

Laboratory Services



Material Science

▪ Laser Diffraction Particle Sizing

High-resolution particle size distribution from 0.45 to 875 μm by dry-dispersed laser diffraction (HELOS/KR), compliant with ISO 13320:2020, to support robust formulation and process design.

▪ Dynamic Image Particle Characterization

Particle size and shape factor distribution from 2 to 4000 μm by dry-dispersed dynamic image analysis (QICPIC/L), aligned with ISO 13322-2:2021, to de-risk flow, blend, and dissolution behavior.

▪ Dynamic Light Scattering (DLS)

Particle size distribution from 0.3 nm to 10 μm , aligned with ISO 22412:2017 as well as Zeta Potential determination, to characterize nanoparticles and macromolecules in suspension and optimize the performance of nano-scale materials.

▪ Vibratory & Air Jet Sieving

Mass-based particle size distribution from 25 μm to 4 mm using ISO 3310-1-compliant sieves, enabling robust classification, specification setting, and quality control for powders and granules.

▪ Bulk and Tapped Density Profiling

Bulk/tapped density analysis with Pharmatest PT-TD 200, compliant with USP <616> methods 1 and 2, EP <2.9.34> and DIN 53194, to optimize fill performance and dosage form uniformity.

▪ Powder Flow and Rheology

Advanced powder flow characterization with the FT4 Powder Rheometer, including automated shear cell tests per ASTM D7891, to predict handling, feeding, and scale-up performance.

▪ Skeletal Density by Helium Pycnometry

High-precision true density determination with Accupyc II 1340, compliant with ISO 12154 and USP <699>, enabling accurate porosity and solid-state assessments.

▪ Surface Area (BET/Langmuir)

Multipoint nitrogen adsorption according to ISO 9277 to determine BET or Langmuir surface area, supporting dissolution, stability, and performance optimization.

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▪ Loss on Drying Moisture Analysis

Rapid moisture content assessment from 40 to 230 °C with the HC103 moisture analyzer, enabling tight control of drying processes and solid-state stability.

▪ Karl Fischer Water Determination

Sensitive coulometric water content analysis with KF7500trace, providing precise low-level moisture data for hygroscopic and critical materials, according to USP <921>.

▪ Liquid Density Measurement

Accurate liquid density determination from 20 to 70 °C by oscillation measurement with DSA 5000M, supporting formulation design and process engineering.

▪ Vapor Sorption Profiling

Gravimetric vapor uptake and kinetics with the Dual Vapor Gravimetric Sorption Analyzer, characterizing hygroscopicity and guiding packaging and stability strategies.

▪ Rheology and Viscosity Mapping

Viscosity and flow behavior of liquids, gels, and pastes using plate–plate or cone–plate geometries on the MCR302, from 20 to 200 °C and varying shear rates, to tune processability and performance.

▪ DSC for Melting and Polymorphs

Differential scanning calorimetry with NETZSCH 204 Phoenix for melting point, melt/crystallization enthalpy, and polymorph characterization, de-risking solid-state transitions and stability.

▪ DSC Heat Capacity Analysis

Specific heat capacity determination by DSC with NETZSCH 204 Phoenix, informing thermal design, processing windows, and stability assessments.

▪ Small- and Wide-Angle X-Ray Scattering (SWAXS)

Nano- to micro-structure analysis with SAXS S3 Micro Hecus, equipped with point collimation, Kratky camera, and position-sensitive detectors, to elucidate morphology, aggregation, and structural order.