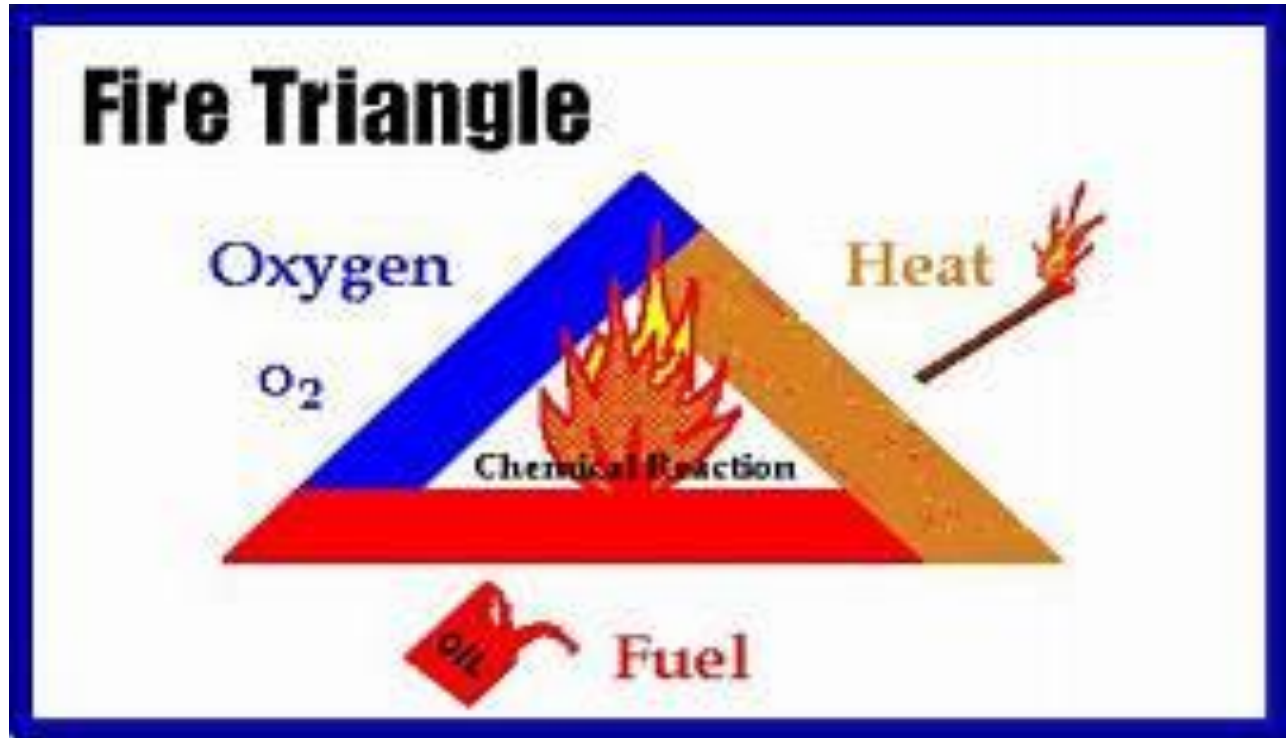


FIRE SAFETY

TOPICS

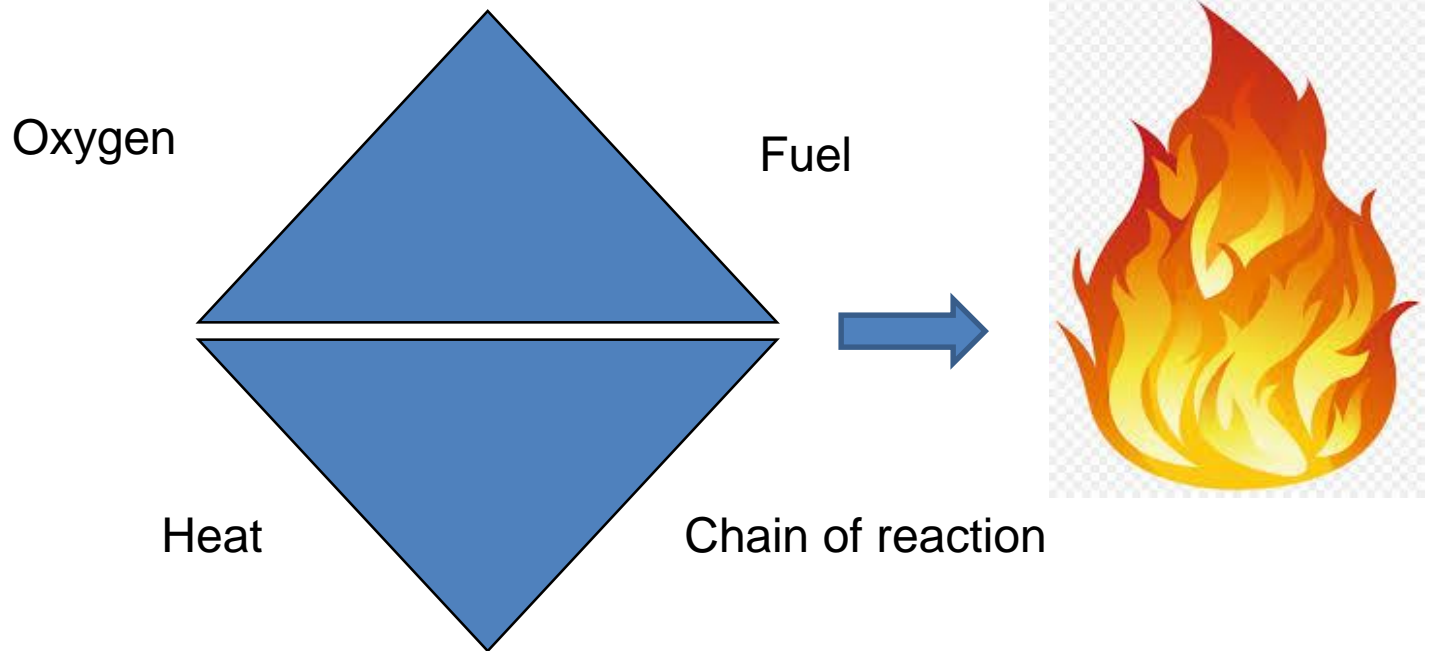
- What is Fire ?
- Methods to extinguish Fire.
- Classification of Fire and their preventions.
- Types of Fire Extinguishers.
- Anatomy of Fire Extinguishers and their operation.
- Safety guidelines while working at Chemical Labs.
- Fire Fighting decision criteria.
- Fire Survey Report

WE KNOW.....



FIRE TETRAHEDRON

- **Triangle is out....now Tetrahedron is in...**
- **Consists of 4 Sides**













WAYS TO EXTINGUISH FIRE

By eliminating any one element from the fire Tetrahedron, fire can be stopped by the following methods:

- **Cooling** - by using water
- **Starvation** - by removing adjacent material from the site of fire
- **Smothering**- by cutting off air supply

CLASSIFICATION OF FIRE

Class of Fire	Type of Fire	Type of Extinguisher	Extinguisher Identification	Symbol
A	Ordinary combustibles: wood, paper, rubber, fabrics, and many plastics	Water, Dry Powder, Halon		
B	Flammable Liquids and Gases: gasoline, oils, paint, lacquer, and tar	Carbon Dioxide, Dry Powder, Halon		
C	Fires involving Live Electrical Equipment	Carbon Dioxide, Dry Powder, Halon		
D	Combustible Metals or Combustible Metal Alloys	Special Agents		No Picture Symbol 
K	Fires in Cooking Appliances that involve Combustible Cooking Media: Vegetable or Animal Oils and Fats			

TO PREVENT FIRES

Class



Ordinary Combustibles:

- Keep storage and working areas free of trash.
- Good House keeping practices reduce the chances of general fire.
- Place oily rags in covered containers.
- No Smoking is to be strictly adhered by all at working areas.

TO PREVENT FIRES

Class



⇒ **Inflammables Liquids & Gases:**

- Don't refuel gasoline-powered equipment in a confined space, in the presence of an open flame, or while the equipment is hot.
- Keep flammable liquids stored in a tightly closed container and away from spark producing sources.
- Use flammable liquids only in well ventilated areas.
- Never use mobile phones at Fuel stations.

