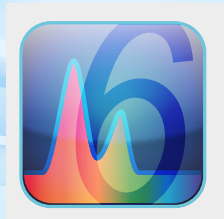
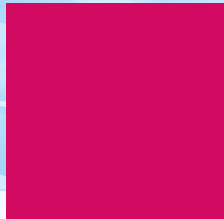
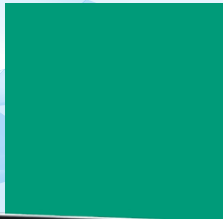
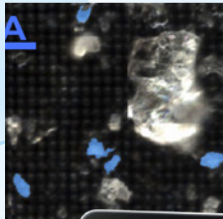
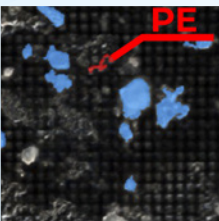
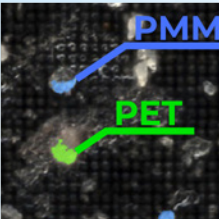
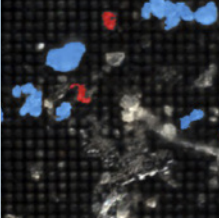


ParticleFinder™: Automatic Particle Location and Raman Chemical ID

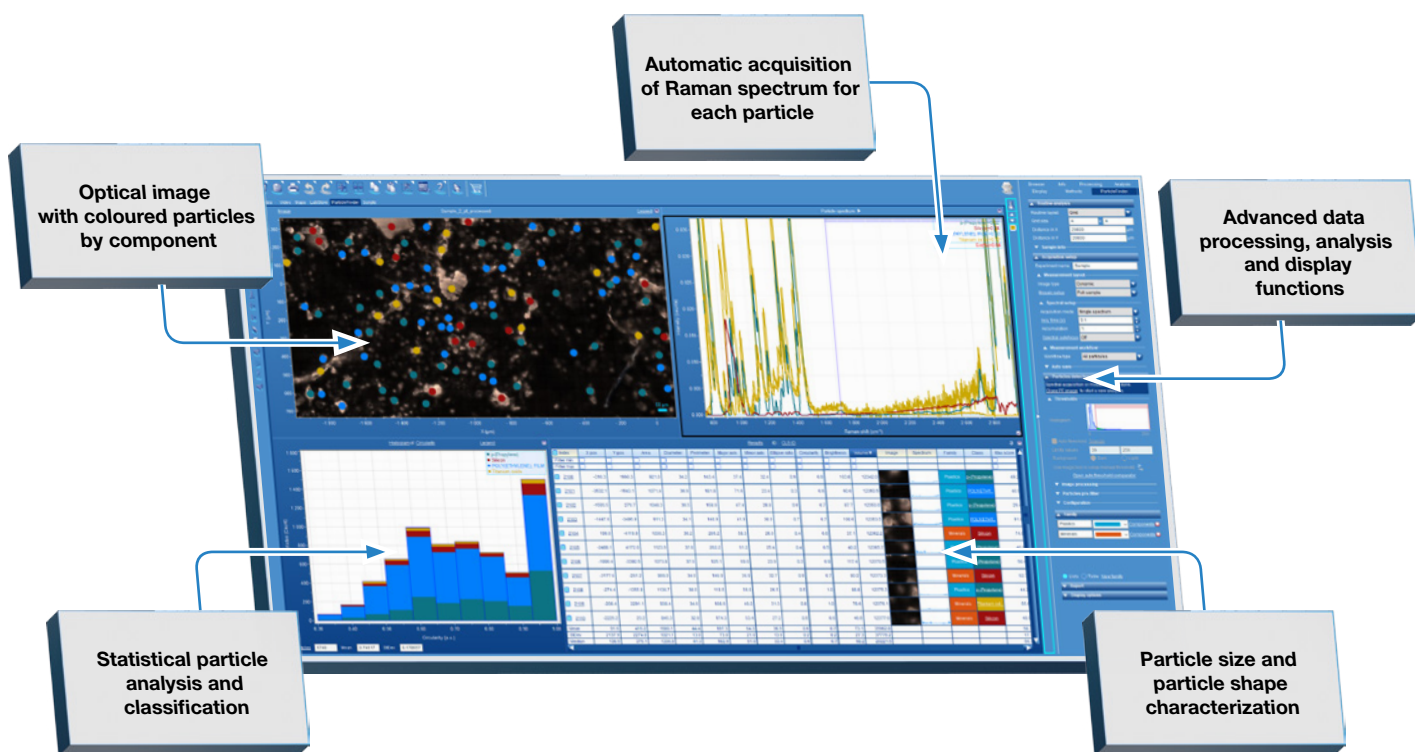


Get the full picture of your particles in seconds!



