

Advanced Materials characterization toolbox

product – measurement – technology – applications – features

Laser diffraction Light scattering Imaging Near Infra-red X-ray fluorescence X-ray diffraction Sample preparation

Particle size distribution, shape and concentration

Particle size, shape, chemistry, concentration, molecular weight, Formulation stability and intrinsic viscosity













Product	Mastersizer 3000+	Hydro Insight	Spraytec	Insitec	Morphologi 4/4-ID	Zetasizer Advance	NanoSight Pro	Product
What does it neasure?	Particle size	Particle size, shape, appearance	Particle size	Particle size	Chemical identification, Particle shape, Particle size	Zeta potential, Particle size, Particle concentration, Molecular size, Molecular weight, Protein mobility	Particle concentration, Particle size	What does it measure?
Fechnologies Ised	Laser Diffraction	Dynamic imaging	Laser Diffraction	Laser Diffraction	Image Analysis, Raman Spectroscopy	Dynamic Light Scattering, Electrophoretic Light Scattering, Static Light Scattering	Nanoparticle Tracking Analysis	Technologie used
What is it used for?	 Measuring the size distribution of suspensions, emulsions and dry powders from 10nm to 3500µm Controlling powder properties such as wettability, bulk density, powder flow and solubility Optimizing suspension and emulsion rheology Automated particle size distribution (PSD) measurements 	 Sits alonside Mastersizer 3000+ collecting images of particles Providing quantitative information about particle size and shape covering the size range from 1µm to 800µm Helps in method design and simplifies troubleshooting 	 Measuring the size distribution of sprays and aerosols from 0.1µm to 2000µm Defining the deposition pattern and bioavailability of drug materials delivered using pump sprays and inhalers Understanding the environmental impact of spraying in coating consumer or agrochemical applications Resolve the fluctuations in droplet size during the rapid firing of automotive fuel injector systems 	 Online continuous particle size analysis needed for efficient, cost-effective monitoring and control of industrial processes Suitable for the widest variety of process streams from dry powders to hot sticky slurries, sprays and emulsions, whether milligrams of material or hundreds of tonnes per hour Insitec systems measure particles in the size range 0.1 micron to 2.5 mm 	 Size measurement of non-spherical particles such as needle shaped crystals from 0.5µm to 1000µm Measurement of shape differences where particle size alone does not allow differentiation Detection and enumeration of agglomerates, oversized particles and contaminant particles Automation of manual methods such as microscopy Physical characterization of individual components within a mixture Cross-validation of particle size measurements such as laser diffraction 	 Measuring the size of colloids, nanoparticles and molecules in solution from 0.6nm to 15µm Determining the molecular weight of polymers and proteins Optimizing and predicting dispersion stability of colloids and biomolecules Monitoring molecular aggregation and particle flocculation processes 	 Detection and visualization of nanoparticle populations on a particle-by-particle basis from 10nm to 1µm Measurement of particle size and particle concentration Tracking of aggregation and dissolution processes in real time Applications include nanotoxicology, biomarker detection and drug delivery research Fluorescence mode to provide differentiation of labeled or naturally fluorescing particles 	What is it used for?
What is special about this product?	 Quality data you can rely on Class-leading particle sizing performance with added intelligence Intuitive software with built-in expertise to guide you Flexible reporting to display your data the way you want Fast smart swap between wet and dry units Rapid and effective wet dispersion for dispersions and emulsions Fast, reliable particle size measurement of fragile and cohesive dry powders Unique adaptive diffraction to separate transient from steady state data Smart Manager Enabled 	 High-speed, high resolution dynamic imaging technology 127-frames-per-second digital camera with up to 5 megapixel resolution Imaging of individual particles and liquid particle dispersions Thumbnail images saved for post-run viewing Quantitative data on particle size and shape, including particle width and elongation data 	 Measurement across a wide size range without requiring constant optics changes Resolve rapid changes in droplet size over time, by measuring up to 10,000 measurements a second Deliver accurate, concentration-independent results using a patented multiple scattering analysis Characterize wide spray plumes without risking optical contamination Reveal dynamic changes in spray particle size through the unique size history analysis software 	 Industrially robust technologically proven measures particles in the size range 0.1 to 2500 µm delivers real-time monitoring and control Base model hardware manufactured to GAMP5 standards and compatible with CIP/SIP requirements to meet specific manufacturing specifications Easy to use software and fully automated operation to minimize training requirements and release operator time Integration with existing control platforms to simplify development of automated control protocols High reliability of >95% with little downtime, minimal maintenance and maximum ROI 	 Measures particle size, shape and chemical identity in one platform Integrated dry powder dispersion unit automates sample preparation for consistent measurements Versatile sample presentation accessories for measuring suspended and filtered samples Simple SOP operation from sample dispersion through to size, shape and chemical analysis Automatic selection, targeting and chemical classification of thousands of individual particles Powerful and intuitive software interface making both visual and statistical interpretation of your data easier than ever 	 Technologies include NIBS, M3-PALS, DLS, ELS Simplicity of operation means minimal training and robust results High sensitivity for nanoparticles, proteins, and macromolecules High optical quality and temperature control ensures accuracy and repeatability MPT-3 Autotitrator option Adaptive Correlation to enhance repeatability MADLS for angle independent size analysis with improved precision and resolution. Also used for accurate particle concentration measurements M3-PAL and constant current mode for Zeta potential to reduce errors NEW Zetasizer sample assistant to free the operator from manually changing samples 	 Simultaneous measurement of multiple characteristics Visual validation of results gives extra confidence User friendly software with easy set-up of SOPs for routine use Minimal sample preparation Automated multiple sample analysis when used with a syringe pump or autosampler Minimal consumables reduce running costs on a day-to-day basis High resolution particle sizing technique, ideal for polydisperse systems New practical and easy to use NS Xplorer software with embedded smart features 	What is spec about this product?





