Total Solids

Introduction:

The term "solids" is generally used when referring to any material suspended or dissolved in water or wastewater that can be physically isolated either through filtration or through evaporation. Solids can be classified as either filterable or non-filterable. Filterable solids may either be settleable or non settleable. Solids can also be classified as organic or inorganic. Total Solids is the term applied to the material residue left in the vessel after evaporation of a sample and its subsequent drying in an oven at a defined temperature. Solids analyses are important in the control of biological and physical wastewater treatment processes. Measurement of Solids can be made in different water samples (industrial, domestic and drinking water) and it is defined as residue upon evaporation of free water. Total solids are nothing but summation of total dissolved solids and total suspended solids.

Principle:

The sample is evaporated in a weighed dish on a steam bath and is dried to a constant mass in an oven either at 103-105°C. Total solids/residue is calculated from increase in mass.

Measurement:

Apparatus:

1. Oven

2. Desiccators

3. Balance

4. Dish

5. Vacuum Pumps

6-Forcep**Procedure:**

- Take a clean porcelain dish which has been washed and dried in a hot air oven at 105°C for one hour.

- Cool the dish, weigh and keep it in a desiccator. We denote the weight measured as (W1).
- Transfer carefully 50 ml of sample into the dish and evaporate to dryness on a steam bath
- Place the evaporated sample in an oven adjusted at 103^0C and dry it for 1 hr.
- Cool the dish in a desiccator, weigh the dish as soon as it has cooled and Note the weight with residue as (W2).

Calculation:

Determine the total solids with the following formula:

Initial weight of the Crucible (**W1**) = ……….. **g**

Final weight of the Crucible + sample (**W2**) = ……….. **g**

Weight of residue (**W**) = **W2 - W1**……….. **g**

T.S= (1000*1000 **W**) / **v**   =…………..**mg/L**

W = weight of total residue in (**mg**). (Therefore multiply W with 1000)

V = Volume of the sample (**mL**)(To convert mL to L)

Procedure chart