Fast, automated, and accurate method to measure, ID and classify particle samples

Particle identification and quantification is a constant challenge in various application fields. From pharmaceutical laboratories investigating APIs and excipients, to analysts identifying contaminants trapped on a filter (whether from a motor or from river water) all users need unequivocal results. Consequently, morphological data alone is not enough, and chemical composition is mandatory. Raman microscopy represents the perfect combination for both. Analysing the many thousands of particles typically present and processing the data used to be long and tedious. Now HORIBA presents a tool optimised for this work, giving you the confidence of trusted data for your particle research and analysis.



LabRAM Soleil and XploRA PLUS Raman microscope

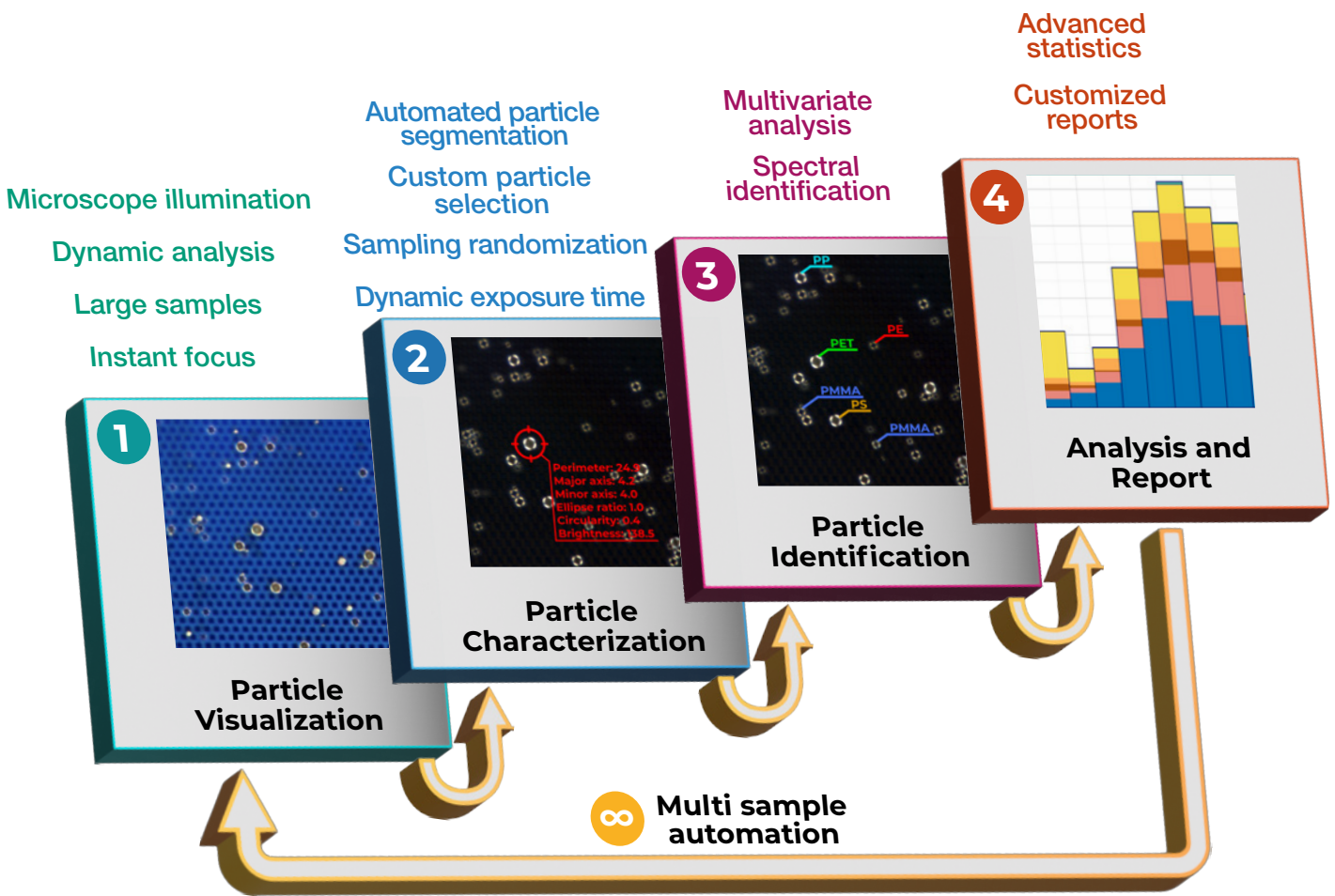
ParticleFinder is compatible with any HORIBA Raman spectrometer equipped with LabSpec 6 software, a video camera and motorized XY sample stage. With these requirements met, ParticleFinder's Raman analysis can fully exploit the unique capabilities of HORIBA's Raman systems to ensure the most appropriate chemical identification.

