Safety: Wear the appropriate PPE when working in the lab.

Purpose: DETERMINATION OF SPECIFIC GRAVITY

Procedure:

Introduction:

Specific gravity is the weight of a known volume of a substance compared to the weight of the same volume of water. Occasionally there is need to determine the specific gravity in terms of pounds per cubic foot, milligrams per liter, or other appropriate units, of any solid substance. Filter press cake is a good example. This is accomplished by weighing a portion of the material in question and then measuring the volume of the portion by immersion in water. After these two dimensions are secured it is only a matter of conversion of those units to the units desired, pounds per cubic foot, milligrams per liter, or whatever.

Procedure

A manageable amount of sample is weighed, and then immersed in water in a graduated cylinder partially filled \with water. The increase in volume as a result of the addition of the sample to the water in the cylinder is the volume of the sample. Weight divided volume in the same system (English or Metric) denoted the specific gravity.

Equipment

Graduated Cylinder – 500 ml.
Weighing Balance – B440 Sartorius

Method

1. Fill the cylinder with water at room temperature to the 250 ml mark.
2. Cut a portion, or portions, of the sample as submitted to a size which will just slide into the cylinder. This can be one or more rough cubes.
3. Place a sheet of office paper on the balance and tare the balance to zero.
4. Place the cut sample(s) on the balance and record the weight. **Call this dimension X.**
5. Immerse the cut sample(s) in the water in the cylinder.
6. Note and record the increase in volume of the contents of the cylinder. **Call this dimension Y**

Calculations

$$\frac{\text{X grams}}{\text{Y ml}} = \text{Grams / ml}$$

454 grams = 1 pound
28,316 ml = 1 cu. ft.

$$\frac{\text{X} \div 454}{\text{Y} \div 28{,}316} = \text{Pounds per Cu. ft.}$$

TRAINING DOCUMENTATION

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