Particle Insight

Particle Count, Concentration, Size, Shape, Wear Classification

The Portable Particle Insight system is designed to perform high resolution precision shape measurements of particles from 3um to 800um in a portable and benchtop configuration. By using Dynamic Image Analysis and a flexible sampling design users can get a full picture of their raw material particles. Unique Features include:

- Size, concentration, shape information and thumbnail images of all analyzed particles.
- Number-based measurement. No minimum concentration limit.
- Flexible fluidic design allows for various sample suspension options including on-line.
- Disposable / interchangeable flow cells.
- Correlation Plots to identify and view rare event particles and trends.
- Sieve Correlation offers data reporting referencing sieve results for easy technology comparison.
- On-line continuous process monitoring capability.
- Ruggedized case and battery operated for field use or lab benchtop use.
- All raw images saved allows reanalysis of captured data.
- Full particle count codes compliant to ASTM, ISO, and NAVAIR oil wear particle requirements.
- Includes embedded Microsoft Surface Pro computer with touch-screen.
- Overlay data for sample-to-sample or lot-to-lot comparisons.
- Smart phone App allows remote real-time monitoring.

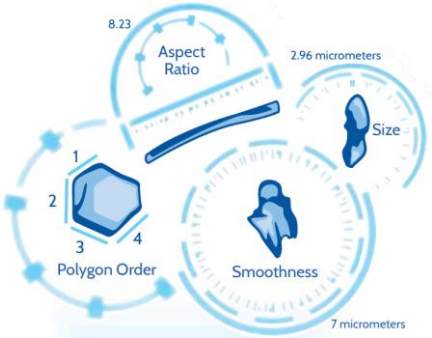
The ***Portable Particle Insight System*** is a full-featured laboratory particle size and shape analyzer utilizing Dynamic Image Analysis technology. Housed in a ruggedized case with battery operation allows for laboratory as well as remote field use.

Ideal for applications where particle shape, not just the particle size, may be critical information for predicting raw material quality and maintaining a high level of process control. Particle morphology provides essential information regarding the physical shape properties of your sample. Particle shape can affect flowability, dispersion, packing density, and sample segregation. It can also identify aggregate formation. The fully automated Portable Particle Insight is a well-suited research-grade instrument for use in a total production environment where speed, accuracy, and ease of use with the ability to also be portable in nature.

The system comes standard with one lens configuration but can be customized to meet any unique customer needs. Interchangeable and disposable flow cell design ensures the cleanliness of the system and no carryover of previous samples. Operates using a touch-screen Microsoft Surface Pro computer and has an internal battery for up to 5 hours of continuous use.

Flexible sampling system allows for adapting for online use, off-line use with an internal recirculating pump, or manually for small volumes using sterile syringes. All fluidic connections use standard Luer fittings.

Vision Analytical has been working in the Particle Analysis industry for over 18 years, exclusively focused on Dynamic Image Analysis, making this system the best image analyzer on the market.



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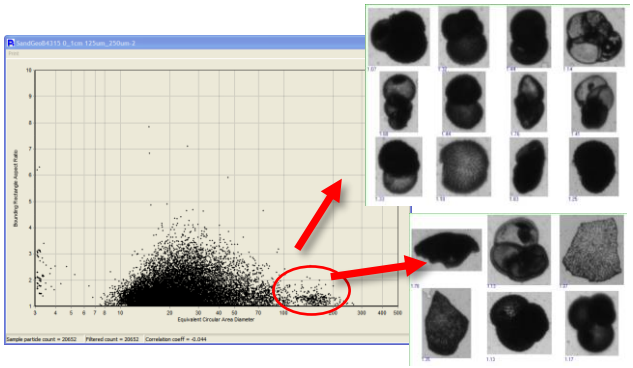
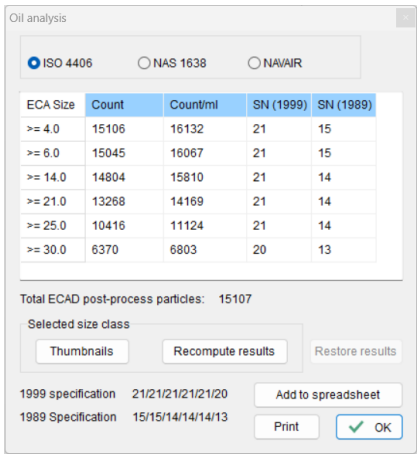
Particle Count, Concentration, Size, Shape

The value of a Dynamic Image Analyzer is not just the ability to show some pictures of particles but more the tools available to use the shape information to identify problems and take action. The Portable Particle Insight provides numerous tools that use the 32+ shape parameters of each particle to perform analysis not capable of size-only instrumentation.