TO PREVENT FIRES

Class



Electrical Equipments:

- Never install a fuse rated higher than specified for the circuit.
- Investigate any appliance or electrical equipment that smells strange. Unusual odors can be the first sign of a potential fire.
- Utility lights should always have some type of wire guard over them.
- **Switch off electrical appliances when not in use.**

TO PREVENT FIRES

Class



Electrical Equipments:

Please do not use power plugs more than their ratings.



TO PREVENT FIRES

Class



Flammable metals:

- Knowledge of the properties of the metals and using good judgment will assist you in controlling or avoiding potential fires/reactions.
- Store inflammable metals away from the working areas.

TYPES OF PORTABLE FIRE EXTINGUISHER

Three types of commonly used Portable fire extinguishers :

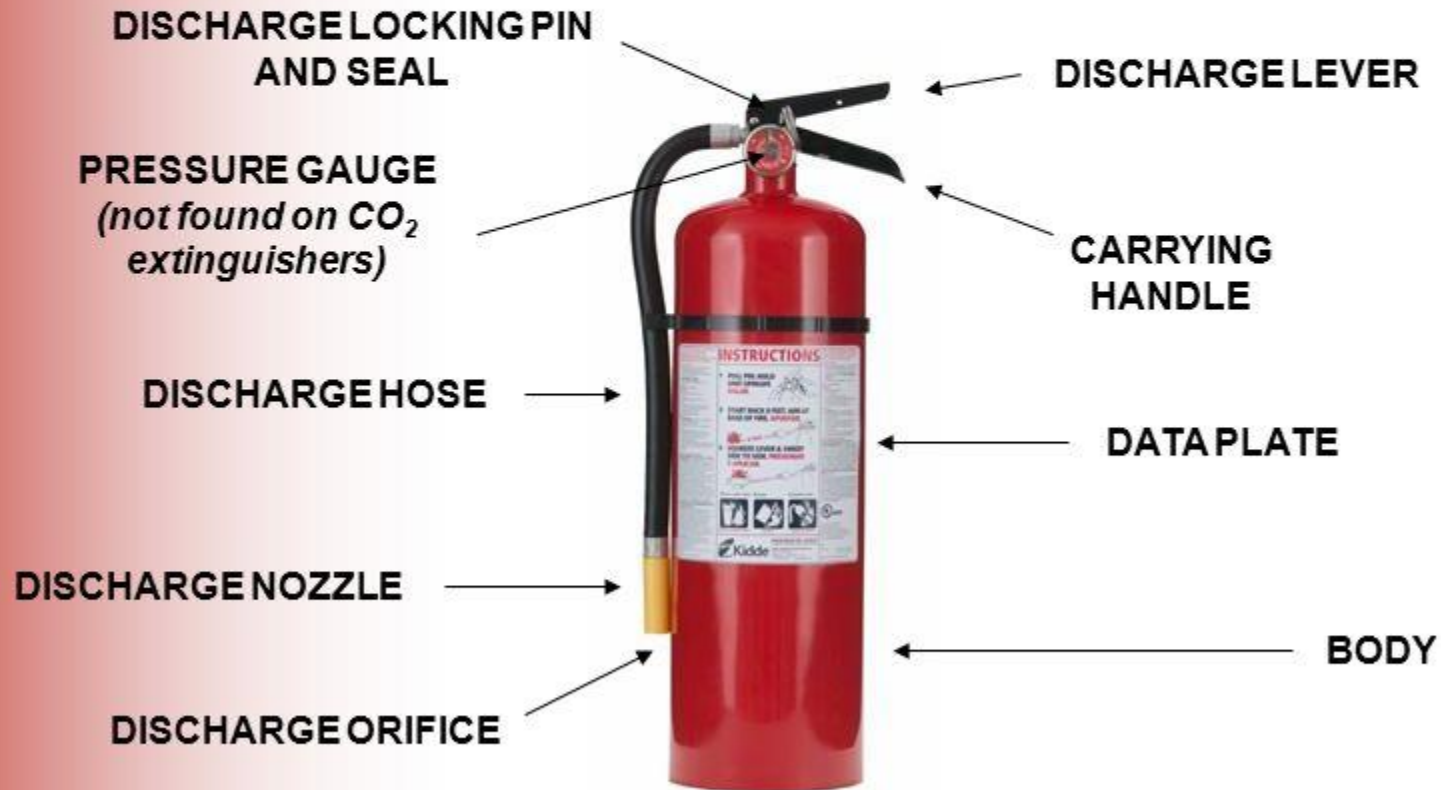
- AFFF compound (water based)
- Dry Chemical Powder (MAP powder)
- CO₂

