

TALATI'S 8<sup>TH</sup> EAST BOMBAY

# FIRES AND EXTINGUISHERS



# WHAT IS FIRE

- **Fire** is the rapid oxidation of a material in the chemical process of combustion (burning), releasing heat, light and various reaction products.
- At a certain point in the combustion reaction, called the ignition point, flames are produced.
- The flame is the visible portion of the fire. Depending on the substances alight, and any impurities outside, the colour of the flame and the fire's intensity will be different.
- Fire has been used by humans in rituals, in agriculture for clearing land, for cooking, generating heat and light, for signaling, propulsion purposes, smelting, forging, incineration of waste, cremation, & as a weapon of destruction.

# TYPES OF FIRES

The [National Fire Protection Association \(NFPA\)](#) categorizes fires by class:

CLASS A : Paper , Wood, Coal , Cloth, rubber, plastics etc.

CLASS B : Flammable liquids like Petrol, Kerosene, Paint, Solvent, Diesel, Alcohol etc.

CLASS C : Flammable Gasses like Propane, Butane,(LPG) Methane, Ethane(Natural Gas)

CLASS D : Flammable Metals like Lithium, Magnesium, Sodium, Potassium, Titanium, etc.

CLASS E : Electrical Equipment like Computers, Servers , TVs, Panels, Wiring etc.

CLASS F : Cooking Oils , fats etc.

# TYPES OF FIRES – CLASS A

CLASS A : Paper , Wood, Coal , Cloth, rubber, plastics etc.

Class A fires consist of ordinary combustibles such as wood, paper, fabric, and most kinds of trash. They may be extinguished by water, wet chemical suppression, or dry chemical powder.

# TYPES OF FIRES – CLASS B & C

CLASS B : Flammable liquids like Petrol, Kerosene, Paint , Solvents , Diesel, Alcohol etc

CLASS C : Flammable Gasses like Propane , Butane, (LPG) methane, ethane (natural Gas)

Class B fires whose fuel is flammable liquid. These fires follow the same basic fire which needs heat, fuel, oxygen or oxidizing agent or chemical reaction, as ordinary combustible fires, except that the fuel in question is a flammable liquid such as gasoline. A solid stream of water should never be used to extinguish this type because it can cause the fuel to scatter, spreading the flames. The most effective way to extinguish this fire is by inhibiting chemical chain reaction of the fire. Class B fires do not include fires involving cooking oils and grease.

Class C fires whose fuel is combustible gas.

# TYPES OF FIRES – CLASS D

CLASS D : Flammable Metals like Lithium, Magnesium, Sodium, Potassium, Titanium, etc.

Class D fires involve combustible metals . Metal fires represent a unique hazard because people are often not aware of the characteristics of these fires and are not properly prepared to fight them. Therefore, even a small metal fire can spread and become a larger fire in the surrounding ordinary combustible materials. Certain metals burn in contact with air or water (for example Sodium), which increases this risk.

Care must be taken when extinguishing metal fires. Water and other common firefighting agents can excite metal fires and make them worse.

# TYPES OF FIRES – CLASS E

CLASS E : Flammable Metals like Lithium, Magnesium, Sodium, Potassium, Titanium, etc.

Class E fires are fires involving potentially energized electrical equipment. These fires can be a severe hazard to fire-fighters using water or other conductive agents, as electricity may be conducted from the fire, through water, to the fire-fighter's body causing death. Electrical fires are very common in both homes and industrial settings.


# TYPES OF FIRES – CLASS F

CLASS F : Cooking Oils , fats etc.

Class F fires involve unsaturated cooking oils mostly in commercial kitchens. Though such fires are technically a subclass of the flammable liquid/gas class, the special characteristics of these types of fires, namely the higher flash point, are considered important enough to recognize separately.



# TYPES OF EXTINGUISHERS

		Class A	Class B	Class C	Class D	Electrical	Class F	
Type	Fire Type	Organic Materials (e.g Paper & Coal)	Flammable Liquids (e.g Petrol & Paint)	Flammable Gases (e.g Butane & Methane)	Flammable Metals (e.g Lithium & Magnesium)	Electrical Equipment (e.g Computers & Servers)	Cooking Oils (e.g Olive Oil & Fat)	Businesses that may need this type of Extinguisher
		Extinguisher Type						
Water		✓	✗	✗	✗	✗	✗	- Schools - Hospitals - Offices - Shops
Foam		✓	✓	✗	✗	✗	✗	- Apartments - Hospitals - Offices - Shops
Dry Powder		✓	✓	✓	✓	✓	✗	- Garages - Welding - Boiler Rooms - LPG Plants
CO2		✗	✓	✗	✗	✓	✗	- Server Rooms - Offices
Wet Chemical		✓	✗	✗	✗	✗	✓	- Kitchens - Canteens

# Thank You

## For Attending This Session

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