HORIBA ParticleFinder is a LabSpec6 application that allows detection, characterization and identification of particles for any application, including microplastics, pharmaceuticals and geology. It automates data acquisition and provides advanced statistical information and comprehensive customizable reports.

ParticleFinder's simple and powerful workflow is suitable for R&D and industrial applications, providing optimized speed and automation for routine industry-standard 24/7 measurement.



An automated workflow in four steps

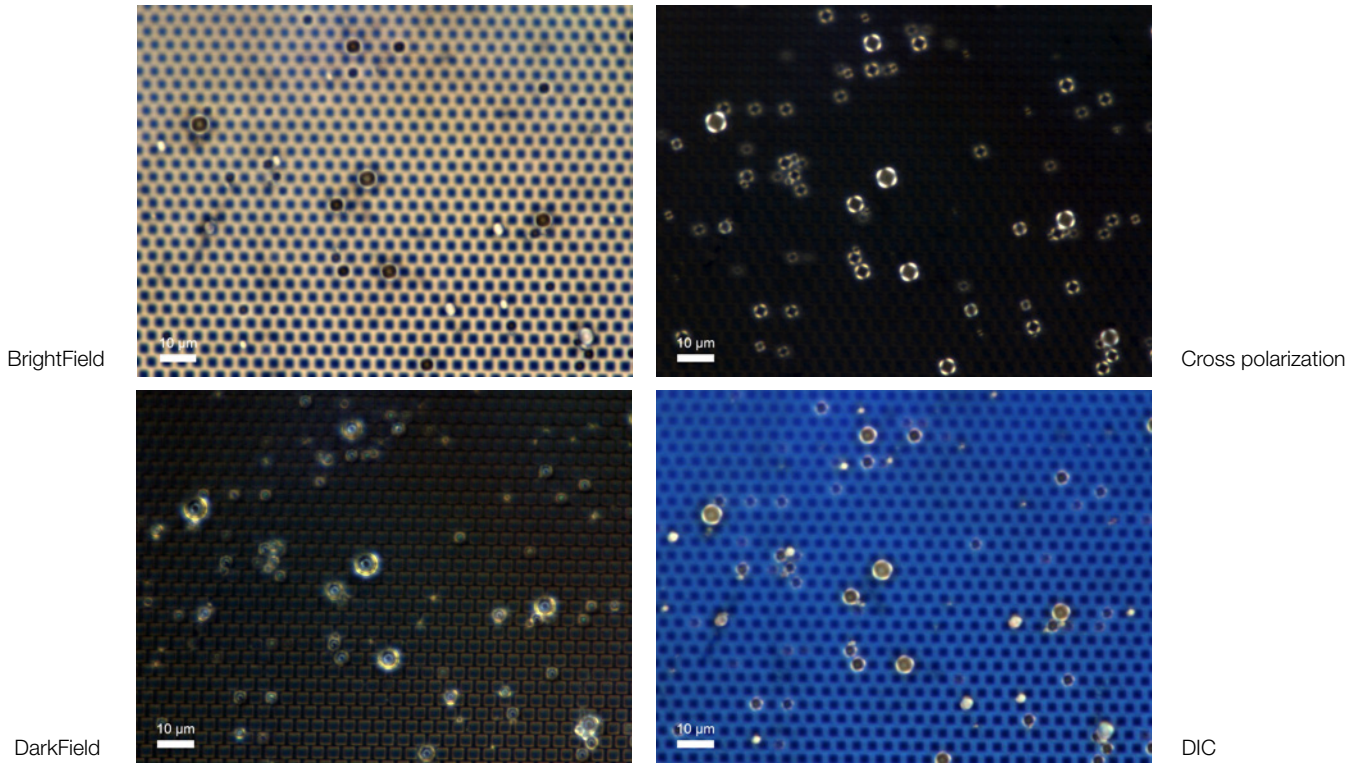


ParticleFinder workflow allows customization and automation of each process step

Visualization

Microscope illumination

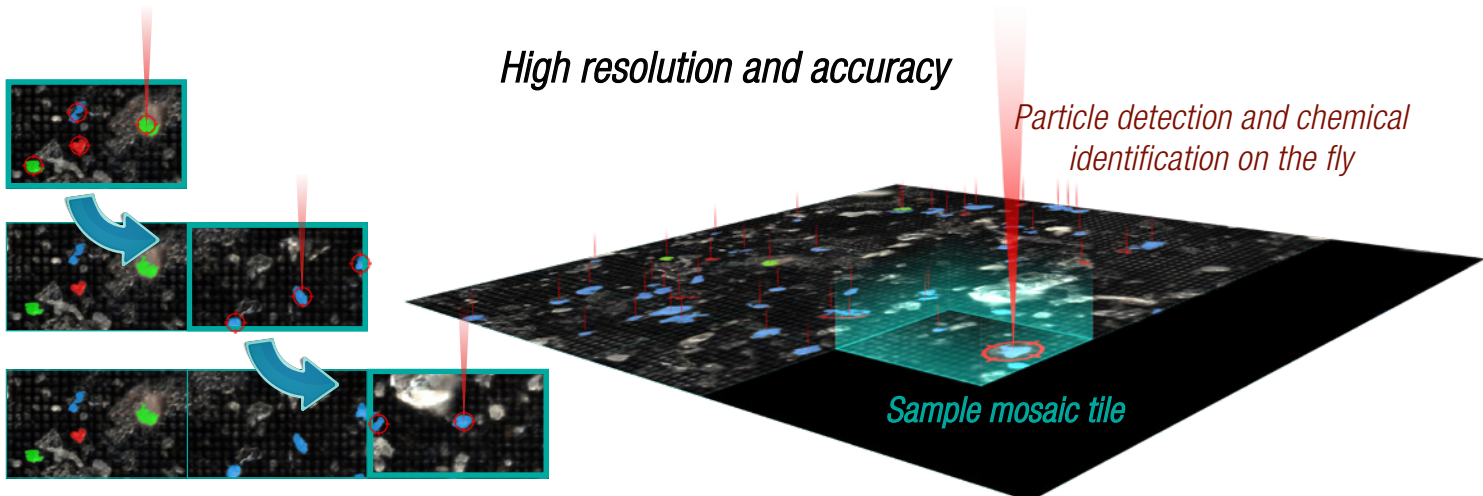
High-quality images of the samples are acquired using several illumination modalities available in ParticleFinder: BrightField, DarkField, Cross polarization (BrightField with visible polarizers in cross configuration), Epifluorescence, Transmission and DIC.



Dynamic analysis

In addition to the standard “**Static**” workflow that collects the full sample image first before performing the particle detection and spectral characterization, ParticleFinder introduces the “**Dynamic**” workflow, allowing acquisition and processing of sample mosaic tiles (single field of view) in real time, providing particle detection and chemical identification on the fly, as the sample mosaic is acquired.

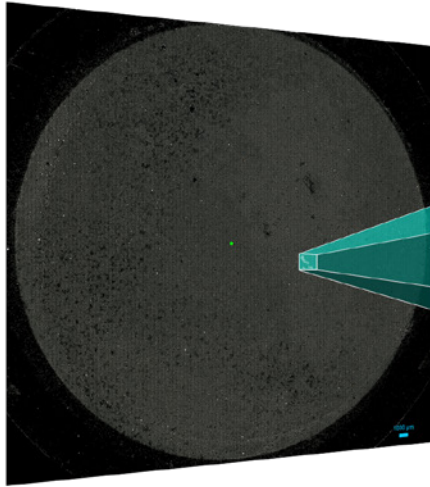
This unique feature allows images to be processed with the highest resolution, and minimizes the time between particle location and spectrum acquisition. The result is maximum reliability, confidence and accuracy by reducing the impact of changing environmental conditions through the measurement.



