
EXPERIMENT 2 BULK DENSITY

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2.1 INTRODUCTION

It is the weight of the food material in a unit volume. It is of importance in the packaging, handling and other operations.

Objective

After studying this experiment, you should be able to:

- determine the bulk density of the food material.

2.2 EXPERIMENT

2.2.1 Principle

The finely ground material is filled in a container of known volume, and its weight is measured. The mass per unit volume is bulk density. It should be in kg per cubic meter.

2.2.2 Requirements (Equipment/Machinery/Instrument and Chemicals/Material)

- Measuring cylinder (250 ml capacity)
- Analytical balance (Least count 0.001 g)

2.2.3 Procedure

- Weigh a 250 ml capacity measuring cylinder (Say W1).
- Fill the pre-weighed measuring cylinder with finely ground vegetable/fruit sample (30-mesh size) up to the 100 ml mark.
- Weigh the filled cylinder with sample (Say W2).
- Repeat above steps with two more lots of the same sample.

2.2.4 Observations

Parameters	Sample number		
	1	2	3
Weight of empty cylinder (W1), g			
Weight of cylinder + sample (W2), g			

2.2.5 Results

Calculate bulk density using the formula given below. Take the average of three values and report the results in kg/m^3 .

$$\text{Bulk Density} = (W2 - W1) \times 10$$

2.3 PRECAUTIONS

- Filling of the cylinder up to 100 ml mark should be accurate.