DATASHEET

Explorer 4 Analyzer

Automated industrialized SEM/EDX

The Thermo Scientific™ Explorer™ 4 Analyzer is the solution for statistical process control of particulate distributions, whether you need to know your manufacturing processes are in control, are looking for that 'killer' particle or need to characterize many particles.

Robust automation and reporting, together with its small footprint and low cost of ownership make the Explorer 4 Analyzer the best solution for operations looking to improve their production processes and quality while also maximizing operational budgets. Whether you need rapid and non-destructive characterization of inclusions, pores or particles, the Explorer 4 Analyzer provides full morphological and chemical characterization of each individual feature.

Offering Dual Purpose Applications

The Explorer 4 Analyzer is the fourth generation of dedicated SEM/EDX solutions for industrial environments and data acquisition. When you want to extend your current industrial SEM/EDX process or want to start with SEM/EDX, the Explorer 4 Analyzer is your proven partner for inclusion analysis and process control.

We understand the value of being able to match data from various generations of Explorer. The Explorer 4 Analyzer is calibrated with the same reference samples as the previous generations of Explorer, and in addition, offers new benefits. It features an almost 8x improvement in source life and ability to size smaller inclusions and particles for today's manufacturing environment.

Factory tested for you

The Explorer 4 Analyzer hardware and software are optimized to monitor your production processes. That is why each system is tested at the factory with samples from your industry.

We know that you trust the Explorer 4 Analyzer to alert you when your processes are trending out of control. Every system is factory tested using a proprietary process and sample. This process and sample ensures that every Explorer 4 Analyzer leaving the factory matches in sensitivity, accuracy and precision.

Key benefits
Data matched with industry leading previous generation Explorer
Optimized BSE and EDS detectors for high throughput particle and surface feature characterization
Removable sample drawer improves efficiency, minimizes downtime and reduces cross contamination
Maximize uptime with integrated UPS
100 mm × 100 mm motorized staging
Low cost of ownership
Expert and Production Line UI modes
Highest throughput
Global service and application support
Automated and unattended measurements

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The Explorer 4 Analyzer is a fast and reliable platform for identifying particles and surface features including:

- Non-metallic steel inclusions
- Manufacturing debris
- Foreign particulate
- Wear debris
- Technical cleanliness
- Powders
- Industrial applications may include:
  - Distributions
  - Phase segregation
  - Material identification
  - Statistical process control

Automated analysis
- Up to 10,000 particles/hr with full morphology and chemistry characterization, or up to 30,000 particles/hr without EDS

Detector
- Quad BSED and optional SED

Magnification
- 80× – 40,000x

Accelerating voltage
- 5 to 20 kV

Electron source
- Long lifetime, thermionic source

Vacuum system
- High vacuum for conductive samples and charge reduction modes for non-conductive samples

Vacuum pump
- Oil free and turbo molecular pump

Vibration isolation
- Built-in vibration damping

Image resolution
- 14 nm

Evacuation time
- < 90 seconds to high vacuum

Maximum sample size XYZ stage
- 100 mm × 100 mm × 35 mm or 3.94" × 3.94" × 1.4" (W × L × H) with removable sample drawer

Maximum sample weight
- 1 kg / 2 lbs

Relocation repeatability
- ≤ 7 micron (X and Y)

Room temperature
- 59° to 86° F (15° to 30° C)

Humidity
- 20% to 80% (non-condensing)

Power source
- 110 - 230 VAC, 50/60 Hz, 6.5 A

PC & console control system
- Windows 10 Professional
- 2× 1 TB hard drive, 16 GB RAM
- 24" monitor

User Interface
- Perception for integrated SEM/EDX

EDX performance
- 25 sq mm, 137 eV , 6,000 CPS/nA [1]

EDX detection range
- B to Am

EDS file format
- TIFF, EMSA, TXT, and CSV

Digital file format
- TIFF

Image quality
- 64 × 64, 128 × 128, 256 × 256, 512 × 512, 1024 × 1024, or 2048 × 2048

Chemical analysis
- Point or area spectra acquisition

Sizing accuracy
- 0.5 micron or better [2]

Sizing precision
- 0.09 microns or better [2]

System footprint
- 780 mm × 954 mm × 1703 mm or 31" × 38" × 67" (W × L × H)

System weight
- 193 kg or 425 lbs

1 Measured on Mn (Ka) peak at nominal working distance

2 Performance Grading System standard test procedure

Specifications are subject to change.

Find out more at **thermofisher.com/EM-Sales**

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