



Laser Diffraction

Spray particle and droplet size distributions
Dry powder Inhaler
DPI particle size distribution

Powder rheology

Flow properties and compressibility
Manufacturability of powders

XRD

Crystalline phase identification
(polymorphs, hydrates, solvates, etc.)

DSC/TGA

Thermal stability and purity
Thermal decomposition and degradation
Moisture content

Optical tensiometry

Hydrophobicity of powders and tablets
Surface and interfacial tension - contact angle

High pressure omogenization

Production of stable nanoemulsions, nanoencapsulation
Particle size reduction in suspensions
Cell lysis

Light Scattering - DLS/SLS

Liposomes, LNPs, colloids, nanoparticles
size distribution and zeta potential

Rotational rheology

Viscosity, flow behaviour, thixotropy and
other viscoelastic properties

Static Multiple Light Scattering

Formulation stability
Fast and no-dilution shelf-life

Helium picnometry

True density of powders, API and excipients

Gas physisorption

BET surface area, porosity
adsorption capacity

XRF

Elemental analysis of pharmaceutical
products, impurities, packaging

Scannign Electron Microscopy

Size, shape, surface morphology
Microstructure and elemental analysis
of API, excipients and impurities

Dynamic image analysis

Particle size and shape of powders or pellets

MDRS - Static automated image analysis

Size, shape and chemical identification of particles (API)
inside a mixture of powders or in liquid dispersion
Polymorphs identification, troubleshooting

Laser Diffraction

Particle size of powders, emulsions and liquid dispersions

Size Exclusion Chromatography

Molecular weight distribution and structural integrity
of polysaccharides, biopharmaceuticals,
polymers and other macromolecules



**solid state
&
powders**

**liquids
&
semi-solids**