

## JPS-9200 Photoelectron Spectrometer for Surface Chemical Analysis

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### Features of JPS-9200

The JPS-9200 meets requirements of various types of surface analysis.

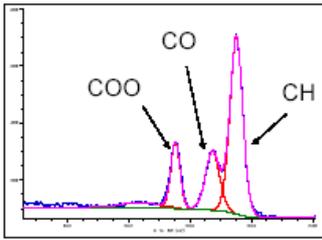
- High sensitivity analysis of areas down to 30  $\mu\text{m}$
- Non destructive analysis of untreated samples up to 90 mm in diameter
- Stage scan system to support mapping of areas up to 50 mm x 18 mm
- Total reflection X-ray photoelectron spectrometer incorporated as standard
- Quick and easy operation (Windows<sup>®</sup> XP compatible Spec Surf<sup>™</sup>)
- Superior expandability including UPS and specimen treatment chamber
- Internal baking system



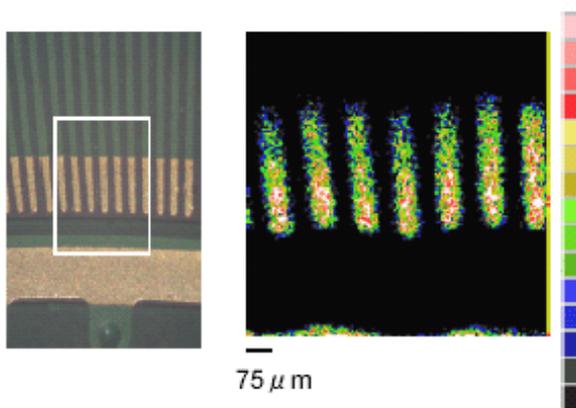
JPS-9200 base unit

### High energy resolution, high spatial resolution

Energy resolution is essential for chemical bond analysis in XPS. The JPS-9200 incorporates a monochromatic X-ray source for high energy resolution analysis. The figure below shows the C1s spectrum of a PET film.



C1s peak separation spectrum  
 COO peak → FWHM: 0.68eV



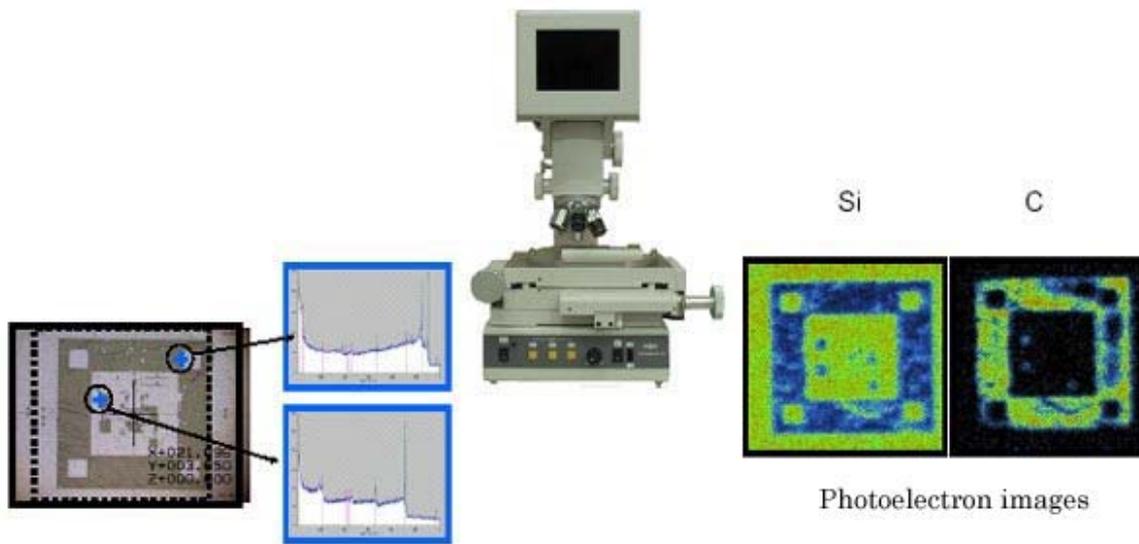
Shown above are an optical micrograph and photoelectron image of a Au electrode.

The pitch and width of the electrode are 75 μm each.  
 The photoelectron image matches the optical micrograph.

### AP-Navi for accurate determination of analytical spots

One of the critical issues with XPS is identifying areas of analysis. The AP-Navi system is a specimen viewing system designed to identify the X and Y coordinates of an analytical spot using an optical microscope. After a sample is set up on the viewing table, a spot to analyze is selected, and its positional data will be loaded onto the PC, guided by the Position Setup wizard. The sample will be directed to the analytical spot based on its positional data loaded. Optical images can be loaded to the PC as well.

Photoelectron images of C and Si below were acquired at the analytical spots defined in the optical image of a resist sample.



### Chemical mapping

The figure below shows results of surface chemical analysis of a fuel cell electrode. Blue and red represent layers rich in carbon black and fluoro compound respectively (500  $\mu\text{m}$  x 500  $\mu\text{m}$ ). The C1s spectra were acquired by spot analysis of the blue and red areas. The spectra show more accurate chemical bonding at each peak than the curve fitting method. Studying the behaviors of these substances will help understand how the fuel cell deteriorates.

