EXPERIMENT 1

Determination of particle size and particle size distribution using the sieving method.

**AIM:** To determine the average particle [size and find out their distribution pattern for the given granules by sieve analysis](https://pharmacyinfoline.com/size-analysis-sieving/) method.

**PRINCIPLE:**

Sieve method gives sieve diameter, sieve diameter is defined as the diameter of the sphere that possess through the sieve aperture as the asymmetric particle sieve method directly give weight distribution. Particles having size range from 50 and 1500µm are [estimated by sieving method](https://pharmacyinfoline.com/stimation-of-hemoglobin/). The sieving method finds application in dosage and development of tablets and [capsules](https://pharmacyinfoline.com/capsules/). Normally 15 percent of fine [powder](https://pharmacyinfoline.com/powders/) (passed through mesh 100) should be present in granulated material to get a proper flow of material and achieve good compaction in tableting. Therefore, percent of coarse and fine can be quickly estimated. Sieves for [pharmaceutical testing](https://pharmacyinfoline.com/emulsion-identification-tests/) are constructed from wire cloth with square meshes, woven from wire of brass, bronze, stainless steel or any other suitable material.

**Advantages of sieving method**

1. It is in expensive, sample and rapid with reproducible results.
2. Sieving method is useful when particles are having size range between 50 and 1500µm.

**Disadvantages of sieving method**

1. Lower limit of the particle size is 50 µ m.
2. If the powder is not dry, apertures become clogged with particles leading to improper sieving.
3. During shaking, attrition occurs causing [size reduction](https://pharmacyinfoline.com/size-reduction-mcq/) of particles. This leads to errors in estimation.

**Factors influencing the sieving method**

Factors influencing sieving are weight of sample, duration of shaking and type of motion. The types of motion influencing sieving are vibratory motion, (most efficient), side tap motion, bottom pat motion, rotary motion with tap and rotary motion. The type of motion standardized. Care should be taken in order to get reproducible results.

**PROCEDURE:**

1. Standard sieves set is selected (sieve no: 10, 22, 36, 44, 65, 80, 100,120) arrange them in such manner that the coarsest remains at the top and finest at the bottom.
2. Weigh approximately 50g of sample place the sample on the coarsest sieve no.10.
3. Fix the above sieves set on hand sieve shaker and shaken for 20 minutes.
4. Collect the Sample retained on each sieve into a paper, weigh all the ample.
5. [Report the weights retained on each sieve in the table](https://pharmacyinfoline.com/exporting-tables-queries-reports-web-pages/) against corresponding sieve number.

**REPORT:**

The average diameter of the given granules was found to be 493.47µm.