



## DESCRIPTION

When a powder is poured onto a surface, a heap is formed. It is well known that both the repose angle and the heap shape strongly depend on grain properties. In particular, a cohesive powder forms an irregular heap while a non-cohesive powder forms a regular conical heap. Therefore, a precise measurement of the heap shape provides useful information about the physical properties of the powder sample.

## PRINCIPLE

GranuHeap instrument is an automated heap shape measurement method based on image processing and analysis. A powder heap is created on a cylindrical support with an initialization tube. After filling the initialization tube by hand with a fixed volume of powder, the tube goes up at the constant speed. Thereby, the powder is flowing from the tube to form a heap on the cylindrical support. A controlled rotation of the support allows obtaining different heap projections corresponding to different heap orientations. A custom image recognition algorithm determines the position of the powder/air interface. The repose angle refers to the angle of the isosceles triangle with the same surface than the powder heap projected image. This isosceles triangle corresponds to the ideal cohesiveness heap shape. The repose angle is computed for each image, i.e. for each heap orientation. Afterward, an averaged value is computed. In general, the lower the repose angle is, the better the powder flowability is. The deviation between the real heap interface and the isosceles triangular heap provides the static cohesive index, which is computed for each image, i.e. for each heap orientation. This static cohesive index is close to zero for a non-cohesive powder and increases when the cohesive forces inside the powder strengthen.

## KEY BENEFITS

- › Measurement is simple, fast and intuitive.
- › Delivered with intuitive software, both average and variance are easy to access and allows the comparison of results. Accessibility is password protected. All pictures and 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 that increase measurements repeatability.

## DIFFERENTIATORS

- › Fully automatic.
- › High measurement reproducibility due to rotational method.
- › Easy cleaning by design using a collecting container under the heap.
- › Calibration kit.

## APPLICATIONS

- › Easy and fast flowability classification between powders.
- › Perfect tool for the galenic formulation, that helps to detect problematic samples before their introduction inside the process.

## OPTIONS

- › Extra cells for small samples and adapted support.
- › Special Pharma and Precious metal pack for ultra-small samples (4ml).

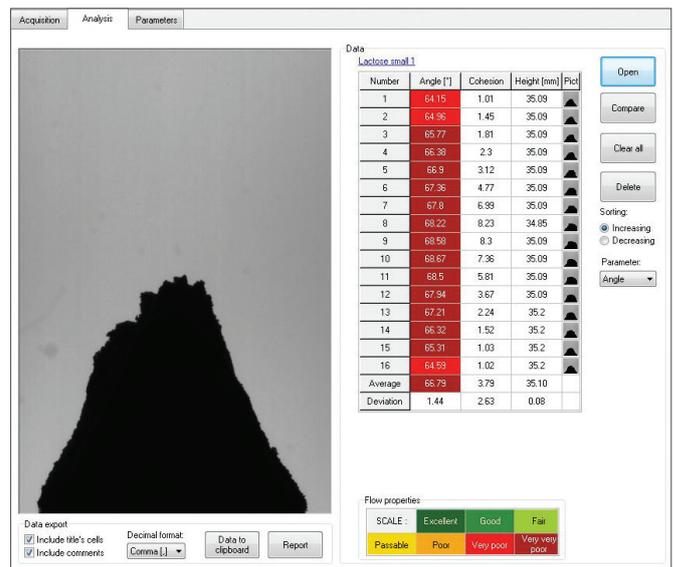
# GRANUHEAP™

HIGH RESOLUTION ANGLE OF REPOSE ANALYZER  
AUTOMATED ANGLE OF REPOSE AND COHESIVE INDEX MEASUREMENTS



## GRANUHEAP SPECIFICATIONS

Dimensions L x W x H (mm)	560x360x570
WEIGHT (kg)	18
SAMPLE VOLUME (ml)	From 4 to 80ml
CAMERA	USB 2.0. Monochrome CMOS Camera
LIGHT SOURCE	LED Screen background lighting
FRAME RESOLUTION	400 x 600 pixels
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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