

## Ash

### 1. Application

This method covers the determination of ash from soil, tissue and waste samples.

### 2. Summary of Methods

Ash is determined by use of a muffle furnace set at  $550^{\circ}\text{C} \pm 50^{\circ}\text{C}$  for 3 hours.

### 3. Safety

All chemical compounds should be considered a potential health hazard. The laboratory is responsible for maintaining a current awareness file of OSHA regulations regarding the safe handling of the chemicals specified in this method. A reference file of material handling data sheets should be made available to all personnel involved in the chemical analysis.

### 4. Interferences

None

### 5. Sample Collection, Preservation and Handling

Samples are dried at  $55^{\circ}\text{C}$

### 6. Apparatus and Materials

- 6.1 Muffle furnace
- 6.2 High temperature crucibles
- 6.3 Balance capable of reading to 0.001 g

### 7. Reagents

None

### 8. Methods

- 8.1 Record weight of high temperature crucible to 0.001 g
- 8.2 Weigh out 1 – 5 grams of soil, tissue, or waste into crucible and record weight of sample and crucible.
- 8.3 Place in muffle furnace set at  $550^{\circ}\text{C} \pm 50^{\circ}\text{C}$ . Sample must remain at  $550^{\circ}\text{C} \pm 50^{\circ}\text{C}$  for 3 hours.

8.4 Remove samples from muffle furnace, cool and re-weigh to 0.001 g.

## 9. Calculations

Before ashing record:

$$\text{crucible weight} + (\text{crucible weight} + \text{sample weight}) = \text{sample weight}$$

After ashing record:

$$\text{crucible weight} + \text{sample weight}$$

$$\% \text{ ash} = \frac{\text{sample weight ash} - \text{crucible weight}}{\text{sample weight dry} - \text{crucible weight}} \times 100$$

## 10. Quality Control

10.1 Standard laboratory soil # 4

## 11. Reporting

11.1 Samples are reported in %  $\pm$  0.1

## 12. Reference

Standard Methods (for the examination of water and wastewater). 15<sup>th</sup> Edition, 1980 Pg. 97 (209G). Volatile and Fixed Matter in Nonfilterable Residue and in Solid and Semisolid Samples.