Large sample

ParticleFinder allows areas of any size to be processed, through on-the-fly measurements of unlimited fields of view at maximum resolution.

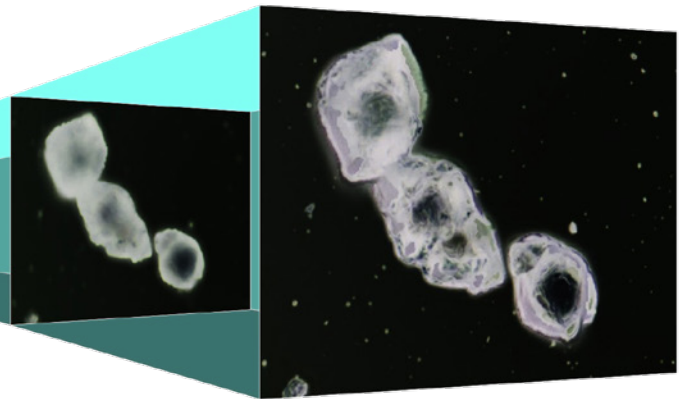
The most common samples such as polycarbonate coated, or silicon filters (13 mm, 25 mm, 42 mm) can be easily accommodated.



*The seamless mosaic picture of a 42 mm sample.
Thanks to Raffaella Mossotti from CNR STIMA.*

Instant focus

From this large sample images, ViewSharp™ focus stacking and topography analysis guarantees the highest image quality, and allows instant focus on each of the particles during the spectral analysis.



Without ViewSharp

*With ViewSharp:
perfect focus and topography*

Particle Characterization

Automated particle segmentation

ParticleFinder features advanced particle detection tools, including fully automated particle detection algorithms, suitable for a wide variety of sample types. Full morphological information is automatically provided for each particle, including : area, perimeter, diameter, minor/minor axes, ellipse ratio, circularity, brightness and volume estimation.



Particles automatically isolated from background

Custom particle selection

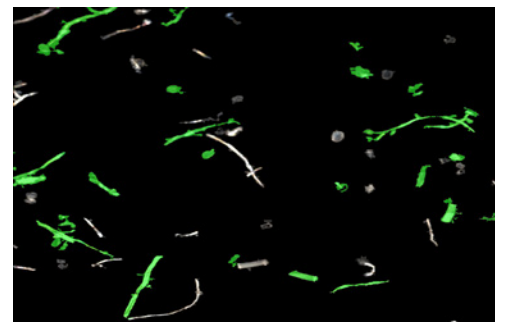
Intuitive particle pre-filtering based on the morphological information listed above allows fast exclusion of specific particle groups from the chemical identification step. This functionality allows easy optimization of the number of particles to be measured, thus reducing the total measurement time.



"Fibers only" custom particle selection

Sample randomization

Get a statistically relevant analysis of your sample more quickly by randomly analyzing a representative fraction of the particles. Randomization can be applied spatially, with measurements confined to a specific quadrant, or by particle number, with user definition of the maximum number of particles to be analyzed.



Random particle selection

Dynamic exposure time

Get access to fastest measurement time per particle using the Autoexposure function. Automatically optimize the Raman exposure time with respect to the individual Raman signal of each particle in the sample.

