



TOOLBOX TALK 37/60

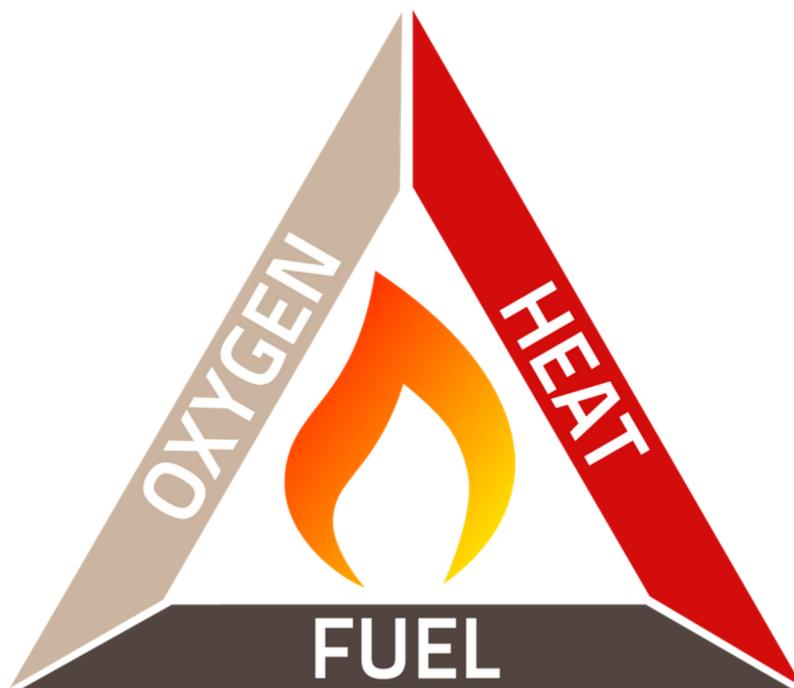
DATE:

TOPIC: FIRE TRIANGLE

OBJECTIVE: TO ENSURE BASIC UNDERSTANDING OF FIRE EXTINGUISHING

Fire Triangle

Combustion is the rapid chemical reaction in which heat and also light are given off and is commonly illustrated by the 'triangle of fire':



Removing one of these constituent elements will collapse the reaction and the combustion process will cease or be extinguished. This is commonly achieved by:

- Starvation - removing or limiting the fuel
- Smothering - removing or limiting the oxygen
- Cooling - removing or reducing the heat

Fire Extinction

1. Starvation :

- Here the fuel source is removed.
- For example, shutting off a gas supply on a cooker; capping an oil-well head; stemming the flow from an oil tank.

2. Removing Fuel

3. Smothering

- If the oxygen is prevented from participating in the chemical reaction then the process will cease.
- Generally, this can be achieved by covering the fire with a layer of 'air-tight' material such as a fire blanket or foam.
- When fires involve some metals where oxygen is contained within the material, it may be necessary to introduce a chemical agent to offset the reaction.
- These types of fires are normally specialist and require specific risk management and loss-prevention techniques, therefore specialist assistance should be sought.



4. Removing Oxygen

5. Cooling

- The most common form of fire extinction is the cooling of the reaction - or removal of the heat.
- This is normally achieved by spraying water onto the fire, although this usually has the effect of partially smothering the reaction as well or simply turning off the heat source.

6. Removing Heat

- It is very important that the process of combustion and the nature of materials, when involved in this chemical and physical reaction, are understood when considering the correct means to fight the fire.
- This is because of the need to select the appropriate extinguishing media and particularly portable fire fighting appliances - a vital first aid to fire fighting.
- The majority of all fires begin relatively small and usually in only one location.
- If during this ignition, and the initial period of growth, a suitable extinguishing agent is promptly applied to the fire, it may be terminated immediately.
- However, for extinction to be effective, the correct method must be adopted and this will depend upon the type of fire taking place.