**EXPERIMENT NO. - 7**

**Object:** Determination of the percent water absorption in 24 hours of moulded Plastic

samples.

**Equipment Used:** Mettler balance

**Specimen :** Two inch diameter disks, 0.125" or 0.250" thick. 

**Test Method:** ASTM D570

**Scope:** Water absorption is used to determine the amount of water absorbed under specified conditions. Factors affecting water absorption include: type of plastic, additives used, temperature and length of exposure. The data sheds light on the performance of the materials in water or humid environments Some polymers have a natural tendency to absorb water. Indeed, superabsorbent polymers are gaining traction in advanced application in medical, construction etc., however at the same time, absorption capacity of thermoplastics lead to several **changes w.r.t processing and properties.   
  
Moisture/water absorption** is the capacity of a plastic or a polymer to absorb moisture from its environment. Absorbed moisture has been shown to act as a plasticizer, reducing the [glass transition temperature](https://omnexus.specialchem.com/polymer-properties/properties/glass-transition-temperature?src=omproperty) and strength of plastic – which is a reversible effect. However, absorbed water also can lead to irreversible degradation of the polymer structure. Some of the known effects include:Dimensional & mass changes (e.g. swelling) caused by water absorption; extraction of water-soluble components and changes in mechanical (elasticity, tensile strength, impact strength) and electrical performance

**Procedure:**

* For the water absorption test, the specimens are dried in an oven for a specified time and temperature and then placed in a desiccator to cool.
* Immediately upon cooling the specimens are weighed.
* The material is then emerged in water at agreed upon conditions, often 23°C for 24 hours or until equilibrium.
* By finding increase in weight the % water absorption is tested.

**Result:** The percentage of water absorption is ------------