

## Nuts, Granulated Chocolate, Coconut Flakes

### Size analysis of ingredients for sweets / confectionary

#### Application

The food industry has very strict regulations for the quality control of raw materials as well as final products. This relates not only to their chemical composition and biological aspects but also to the particle size. Size analysis and control of the product appearance is carried out in almost every production



facility, as the particle size and shape not only influence the final products, but are also important indicators for the production process itself.

#### Demands of quality assurance

Analyzing the size of ingredients for sweets is very important, since it has a great influence on the taste or the appearance of the final product. Important criteria of a sound quality analysis are e.g. that it has to be reliable, fast, automated, and operator-independent. Traditionally size analysis is conducted by

sieve analysis which has a lot of disadvantages like abrasion, insufficient resolution and high labour costs.

For example, the results of manual sieving of hazelnuts depend strongly on the operator and are not at all reproducible.

#### Solution

The CAMSIZER® is able to measure the samples **without abrasion and with negligible dust emission**. Furthermore, the measurement itself is **faster, easier, more accurate** and delivers **more precise information** concerning the size

and shape of the samples. Fig. 1 shows the excellent compliance of CAMSIZER® and sieve results and the perfect reproducibility of CAMSIZER® measurements.

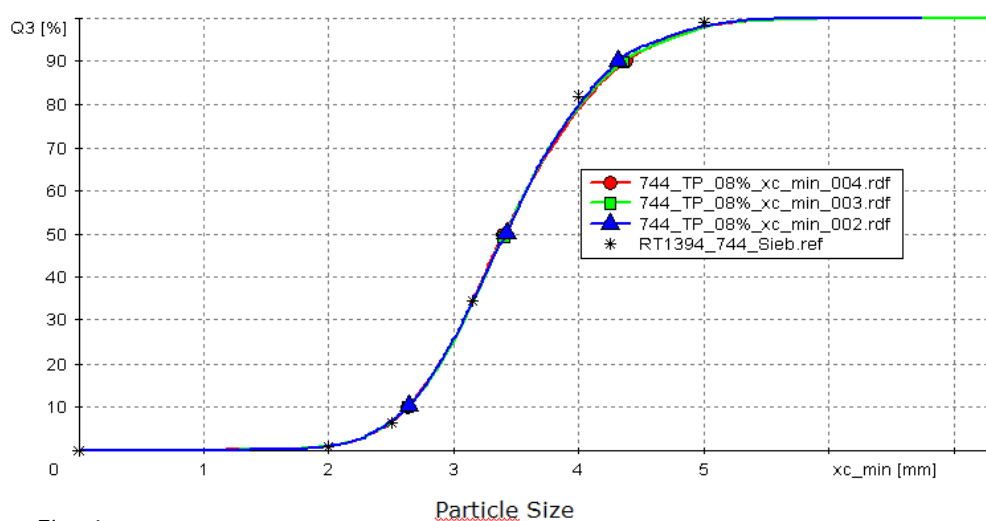


Fig. 1  
Excellent compliance of sieving results (black asterisks) and Camsizer® results (red/green/blue), perfect reproducibility between the three Camsizer® measurements.  
Sample: chopped hazelnut with sugar coating.

**CAMSIZER® - Benefits at a glance**

- much faster than hand measurement
- less manpower required
- larger sample quantities provide better statistics
- more objective
- high sample throughput
- excellent reproducibility
- no abrasion, non-destructive measurement
- Fully automated, with AutoSampler
- Measurement of particle shape and density
- easy to use, different software levels enable operation by unskilled personnel
- maintenance free, robust design



Fig. 2  
CAMSIZER® with Autosampler

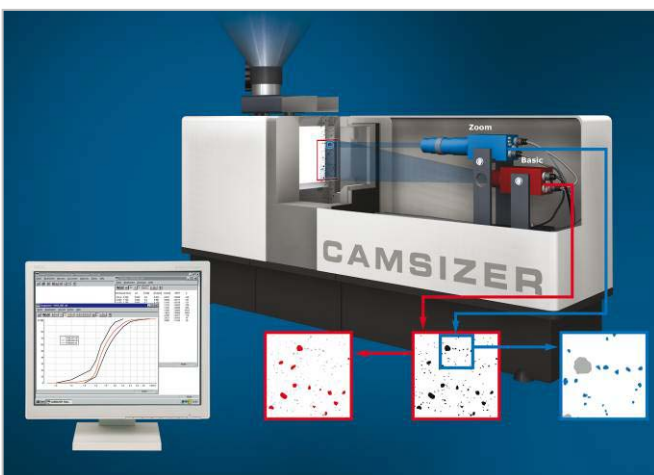
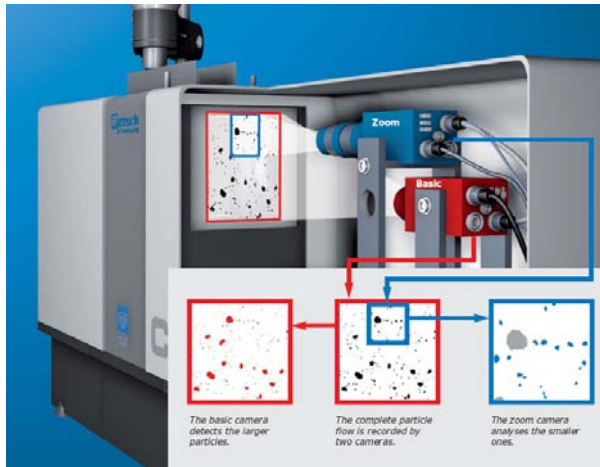


Fig. 3  
CAMSIZER®:  
two camera system

## Measuring Principle



The patented measuring setup of the CAMSIZER – two digital cameras as an adaptive measuring unit – improves and optimises particle analysis by digital image processing. Therefore, it is possible to measure a wide range of particles from 30  $\mu\text{m}$  to 30 mm with extreme accuracy, **without having to switch measuring ranges or make adjustments**. The sample is fed in from the feed channel so that all particles fall through the measurement field. During the measurement procedure the two digital cameras (CCD) perform different tasks. The basic camera (CCD-B) records large

particles, the zoom camera (CCD-Z) records the small ones. The contact-free optical measurement is carried out in real time and simultaneously obtains all the required information about particle size and particle shape. A modularly configurable online version of the instrument has been developed to allow automated measurements to be conducted continuously.

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