



DESCRIPTION

The bulk density, the tapped (or tap) density and the Hausner ratio measurement is very popular for powder characterization because of both the simplicity and the rapidity of the measurement. Moreover, the density and the ability of a powder to increase its density are important parameters for storage, transportation, caking, etc. This simple test has three major drawbacks. First, the result of the measurement depends on the operator. Indeed, the filling method influences the initial powder volume. Secondly, the volume measurements by naked eyes induce strong errors on the results. Finally, with this simple method, we completely miss the compaction dynamics between the initial and the final measurements. Nowadays, with the GranuPack instrument these issues won't happen anymore.

PRINCIPLE

GranuPack instrument is an automated and improved tapped density measurement method based on recent fundamental research results. The behaviour of the powder submitted to successive taps is analysed with an automatized device. The Hausner ratio H_r , the initial density and the tapped density are measured precisely (0.4% of accuracy). Moreover, a dynamical parameter $n_{1/2}$ and an extrapolation of the maximum density $\rho(\infty)$ are extracted from compaction curves.

The powder is placed in a metallic tube with a rigorous automated initialization process. Afterwards, a light hollow cylinder is placed on the top of the powder bed to keep the powder/air interface flat during the compaction process. The tube containing the powder sample rose to a fixed height of ΔZ and performs free falls. The free fall height is generally fixed to $\Delta Z = 1\text{mm}$ or $\Delta Z = 3\text{mm}$. The height h of the powder bed is measured automatically after each tap.

KEY BENEFITS

- › Measurement is simple, fast and intuitive.
- › The intuitive software calculates and reports physical data. The results obtained under various conditions can be compared. All data are automatically collected and stored for post processing. Easy data transfer and automatic report generation.
- › Closed system for safety requirements.
- › Size compatible with hood or confined enclosure.
- › Recorded standard operating procedures increase the repeatability of measurements

DIFFERENTIATORS

- › It is in agreement with the European pharmacopeia.
- › The sample cell is easy to fill and clean.
- › It provides information about the trapped and released air and compressibility behaviour.
- › The system is particularly robust.

APPLICATIONS

- › Perfect tool to highlight difference between one batch of powder to another.
- › The compaction kinetics allows to select the best powder for a tableting/compaction process.
- › Due to its extremely high accuracy (0.4% for metals and 0.6% for excipients) powders flowability/compressibility classification can be easily achieved. This is the most precise test to characterize collective grains behaviour.

OPTIONS

- › Extra measurement cells for small samples.
- › Reduced intensity tap.
- › Calibration kit.

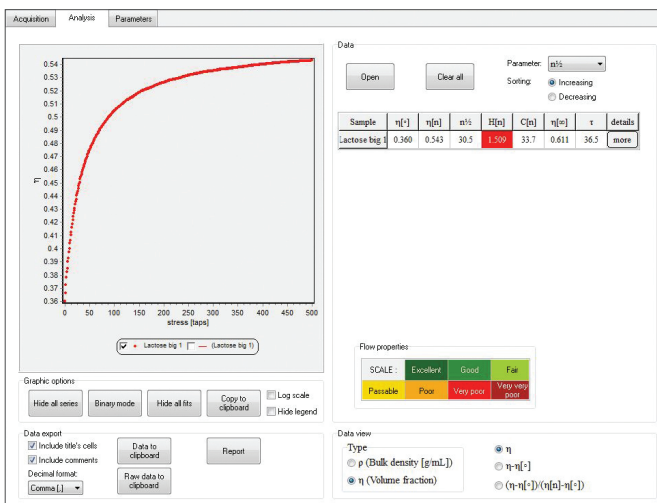
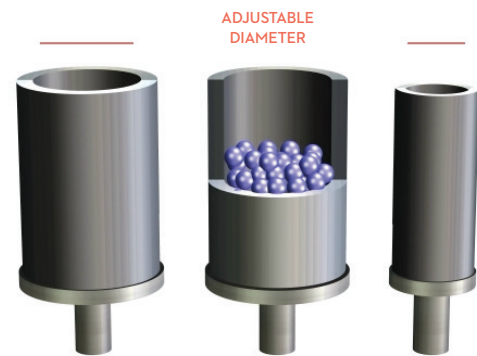
GRANUPACK™

HIGH RESOLUTION TAPPED DENSITY ANALYZER
AUTOMATED TAPPED DENSITY AND COMPACTION KINETICS MEASUREMENTS



GRANUPACK SPECIFICATIONS

DIMENSIONS LxWxH (mm)	390x350x680
WEIGHT (kg)	15
TAP INTENSITY (α FREE-FALL)	1 or 3mm
TAP FREQUENCY	Between 500ms to 10s
MAXIMUM CELL SIZE (ML)	40
MINIMUM SAMPLE VOLUME (ML)	10
COMPUTER REQUIREMENTS	Dual core with 2.0GHz, 4Go RAM, Windows XP to 10 with up to date Service Packs
CONNEXION	USB 2.0 port



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