1. **Partical size and shape determination:**

Powders and granules are essential raw materials and intermediates in the manufacture of many different products across diverse industries, including food, pharmaceutical, consumer products and specialty chemicals. The particle characteristics of these materials can have a direct influence on the process ability and hence the quality and performance of the resulting product.

Size affects the average weight of tablet, disintegration time, weight variation, friability, flow ability and drying rate. The size and shape depends upon processing requirements during granulation. The methods for determining size and shape are:

- Sieving
- Sedimentation rate
- Microscopy (SEM)
- Light Scattering

**Sieving:**

A sieve or sifter is a device for separating wanted elements from unwanted material or for characterizing the particle size distribution of a sample, typically using a woven screen such as a mesh or net or metal. And the process to separate particles according to size is called sieving.

The particles of pharmaceutical powders and granules may range from being extremely coarse, about 10 mm (1 cm) in diameter, to extremely fine, approaching colloidal dimensions of 1 μm or less.

**USP criteria:**

In order to characterize the particle size of a given powder, the United States Pharmacopeia (USP) uses these descriptive terms:

- **Very coarse** (No. 8): All particles pass through a No. 8 sieve and not more than 20% pass through a No. 60 sieve