

## Microscopía Electrónica de Barrido (FESEM) – EDS



**Microscopio Electrónico FEI QUANTA FEG 250**

### Descripción

El microscopio marca FEI (actualmente Thermofisher), modelo Quanta FEG 250 es un microscopio electrónico de barrido con cátodo de emisión de campo (FESEM) de alta resolución. Este tiene incorporado un detector detector de rayos X de energía dispersiva (EDS), SSD modelo Octane Pro, para obtener información de composición elemental de la superficie de la muestra. El FEI Quanta FEG 250 es capaz de ofrecer información morfológica y de composición elemental de la superficie de la muestra con una mayor resolución y un mayor rango de energía que un SEM convencional.

El FEI Quanta FEG 250 está equipado con un cañón de emisión de campo Schottky y un detector Everhart-thornley para la detección de electrones secundarios, lo cual permite una resolución máxima de pocos nanómetros. Cuenta con 3 modos de operación, alto vacío, bajo vacío y modo de vacío extendido, lo que permite analizar muestras húmedas y de baja conductividad eléctrica.

El detector EDS es un Silicon Drift Detector (SDD), modelo Octane Pro de 10 mm<sup>2</sup> de área de detección. Posee una Resolución de 130 eV y estabilidad de resolución sobre 90% hasta las 200 kcps.

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## Aplicaciones

Micro y nano-caracterización de superficies. Estudio de fracturas, soldaduras, secciones pulidas, películas y revestimientos. Caracterización de micro y nano partículas, materiales porosos y fibras.

Análisis en metales y aleaciones. Materiales magnéticos y semiconductores. Cerámica, plásticos, secciones geológicas, minerales, polímeros, productos farmacéuticos, filtros, geles, tejidos y material animal o vegetal.

### Áreas de estudio:

Ciencia de materiales, nanotecnología, microbiología, ingeniería mecánica, construcción, arqueología, geología, minería, farmacia, forense, ingeniería de alimentos, química de superficies y educación.

## Especificaciones Técnicas

Voltaje de aceleración: 500 V to 30 kV

Magnificación: de 14 X a 1.000.000 X

Ancho horizontal máximo de campo: 8,8 mm

Desplazamiento de la plataforma motorizada: X-Y 50 mm, Z: 50 mm.

Inclinación (T): - 15° to + 75°.

Radial: 360°.

3 modos de operación: Alto vacío (< 6 x 10<sup>-4</sup> Pa), bajo vacío (10 a 130 Pa) y vacío ESEM (10 a 4000 Pa).



### Resolución del haz de electrones:

#### Alto Vacío

- 0,8 nm at 30 kV (STEM)
- 1,0 nm at 30 kV (SE)
- 2,5 nm at 30 kV (BSE)
- 3 nm at 1 kV (SE)

#### Bajo Vacío

- 1,4 nm at 30 kV (SE)
- 2,5 nm at 30 kV (BSE)
- 3,0 nm at 3 kV (SE)

#### Modo de vacío extendido (ESEM)

- 1,4 nm at 30 kV (SE)



### Servicios

- Microscopía FESEM: Electrones secundarios, electrones retrodispersados, microscopía de transmisión STEM.
- Espectroscopia de Rayos X (EDX). Espectroscopia convencional EDS y Mapeo de composición (imagen de composición elemental).

## Publicaciones

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