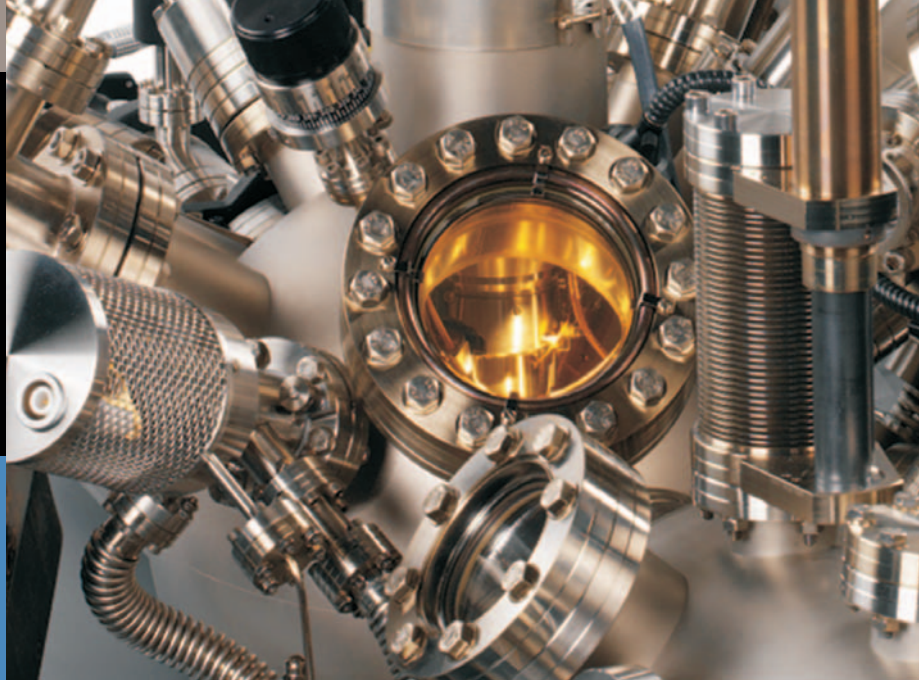


**Thermo Scientific
ESCALAB 250**



*Imaging XPS Microprobe for Multiple Surface
Analysis Techniques*



Metals



Glass



Polymers



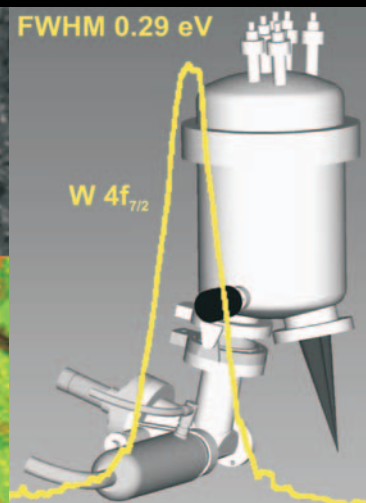
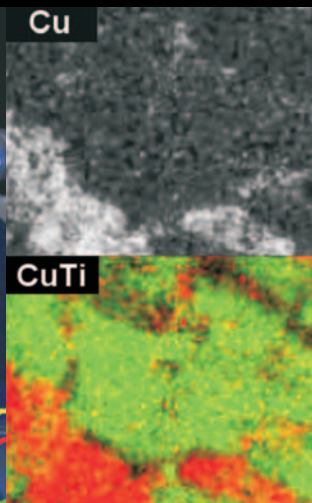
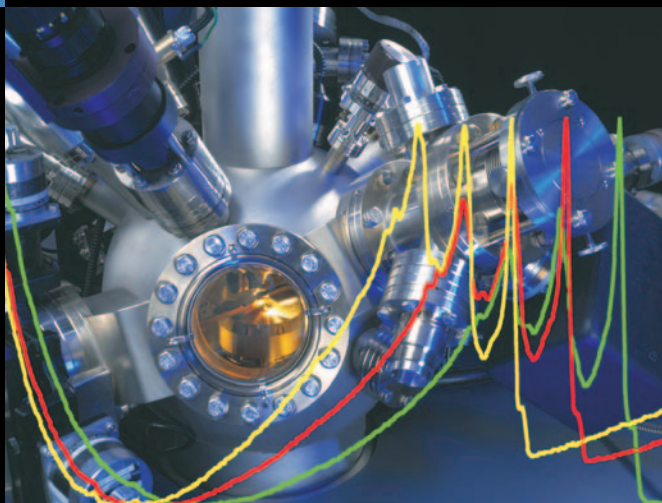
Semiconductors

ESCALAB 250

Thermo Scientific ESCALAB 250 instruments are solving a wide range of industrial problems and supplying answers to crucial surface chemistry questions throughout the world.