TYPES OF PORTABLE FIRE EXTINGUISHER

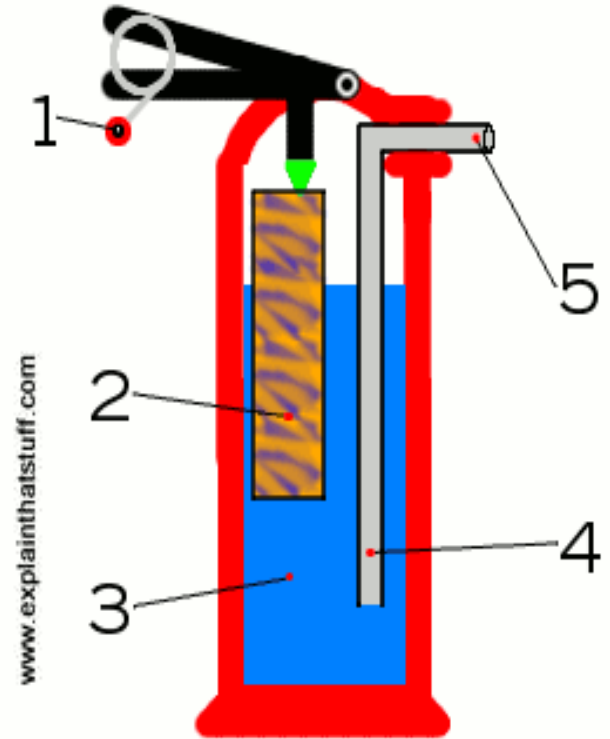


FIRE SAFETY

Anatomy of a Fire Extinguisher



Anatomy of Fire Extinguishers





HOW TO USE PORTABLE FIRE EXTINGUISHERS

IF YOU FIGHT A FIRE, REMEMBER THE WORD P A S S PULL . . . AIM . . . SQUEEZE . . . SWEEP

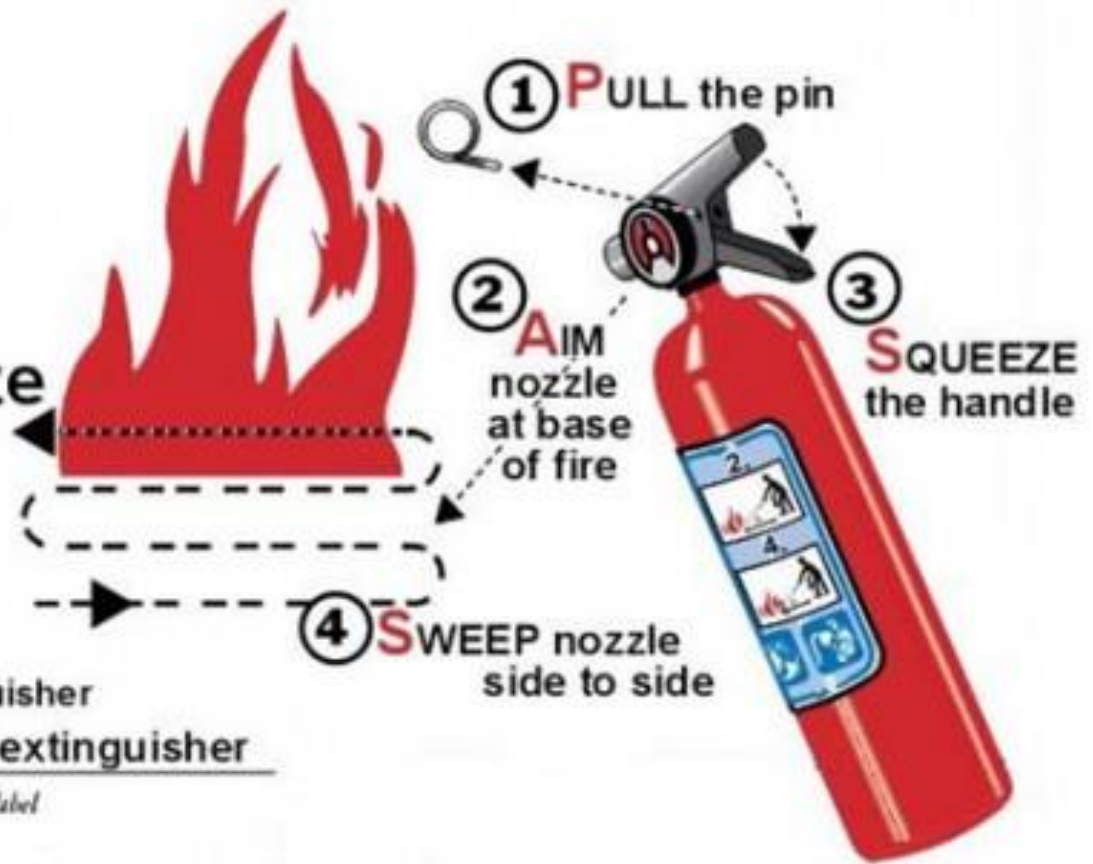
To operate an extinguisher:

Pull

Aim

Squeeze

Sweep



Know your extinguisher


Use the correct extinguisher

*(Check your own extinguisher's label
for detailed instructions.)*



COMMON SAFETY GUIDELINES AT LABS

- Use personal protective equipment.
- Chemicals received must be checked to ensure that the containers are in good condition.
- Details of new chemicals must be entered in the laboratory inventory and stored in a designated area.
- Bulk stocks must be stored in a separate building.
- Chemicals must not be placed indiscriminately in the storage shelf. They must be grouped based on their compatibility.

- 
- In the event of an accidental breakage or seismic activity, incompatible chemicals that are stored in close proximity can mix to start a fire, hazardous fumes or explosions.
 - Ensure eye washer and Safety Shower are operational.
 - Ensure proper ventilation of the working area.
 - Do not work alone in the laboratories particularly when performing hazardous procedures.
 - Do not perform unauthorized Experiments.
 - Know Emergency Escape routes of the Building.
 - Know operation of Portable Fire extinguisher and their location.

