

**University of Anbar**

**College of Engineering**

**Chemical & Petrochemical Engineering**

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## Experiment No. 2: FLASH & FIRE POINT



**Aim:** To determine flash & fire point of liquid petroleum products by Cleveland open cup method.

**Requirements:** Cleveland open cup apparatus, The apparatus consists of a brass cup, test flame arrangement, thermometer socket, and energy regulator.

### **Theory:**

This method determines the open cup flash and fire points of petroleum products and mixtures to ascertain whether they give off inflammable vapours below a certain temperature.

**Flash point:** It is the lowest temperature at which the oil gives off vapour that will ignite where a flame is passed over surface of the oil.

**Fire point:** It is the lowest temperature at which sample is ignites and continues to burn for at least 5 sec.

Flash & fire point does not indicate directly the lubricating value of the oil but these are imp. When oil is expressed to the high temperature service. This test provides safe guard against decomposition and fire hazards during storage, transportation, handling and other uses.

### **Experiment procedure**

- 1- Clean and dry the brass cup.
- 2- Fill the cup with the sample exactly to the mark inside the cup.
- 3- Adjust the micro flame.
- 4- Heat the cup slowly at a controlled rate of 30C per minute.
- 5- Pass the micro flame across the cup for every rise of 30C of temperature.
- 6- Record the lowest temperature at which flame flash is observed at any point over the liquid.
- 7- For determination of the fire point, continue the heating of sample at a controlled rate.
- 8- Pass the test flame across the center of cup for every degree in temperature rise.

### **Precautions**

1. The thermometer bulb should be at the center of the oil cup and below the oil surface. It should not touch the bottom surface of the oil cup.

2. The heating should be slow and steady.

3. After every trial the cup should be cooled to room temperature.

**Results:**

Sr. Number	Sample	Flash point °C	Fire point °C
1	Diesel		
2	Kerosene		

**Observation:**

Sample	Flash point °C	Fire point °C	Mean Flash point °C	Mean Fire point °C
Diesel				
Kerosene				

