

THEORY OF FIRE

Fire is the name given to the process of combustion which is a chemical reaction. For this reaction to take place, the following are needed:

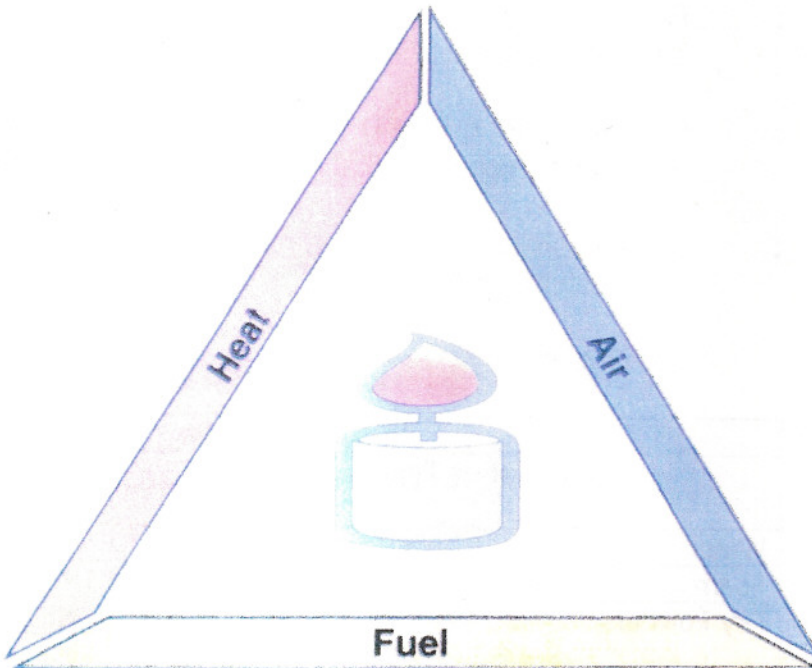
FUEL either - solids such as wood, paper, rubber
- liquids such as petrol paraffin, oils
- gases such as acetylene, LPG, hydrogen

Finely divided fuels like wood shaving ignite more easily than solid timber.

AIR Fires need oxygen which is found in the air. Fire usually requires about 16 % oxygen to thrive.

HEAT Common ignition sources include smoking materials, electrical faults, welding, heaters, friction and open flames.

These three elements form what is known as the **Triangle of Fire**.



METHODS OF EXTINGUISHMENT

Remove any **ONE** side of the triangle and the fire will go out **eg:**

Cooling: Removal of heat.

Smothering: Removal of oxygen.

Starvation: Removal of fuel.

CLASSES OF FIRE

Before attacking a fire with an extinguisher it is important that the correct type for the fuel or fire type is selected. Choosing the wrong extinguisher may result in the fire not being extinguished or injury to the operator **eg:** water on flammable liquids will spread or intensify the fire. Carbon dioxide on wooden pallets would not be effective.

Class A : Fires involving ordinary solid combustible materials **eg:** coal, paper, plastics, wood and textiles.

Class B : Fires involving flammable liquids and gases, **eg:** alcohols, benzene, oils, paraffin, LPG.

Class C : Fires of Class A, B or D occurring in the presence of live electrical equipment, **eg:** electrical cables, generators, transformers.

Class D : Fires involving combustible metals, **eg:** aluminium, sodium, magnesium, lithium.

Class F : Fat Fryers.

Suitability Table					
Extinguisher Type		Classes of Fire			
		A	B	C	D
Water		MS	D	D	D
Foam		S	MS	D	D
Dry Powder: ABC Type BC Type		S	MS	S	LS
		U	MS	S	U
Carbon Dioxide		U	S	MS	D
Select from the following key:					
MS	=	Most Suitable	U	=	Unsuitable
S	=	Suitable	D	=	Dangerous
LS	=	Limited suitability			