

Food Powder



The unbeatable team for food powder characterization



PRACTICAL IMPACT

Modern foods often consist of or utilize powders, e.g. ground grains, flavorings and preservatives. It is essential that manufacturers recognize the behavior of food powders, like if and how much a powder will cake, to avoid handling or silo discharge issues. Often the production processes demand completely contradictory behaviors. In all phases of the production process – from raw ingredients to final products – understanding the characteristics of food powders can save costs, expedite production, and ensure the quality of taste and texture.

MCR powder rheology

Measure powder flow properties

What does that mean for your food product?

Knowing and controlling the powder properties that count is essential for the quality of a food product. The powder cells from Anton Paar give you the necessary tools to analyze your food powder under any temperature and humidity conditions in order to understand the powder's behavior during processing and storage. This will help you to positively influence the quality of your product.

Main features

MCR rheometer with a powder flow cell and a powder shear cell

- The highest sensitivity and absolute results in a short amount of time
- Easy, safe, and clean sample handling and preparation
- Precise temperature and humidity control
- Modular rheometer concept for fluidized and consolidated powders as well as suspensions and solids (with other MCR accessories)



PRACTICAL IMPACT

Laser diffraction is used to characterize the particle size (typically micron size or above) of larger food powders such as flour, coffee, or milk powders. It is an easy, quick, and highly reproducible method for checking the quality and processing behavior. Dynamic light scattering enables the optimization of formulation instructions and nutrient content for smaller particles (typically nanometer size) in emulsions. For example, the fat droplets' size strongly influences the texture, mouthfeel, and flow behavior of milk. Additionally, a suspension's stability is triggered by the zeta potential (determined with electrophoretic light scattering).

The PSA and Litesizer series

Measure particle size and zeta potential

Knowing and controlling the particle size of powders and dispersions is key to understanding the important characteristics – such as stability – of raw materials as well as final food products. The wide size range covered by Anton Paar instruments enables you to investigate these properties for many common food products and to improve, produce, and deliver your food products with consistently high quality.

PSA series

- Multiple-laser technology for a wide range of particle sizes
- Measures powders in dry form or dispersed in any suitable liquid – both with just one setup
- Accurate and repeatable size distribution of powder particles
- Stability for a lifetime – permanent alignment and no glass elements in dry dispersion

Litesizer series

- Accurate and highly reproducible measurements of particle size and zeta potential of food suspensions
- Customized reports, data security, audit trails, and user management functions
- Measurement series shows how particles change with time, temperature, pH, or concentration



PRACTICAL IMPACT

Food formulation, manufacturing, and packaging processes involving both powder and fragmentary forms require batch-to-batch consistency to ensure excellent expected texture and taste in the final product.

Autotap and Ultrapyc 5000

Measure solid density

The Autotap solid density analyzer provides a definitive measure of compressibility to help inform intelligent packaging decisions such as container size and shape, as well as the amount of food product shipped.

Measuring the true density with the Ultrapyc 5000 indicates textural properties and give confidence that you are delivering food products with the exact mouthfeel customers have come to know and enjoy.

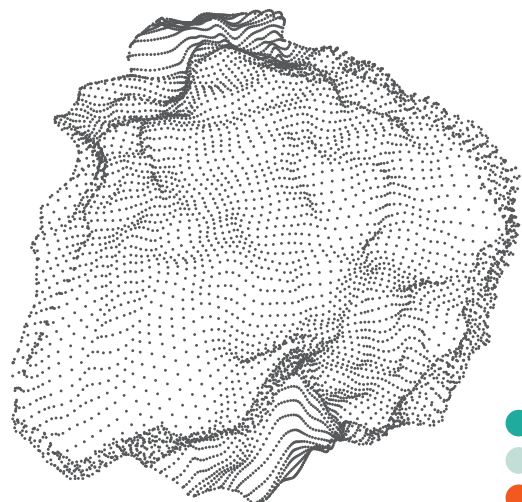
Autotap

- Easy to use, incorporating a high degree of automation
- Compliant with most internationally recognized standard methods
- User-selectable, lockable number of taps provides reproducible test method parameters

Ultrapyc 5000

- TruPyc technology for accurate results over the widest available sample range
- TruLock lid delivers unmatched repeatability
- Peltier temperature control provides stability of better than ± 0.05 °C
- PowderProtect mode for safely measuring fine powders

The portfolio for food powder characterization



- **PARTICLE SIZE**
- **ZETA POTENTIAL**
- **DENSITY**
- **POWDER FLOW PROPERTIES**

	TECHNOLOGY	MEASUREMENT RANGE
● MCR POWDER FLOW CELL	MULTIPLE POWDER FLOW MEASUREMENT METHODS RHEOLOGY	5 nm to 5 mm
● MCR POWDER SHEAR CELL	SHEAR TESTING	
● PSA 1090	LASER DIFFRACTION	0.1 µm to 500 µm (dry) 0.04 µm to 500 µm (wet)
● PSA 1190	LASER DIFFRACTION	0.1 µm to 2500 µm (dry) 0.04 µm to 2500 µm (wet)
● PSA 990	LASER DIFFRACTION	0.3 µm to 500 µm (dry) 0.2 µm to 500 µm (wet)
● LITESIZER 100	DYNAMIC LIGHT SCATTERING	0.3 nm to 10 µm
● ● LITESIZER 500	DYNAMIC LIGHT SCATTERING (DLS) ELECTROPHORETIC LIGHT SCATTERING (ELS) STATIC LIGHT SCATTERING (SLS)	0.3 nm to 10 µm (DLS) 3.8 nm to 100 µm (ELS)
● AUTOTAP AND DUAL AUTOTAP	BULK DENSITY	1 cc
● ULTRAPYC 5000	GAS PYCNOMETRY	1 cc

PARTICLE SIZE RANGE

VOLUME RANGE