Identification

Particle analysis and classification

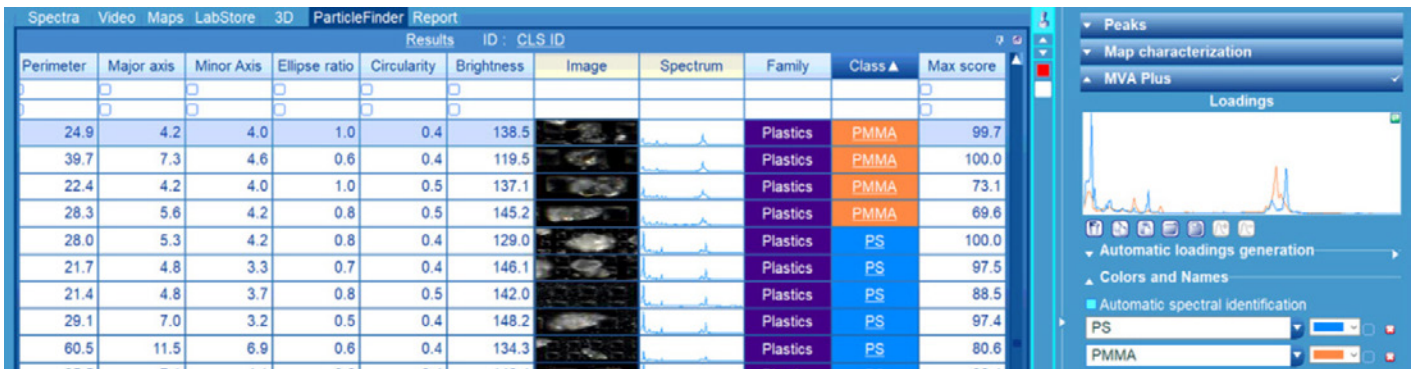
Combining morphological and chemical information is fundamental for accurate results.

ParticleFinder benefits from the LabSpec 6 integrated classification, univariate or peak fitting tools, or from the power of the optional MVAPlus app for advanced Multivariate Analysis, automatic extraction of the pure component spectra and classification of the particles.

Particle identification

LabSpec 6, coupled with Wiley KnowItAll software, offers instant identification of the unknown spectral fingerprints by searching in specialized databases with more than 24,000 reference spectra.

In addition to the exact chemical identification, ParticleFinder can group the components by family (e.g. plastics, or minerals), allowing high-level classification and statistics.



Statistics and Reporting

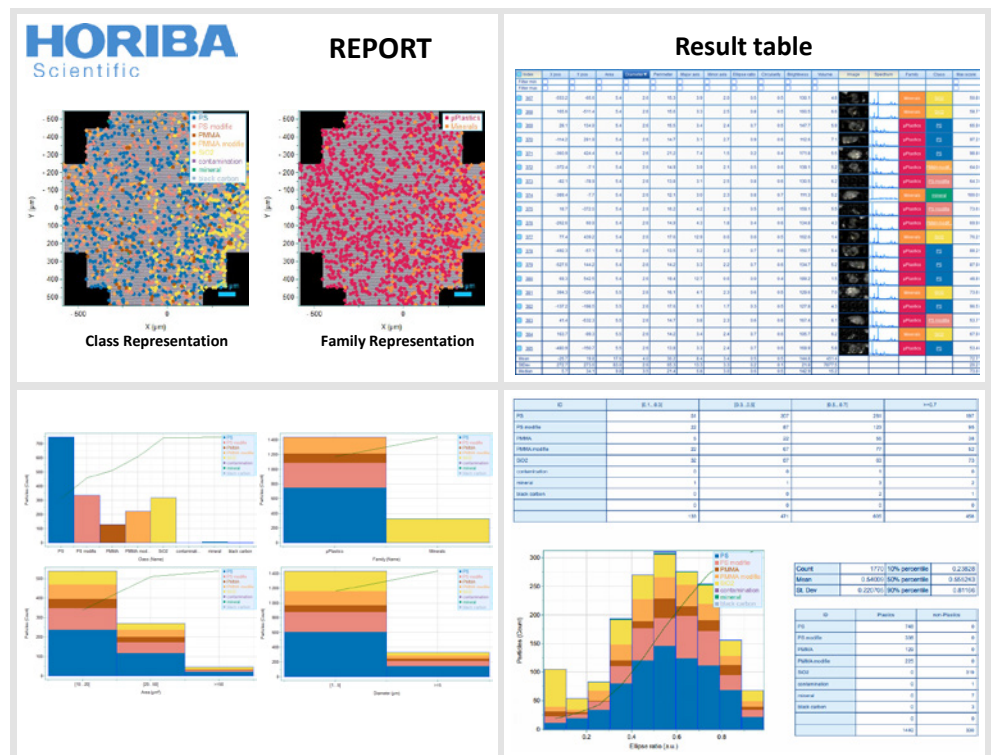
Generate meaningful statistics from your particle measurements

Statistical results can be customized to present, as tables or stacked histograms, any of the morphological and chemical parameters, including area, perimeter, diameter, minor/major axes, ellipse ratio, circularity, brightness, volume estimation, chemical identification and family.