FIRE FIGHTING DECISION CRITERIA

- Know Labs emergency procedures and evacuation routes
- Know locations of extinguishers in your area and how to use them
- Always sound the alarm regardless of fire size
- Avoid smoky conditions
- Ensure area is evacuated
- Never use lifts to evacuate
- Don't attempt to fight unless:
 - Alarm is sounded
 - Fire is small and contained
 - You have safe egress route (can be reached without exposure to fire)
 - Available extinguishers are rated for size and type of fire
- If in doubt, evacuate!



"DON'T ATTEMPT TO FIGHT UNLESS YOU ARE TRAINED"

KNOW FIRE SURVEY REPORT

- On an average, in India, every year, about **25,000 persons die** due to fire accidents.
- **Female** accounts for about **66%** of those killed in fire accidents.
- It is estimated that about **42 females and 19 males die every day in India due to fire accidents.**
- According to losses reported by the Indian Insurance Companies, that about **45% of the claims are due to fire losses.**
- According to another estimate about **Rs. 1000 crores are lost every year due to fire.**
- In Mumbai about **75%** of fire-related incidents occur because of short circuit caused by loose wiring in year 2017.

IN CASE OF FIRE

➤ INFORM FOLLOWING IMMEDIATELY:

Main Gate, South Campus – 01905 267096

Main Gate, North Campus – 01905 267219

Fire – 101

Security Officer – 9418053088

FIRE SAFETY IS EVERYONES BUISNESS



Thank You