ESCALAB 250 meets the growing demands for increased analytical performance and flexibility. The instrument is configured with the *Avantage* data system for acquisition and data processing. *Avantage* incorporates all the features necessary to extract the maximum amount of information from the analysis.

- High throughput
- Parallel image resolution $< 3 \mu\text{m}$
- Microfocusing monochromator
- Automated, unattended analysis
- Multi-sample analysis
- Multitechnique options
- Multiple sample preparation options



Exceptional Analytical Performance and Flexibility

High Sensitivity

Extremely high sensitivity and resolution are key benefits of ESCALAB 250. Spectra may be acquired in just a few seconds.

The combination of high efficiency lenses and detectors on ESCALAB 250 ensure the highest sensitivity in X-ray photoelectron spectroscopy (XPS) applications.

- High speed acquisition
- Excellent sensitivity with spatial resolution
- 1 Mcps in normal operating conditions (0.6 eV at FWHM, Ag sample)
- Maximum chemical detectability

Energy Resolution

ESCALAB 250 provides excellent energy resolution by combining an advanced analyzer design with a twin crystal microfocusing X-ray monochromator.

- Identification and quantification of chemical states
- Resolve interfaces and overlapping peaks

Fast Parallel Imaging XPS

Parallel imaging produces rapid, high resolution XPS chemical images. ESCALAB 250 is the only instrument to use the same input lens and analyzer for both parallel imaging and spectroscopy.

- < 3 μm chemical imaging resolution
- Imaging of both large and small features
- Eliminates the need to align two sets of electron optics

Auger

The optional FEG1000 electron gun provides ESCALAB 250 with an AES, SEM and SAM capability.

- 95 nm spot size at 5 nA
- Auger analysis at very high spatial resolution
- SEM and SAM imaging

Small Area XPS (SAXPS)

ESCALAB 250 provides fast and precise SAXPS analysis.

- Source-defined small area from > 650 μm to < 120 μm
 - Highest sensitivity for a given area
- Lens defined small area down to < 20 μm
 - Minimum area
 - Non-monochromated SAXPS

Insulators

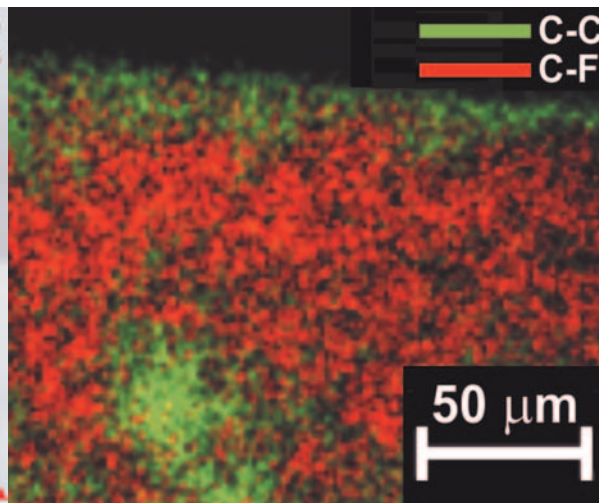
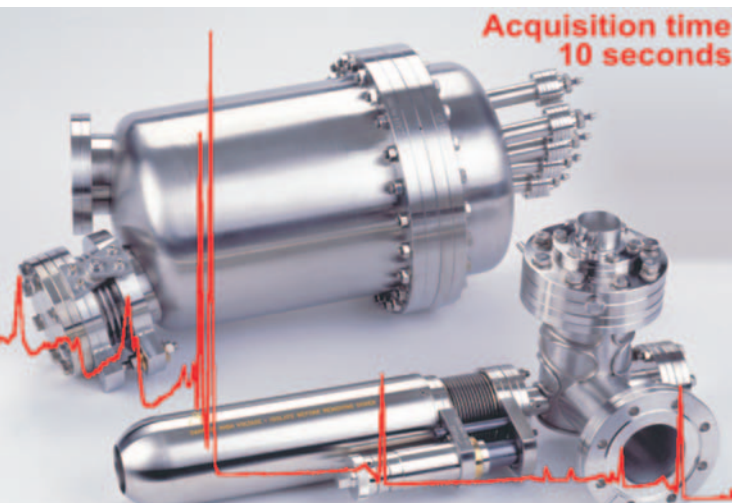
Insulating samples are easily analyzed using state-of-the-art charge compensation.

