



**Practical Experiment Instruction Sheet**

EXPERIMENT NO : 3

**Determination of percentage of ash in a coal sample.**

EXPERIMENT NO. :3 MIT(T)/BSH/Engg. Chemistry Lab/ Engg. Chemistry /Manual No-1

Class: F.Y. BTech.

DEPARTMENT: Basic Sciences & Humanity

LABORATORY : Engg. Chemistry

Location:- 214

PART: I+II

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**Aim:** To determine the percentage of ash in a given in and given coal sample.

**Theory:** The ash which is intimately interspersed within the mass of the coal is called as fixed ash or inherent ash, whereas the ash which occurs in different layers of the coal is known as free ash or extraneous ash. Only the extraneous or free ash can be removed by washing, the fix or inherent ash present in coal cannot be removed my washing.

The nature of ash and its amount in a coal plays very important role in determining the quality of coal. Ash reduced the heating value of coal. Ash generally consist of silicon, alumina, ferrous oxide and small quantities of lime and magnesia.

**Procedure:**

1. First weigh the empty crucible. Then take about 1gm of coal sample in the same crucible and weigh it again.
2. Place the silicon crucible in a muffle furnace at 750 °C for 1 hour to complete the combustion.
3. Then the crucible is removed and allowed to cool in a desiccators to room temperature and weigh it again.
4. The amount of residue remaining in the crucible corresponds to the ash content of the coal.

**Observation:**

1. Weight of empty crucible ( $W_1$ ): \_\_\_\_ gm
2. Weight of crucible with coal sample ( $W_2$ ): \_\_\_\_ gm
3. Weight of crucible with coal sample after heating ( $W_3$ ): \_\_\_\_ gm

**Calculations:**

1. Weight of coal sample =  $W_2 - W_1 =$  \_\_\_\_ gm
2. Weight of Ash:  $W_2 - W_3 =$  \_\_\_\_ gm
3. Percentage of ash =  $(W_2 - W_3)/(W_2 - W_1) \times 100 =$  \_\_\_\_

**Result:**

The percentage of ash in the given coal sample is found out to be: \_\_\_\_.