Molecular and crystalline structure, composition, crystalline quality

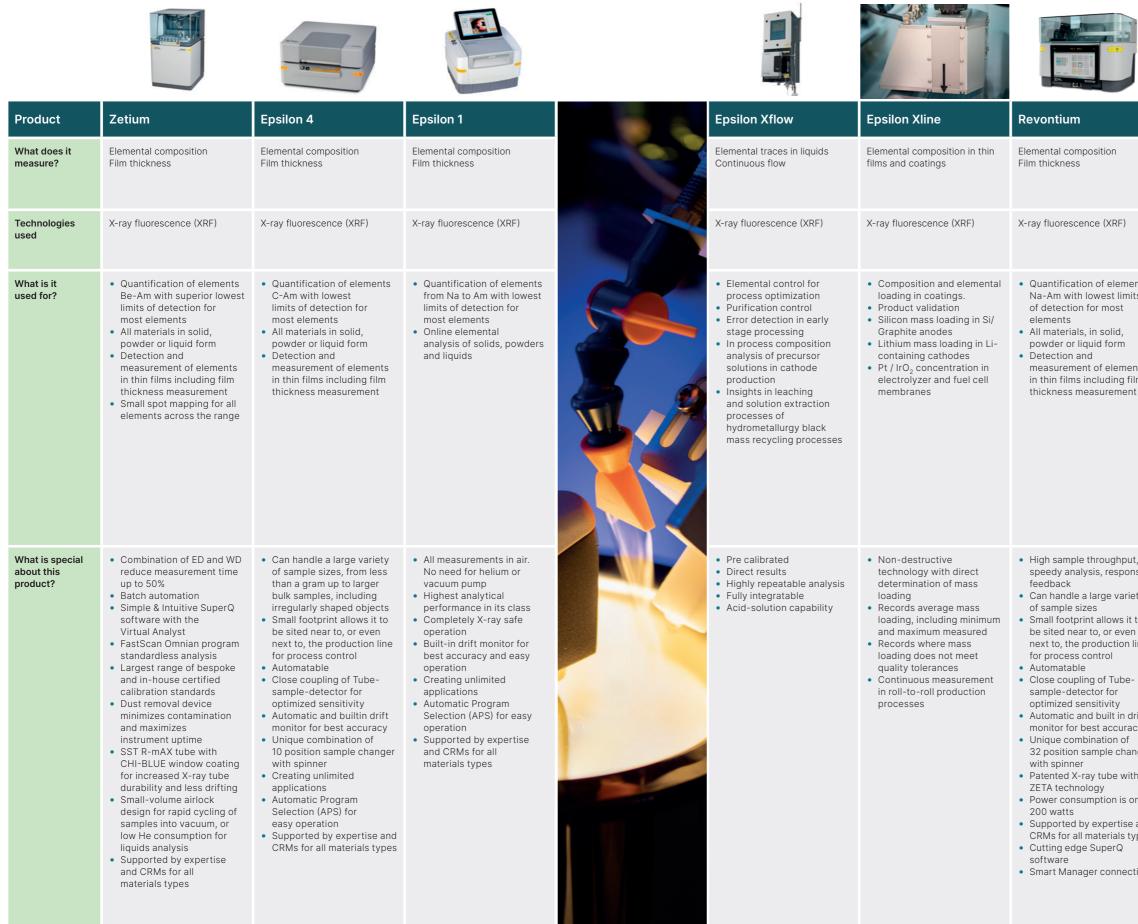
Sample preparation for XRF and ICP





LeDoser-12ProductovementAutomated sample weighing and borate flux dispensing for sample preparation by fusionWhat does it measure?High precision autonomous weighingTechnologies usedcs sis using• Eliminates repetition of operators' tasks, reduces fatigue and errors. Increases productivityWhat is it used for?dapter ructure rs: e of ted the pills zed iency pills et he mg the• Synchronizes the sample preparation process and enables the samples to be ready just in time for the subsequent fusion and analysis steps • Saves 90% of labor time related to the weighing step • Fully adaptable to your standard operating procedure (SOP)What is special about this product?pecials and automation!• Self-installedSelf-installed	-		
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	pecial	s and automation!	