- Analyze conductors and insulators with ease
- Reliable quantification

Sample Preparation

ESCALAB 250 can be configured with a wide variety of sample Preparation options and sample entry and Preparation chambers.

- Specimen heating/cooling
- Sputter cleaning ion gun
- Specimen scraper
- Evaporator
- High pressure gas cell
- Crystal cleaver
- Fracture stage
- Fast entry chamber
- UHV preparation chamber
- PREPLOC chamber



ESCALAB 250

Electron Analyzer

- Double-focusing full 180° spherical sector analyzer
- Magnetic and multi-element electrostatic input lenses
- Multi-channel spectroscopic detector
- High resolution 2-D image detector

Microfocused Monochromated X-ray Source

- 0.5 meter Rowland circle
- Microfocused electron gun
- Multi-position aluminum anode
- Two toroidal quartz crystals

Flood Gun

- Charge compensation
- Digital control
- Electron imaging

Ion Source

- Digital control
- Depth profiling
- Sample cleaning
- Secondary electron imaging
- ISS

Automated 4-axis Sample Manipulator

- Interfaced to the data system

Avantage Data System Package

- Instrument control
- Data acquisition and processing
- Multi-sample, multi-point data acquisition
- Unattended data acquisition

Sample Options

- 5-axes sample manipulator
- Sample heating and cooling

Twin Anode Non-monochromated XPS Option

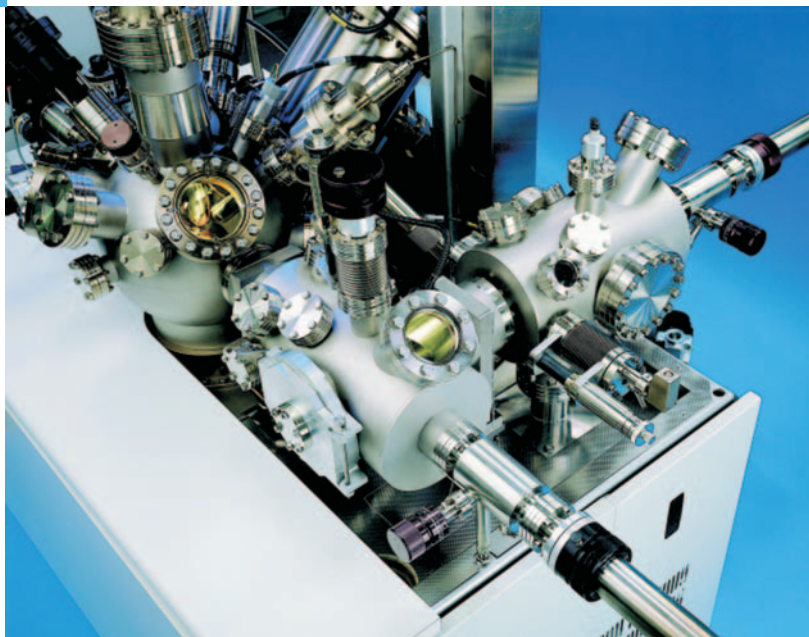
- Dual anode (MgK α /AlK α) X-ray source
- Digital power supply
- Other anode coatings available

UV Photoelectron Spectroscopy (UPS) Option

- High intensity UV lamp
- Helium gas admission system

95nm AES/SEM/SAM Electron Gun Option

- Schottky type field emission source
- Digital electronics
- Source ion pump
- SEM detector
- System vibration isolation



In addition to these offices, Thermo Fisher Scientific maintains a network of representative organizations throughout the world.

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