

Graduating Sieve Set

Principle:

A set of **standardized sieves** with different mesh sizes is used to separate powders or granular materials by particle size. Combined with a sieve shaker, it helps determine **particle size distribution**.

Components:

- Multiple sieves with decreasing mesh sizes (e.g., 40, 60, 80, 100, 120)
- Sieve lids and receiver pan
- Frame to stack sieves

Material: Stainless steel mesh

Standard Operating Procedure (SOP)

1. Pre-Operation

- Ensure sieves and frame are clean and dry
- Check mesh for damage or clogging
- Select appropriate range of sieves for sample

2. Sample Preparation

- Take representative sample of powder or granules
- Avoid caking or moisture
- Weigh total sample accurately

3. Sieve Setup

- Stack sieves in **decreasing mesh size order** (largest on top)
- Place **receiver pan** at bottom
- Cover top sieve with lid

4. Operation

- Place sample on top sieve
- Shake manually or place on **sieve shaker** for specified time (10–15 minutes)
- Ensure uniform movement of particles

5. Completion

- Remove sieves carefully
- Weigh material retained on each sieve
- Record particle size distribution and calculate cumulative percentages

6. Cleaning & Maintenance

- Clean sieves gently using brush or compressed air
- Avoid bending or denting mesh
- Store sieves stacked to prevent damage

Applications

- Particle size analysis of powders and granules
- Quality control of herbal and pharmaceutical powders
- Formulation research and development
- Teaching laboratories

Precautions

- Use representative sample only
- Avoid overloading sieves
- Handle mesh carefully to prevent damage
- Store in dry place to avoid corrosion