

Friability Test Apparatus

Principle:

Determines the **mechanical strength** of tablets by measuring the **weight loss** after subjecting them to **abrasion and shock** in a rotating drum. Friability indicates tablet durability during handling and transportation.

Components:

- Rotating drum (25–30 rpm)
- Sample container / drum with baffles
- Digital / manual timer
- Balance (sensitive up to 0.01 g)

Standard Operating Procedure (SOP)

1. Pre-Operation

- Ensure drum is clean and dry
- Calibrate balance
- Select 10 tablets (or as per pharmacopoeial requirement)

2. Sample Preparation

- Weigh tablets accurately and record initial weight (W_0)
- Remove any broken or chipped tablets

3. Test Procedure

- Place tablets in drum
- Rotate at 25 rpm for 4 minutes (or 100 revolutions)
- Remove tablets carefully
- Dedust by gentle tapping
- Weigh remaining tablets (W_f)

4. Calculation

$$\text{Friability (\%)} = [(W_0 - W_f) / W_0] \times 100$$

- Typically, <1% weight loss is acceptable

5. Completion

- Clean drum and baffles
- Store instrument in dry place

Applications

- Quality control of tablets
- Evaluation of tablet mechanical strength
- Research & teaching laboratories

Precautions

- Use only intact tablets
- Avoid overloading the drum
- Ensure rotation speed is correct
- Clean instrument after each use