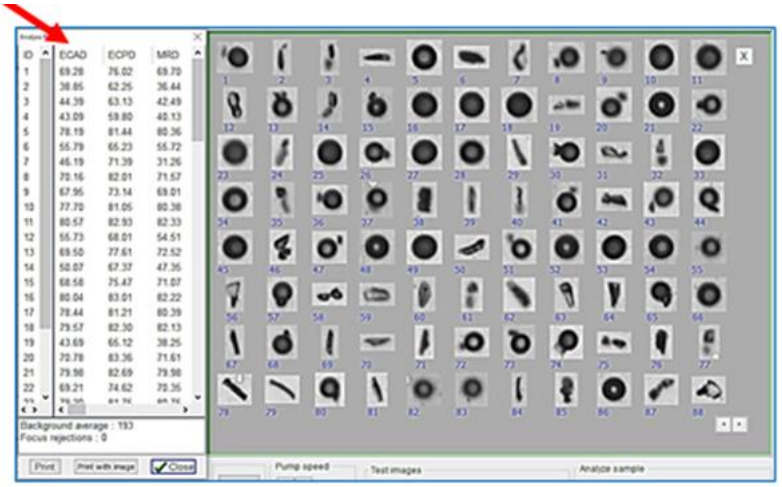


Correlation Plots for Rare Event Identification

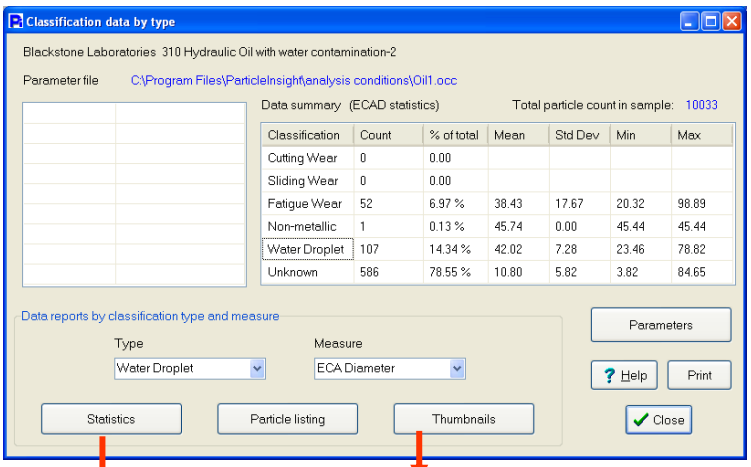
- Correlate any two of the 32+ available shape measures to identify outlier particles in tens of thousands of particles.
- Further identification and confirmation by viewing thumbnail particles of interest.
- Outlier particles can be isolated. Recompute Statistics to view 32+ size histogram and statistics for selected size class.

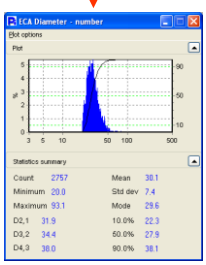


The **Wear Classification function** allows the user to view statistics, statistical listing, and particle thumbnails for each desired type of particle >1µm. Wear classifications can be adjusted to meet users needs. Additional custom classification types can also be created.

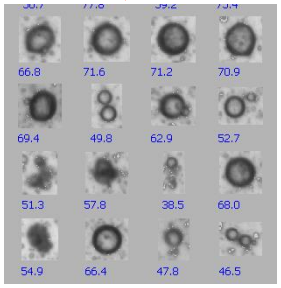


Thumbnails shown in greyscale view to enhance users understanding of all particles starting at 1µm.

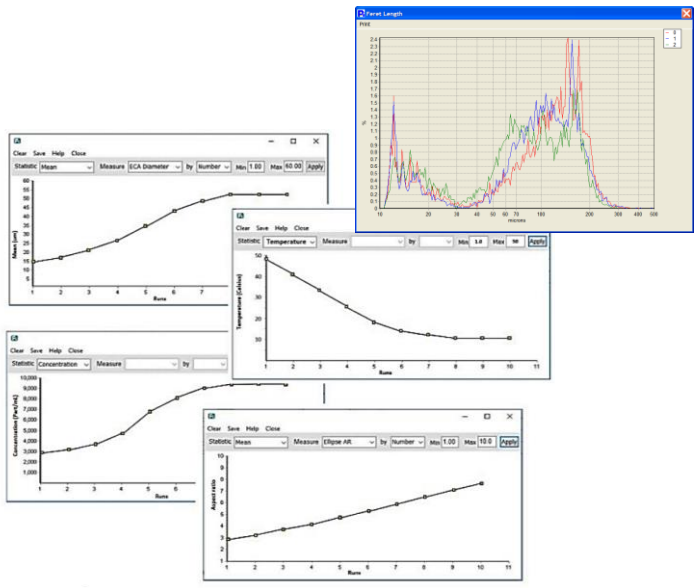




Statistics windows allows for 32+ shape measures.



Greyscale view of all particles in each classification. Can easily detect unimportant particles such as air bubbles.



Result overlays allows comparing results by shape, not just size. Smoothness, or circularity are common non-size related measures that can impact flowability of process particles.

Time Series charts allows viewing in-process information in rea-time. Size, shape, and particle concentration can be monitored over time.