Elemental composition, film thickness





	Automated sample changer	Product
1	Automated measurement system for Epsilon and Aeris instruments	What does it measure?
RF)	Robotics	Technologies used
ements limits st d, rm ements ng film ment	 100 position tray with robotic arm for continuous loading Measurement control of large sample sets 	What is it used for?
hput, sponsive variety vs it to even tion line ube- r y in drift curacy n of changer e with n is only rtise and als types Q	 Automated sample changing for up to 100 samples Ability to add samples mid-run Sample tracking and instrument control with Samtracs software Integration into larger automation systems as part of Process Automation System (PAS) projects 	What is special about this product?

Product	Automated X'Pert ³ MRD (XL)	2830ZT Wafer analyzer	Omega/Theta	SDCOM	DDCOM	Wafer XRD 200	XRD OEM	Wafer XRD 300	Product
What does it measure?	Wafer orientation and quality Thin film strain, composition Multilayer thickness Epilayer integrity	Elemental composition layer thickness	The crystallographic orientation of boules, ingots or wafers.	The crystallographic orientation of boules, ingots or wafers.	The crystallographic orientation of boules, ingots or wafers	The crystallographic orientation of wafers with a diamater of max. 200 mm	The crystallographic orientation of boules or ingots	The crystallographic orientation of 300 mm wafers	What does it measure?
Technologies used	High-resolution X-ray diffraction (HR-XRD)	X-ray fluorescence	X-ray diffraction (XRD) using the azimuthal scan and rocking curve measurements	X-ray diffraction (XRD) using the azimuthal scan and theta scan measurements	X-ray diffraction (XRD) using the azimuthal scan	X-ray diffraction (XRD) using the azimuthal scan	X-ray diffraction (XRD) using the azimuthal scan	X-ray diffraction (XRD) using the azimuthal scan	Technologies used
What is it used for?	 QC and R&D of thin film layers and substrates Semiconductor single- crystal epitaxial layers Multicrystalline electro ceramics PPM-resolution lattice parameter and lattice parameter strain measurements Monolayer precision thickness measurements epitaxial layers Phase purity and orientation distribution in sputter deposited films 	 Elemental QC of thin films (including Si and electro ceramics) Alloy composition and film thickness High precision high throughput measurement Elemental composition (for Elements heavier than Be) 	 QC and R&D measurements of the orientation of single crystals Crystal quality measurements Wafer mapping Preparing boules/ingots for cutting or grinding 	 QC and R&D measurements of the orientation of single crystals Crystal quality measurements - Wafer mapping - preparing boules/ingots for cutting or grinding QC and R&D measurements of the orientation of single crystals Crystal quality measurements Wafer mapping Preparing boules/ingots for cutting or grinding 	 QC measurements of the orientation of single crystals - Exact marking of crystallographic directions for e.g. wafer splitting 	 QC measurements and sorting of 70-200 mm diameter wafers. Measures both the crystallographic orientation and the exact size and shape of the wafer features QC measurements of the orientation of single crystals Exact marking of crystallographic directions for e.g. wafer splitting 	 In-situ orientation of boules or ingots before orientation-critical process steps like flat/notch grinding or ion implantation 	 QC measurements on 300 mm diameter wafers. Measures both the crystallographic orientation and the exact size and shape of the wafer features 	What is it used for?
What is special about this product?	 Can be used in both lab and fab versions (upgradable from lab version) Can access coplanar, skew and in-plane geometry 200mm wafer mapping capability GEN series compatible waferloading and automation Clean room ready AMASS analysis software, with 'any orientation – any spacegroup' capability The only platform that has a 180 deg Chi cradle The only platform that can reach extremely high incident angles on 8" wafers Motorized divergence and antiscatter slits for monochromators can automatedly vary the X-ray beam height Microbeam collimators can reduce the X-ray beam size to as small as 100 × 100 microns 4 detection modes fully automated 	 This tool can measure up to 300mm wafer size up to 25 wafers per hour Several channels of the same element can be equipped to boost the element sensitivity 	 Rapid crystal orientation and a very wide range of accessories for e.g. 300 mm mapping or orientation transfer 	 Rapid crystal orientation and a very wide range of accessories for e.g. mapping or orientation transfer 	 No height alignment required Small foot print Only household electrical connection required 	 Rapid semi-automated measurement of the crystallographic orientation, size and shape of wafers Measures 25 wafers in about 10 minutes 	 This tool can be mounted inside other devices, like cutting, grinding or epitaxy machines specials and auton 	 Rapid fully automated crystallographic orientation, size and shape of 300 mm wafers Designed to be integrated with the wafer frontend of e.g. epitaxy machines 	What is special about this product?





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uptime

Actionable

insights

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4.5/5 aftersales rating*

*2022 selectscience.net

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