

BULK DENSITY TESTERS

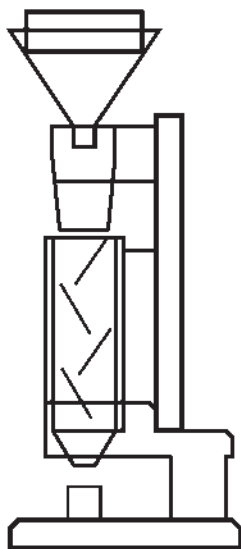
The bulk density of powders can be extremely difficult to measure since the slightest disturbance may result in a change in the results.

This is the result of the relationship between the particles that constitute the powder bulk. This same relationship affects the ability of the powder to flow.

The **bulk density** of a powder may be described as the density of the powder "as poured" into a measuring vessel.

Tapped density, on the other hand, is the density attained after "tamping down". This is normally measured using an instrument that lifts and then drops a measuring cylinder containing the powder through a fixed distance (see the Tapped Density Tester described on Page 65).

A comparison of the bulk and tapped densities of powders can give an indication of the type of interaction present between the various particles making up the powder mass



Schematic of Scott Volumeter ▲

and hence provide an index of powder flowability (see **Compressibility Index** and **Hausner Ratio** described on the next page).

THE SCOTT VOLUMETER

The **Bulk Density Tester (Scott Volumeter)** is described in **USP Chapter <616> Method 2** and **European Pharmacopoeia Chapter 2.9.34** and is designed for measuring the **bulk density of fine powders** and similar products.

CONSTRUCTION

The apparatus comprises:

- A stainless steel top funnel having an integral 18-mesh stainless steel screen
- A baffle box containing four glass baffle plates over which the powder slides and bounces as it passes
- A stainless steel bottom funnel to direct the powder into the receiving cup
- A cylindrical receiving cup having a capacity of 25 +/- 0.05 mL
- A stand to support the apparatus and its constituent parts.

An alternative funnel having an integral 10-mesh screen is available on request.



▲ 18-mesh and 10-mesh screen filter inserts



Scott Volumeter ▲

MODE OF OPERATION

- 1) Weigh the empty receiving cup and place it in position
- 2) Slowly pour the powder through the upper funnel until it overflows the receiving cup. (Note: Use a minimum of 35 cm³)
- 3) Level the top of the receiving cup with a spatula such that it is completely full being careful not to compress or shake the powder
- 4) Re-weigh the receiving cup and its contents
- 5) Calculate the bulk density in terms of grams per mL by dividing the weight of the powder by the volume of the cup

Cat. No. Description

6301	Scott Volumeter with 18-mesh screen (USP <616> Method 2)
6302	Alternative filter insert with 10-mesh screen
6303	Volume Certification of the Receiving Cup
6305	Spare Receiving Cup
6306	Spare Set of Glassware (4 x Baffles + 1 Front and Rear Plate)