

Phenom ParticleMetric Software

Powerful tool for inspection of particles and powders





Overview processed images



Histogram selection

The visualization and analysis of particles is easier than ever before with the Phenom desktop scanning electron microscope (SEM) and Thermo Scientific™ Phenom ParticleMetric software. The combination of speed, ease of use and superb imaging quality of the Phenom with the imaging and particle analysis of ParticleMetric creates a powerful tool for inspecting a wide range of particle and powder samples.

Phenom ParticleMetric Software

The Phenom desktop SEM with ParticleMetric software allows easy generation and analysis of SEM images. The integrated ParticleMetric software allows the user to gather data on the physical properties of particles for many sub-micrometer particle applications.

The fully automated measurements of ParticleMetric allow a level of visual exploration beyond optical microscopy that can lead to new discoveries and innovations in powder design, development, and quality control.

The histograms, scatter plots and generated images can be exported in the selected format to be used as a reporting tool. Histograms of any measured particle property can be generated by numerical value and volume.

Scatter plots can be plotted from any combination of particle properties to reveal correlations and trends. The Phenom particle analysis solution allows users to obtain the data they need, when they need it. As a result, ParticleMetric accelerates particle analysis and improves product quality.

ParticleMetric Specifications

Particle analysis

Particle size range	100 nm - 0,1 mm
Particle detection	8/16 bit image processing
Speed	More than 1000 particles per minute
Measured properties	Size, shape, count

Particle parameters

Area, circle equivalent diameter, surfacearea, circumscribed circle diameter, volume by area, circumference, aspect ratio, circularity, elongation, grayscale, major axis, minor axis, convex hull, gravity centre (x,y), pixel count, convexity.

Digital image detection

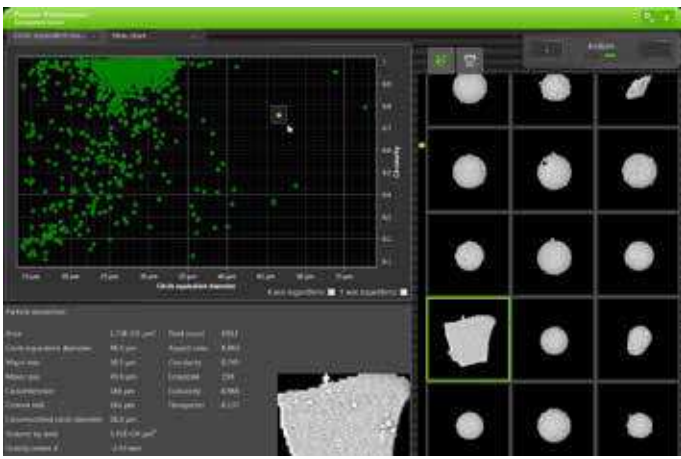
- Plot graphs in linear, log or double log scale, by number or by volume
- Scatter plots of any given parameter
- SEM image of individual particle

Output

Report in docx format, TIFF image format, CSV file, Project file (.PAME) for offline analysis

Part of ProSuite

- Network storage enabled
- Phenom integrated system



Scatter plot selection



Introducing the powder in the Nebula for a proper dry dispersion

Main advantages of ParticleMetric

- Integrated software in ProSuite
- Acquire images directly from the Phenom
- Identifies and confirms phenomena such as broken particles, agglomerates and foreign particles
- Correlates particle features such as diameter, circularity, aspect ratio and convexity
- Fast and convenient operation improves workflow and makes scheduling simple and predictable
- Image collection is limitless as digital files are easily stored on a network or USB disk for data sharing, communication, or later reference
- The Phenom's ease of use and ability to operate in any environment means anyone can use it to visually interpret a wide range of samples
- Statistical data with high quality images.
- Automatically generates a report in docx format
- Ability to revisit detected particles

Nebula

With the Nebula, a standard method for uniform dry powder dispersion on SEM stubs becomes available. The Nebula ensures best sample preparation by obtaining a mono layer of particles avoiding particle clusters while maintaining the structure of fragile particles. This dry powder disperser is easy to use and allows the user to extract the best results in combination with ParticleMetric.

The unique combination of ParticleMetric and the Nebula allows the user to gather and analyze particle size and morphology data.

Target markets for ParticleMetric

- Cosmetic and personal care
- Food
- Agrochemicals
- Pharmaceuticals
- Ceramics
- Additive Manufacturing
- Powder and surface coatings
- Particle based fillers
- Environmental
- Filter/sieve companies

Nebula Specifications

Powder size range

0.1 - 1500 µm

Dispersion vacuum range

0 - 0,8 Bar

Pressure setting precision

0,05 Bar

Dimensions & weight

Dimensions	390(w) x 210(d) x 350(h) mm, 8.5 kg
Diaphragm	145(w) x 220(d) x 213(h) mm, 4.5 kg vacuum pump



Phenom PoroMetric

PoroMetric

The Phenom desktop SEM with PoroMetric allows easy generation and analysis of SEM images. The integrated PoroMetric software allows the user to gather data on distribution of pores, and pore parameters like pore size and aspect ratio.

PoroMetric allows the user to get a better understanding of the characteristics of the materials, as it extracts detailed information of the complete set of pores. PoroMetric is the best in its class when it comes to measurements of pores.

FiberMetric

In combination with the Phenom desktop SEM, the FiberMetric software allows the user to gather accurate size and orientation information from micro and nano fiber samples.

The automated image characterization generates hundreds of measurements in seconds. In addition to more accurate data acquisition, the automated measurements of the FiberMetric guarantee a fast return on investment.

With FiberMetric it has become possible to measure and analyze samples with large fiber diameter differences.



Phenom FiberMetric

PoroMetric Specifications

Pore analysis

Pore size range	100 nm - 0,1 mm
Pore detection speed	More than 1000 pores per minute
Measured properties	Size, shape, count

Pore parameters

Area, circle equivalent diameter, aspect ratio, major axis, minor axis and manual measurement

Graphical display

- Plot graphs of the circle equivalent diameter
- SEM images and detected pores

Part of ProSuite

- Network storage enabled
- Phenom integrated system

FiberMetric Specifications

Fiber detection

- 100 nm to 40 μ m
- 1 to 1000 measurements per image

Part of ProSuite

- Network storage enabled
- Phenom integrated system