The report mode presents the optical images colored by ID, tables, histograms and custom statistics in a comprehensive document.

All the data and statistics can be exported in open format to be used in different software for further investigation and analysis.

Industry-ready



Maximized efficiency and throughput with 24/7 measurements and compliant statistics & reports

Automation

Batch mode

Set up your measurements for multiple samples at once, using the HORIBA sample holders, or any multi-sample support.

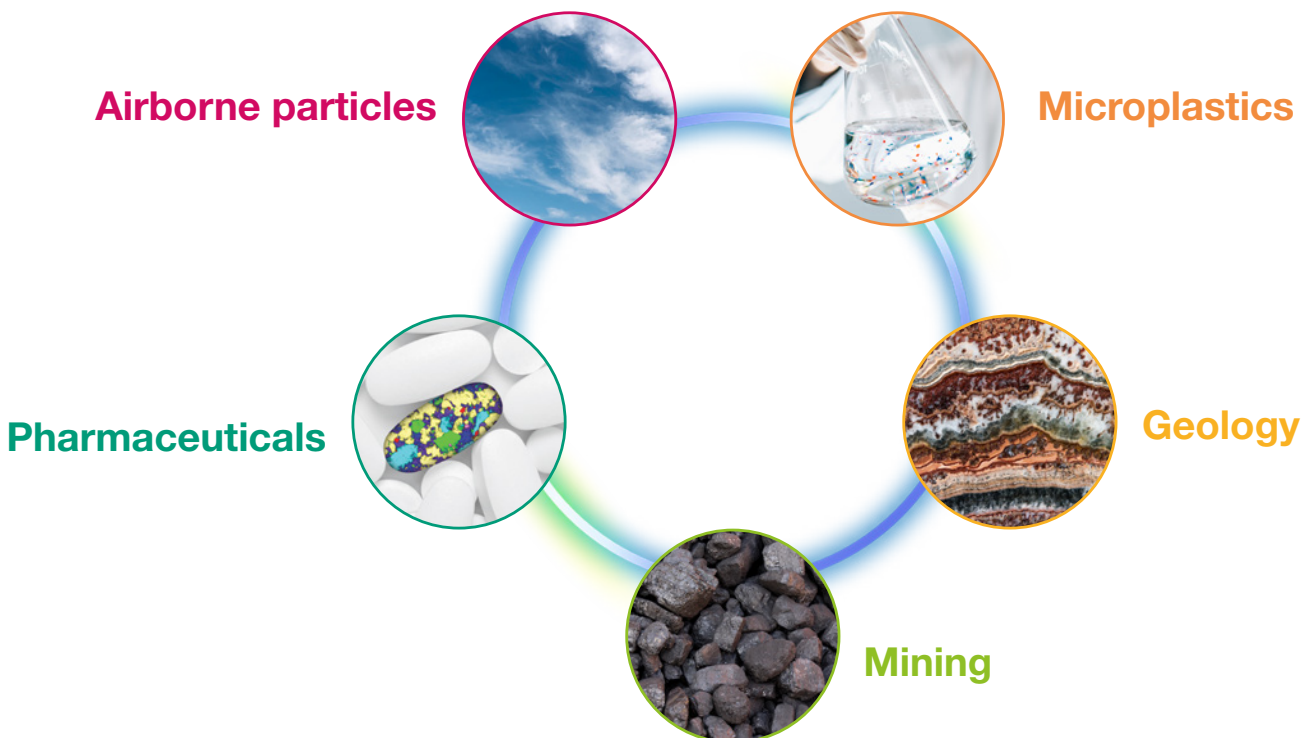
ParticleFinder supports any design of sample holders fitting on the motorized stage and provides fully automated measurements for 24/7 operation.

ParticleFinder makes simple, automated, and precise particle sample analysis, thus making research methods suitable for deployment in process labs.



ParticleFinder offers 24/7 operation ready for your industrial facility

Typical examples where ParticleFinder offers enormous advantages include the analysis of airborne particles, microplastics and contaminants on filters, characterization of mineral grains for geological and mining exploration, and investigation of pharmaceutical ingredients and mixtures.



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