

# Monochromatic XPS performance with insulating polymeric materials

## Application Note

The high resolution capability of the PHOIBOS 150 MCD-9 analyzer, the FOCUS 500 monochromator and the FG 15/40 flood gun was demonstrated by XPS measurements on a PET (Polyethylene terephthalate) surface.

In the analysis of polymeric surfaces with monochromatic sources offers a significant advantage over non-monochromatic sources. Polymers are frequently damaged by X-rays, or undergo other types of chemical reaction when exposed to the high X-ray energies (Bremsstrahlung) generated by non-monochromatic sources.

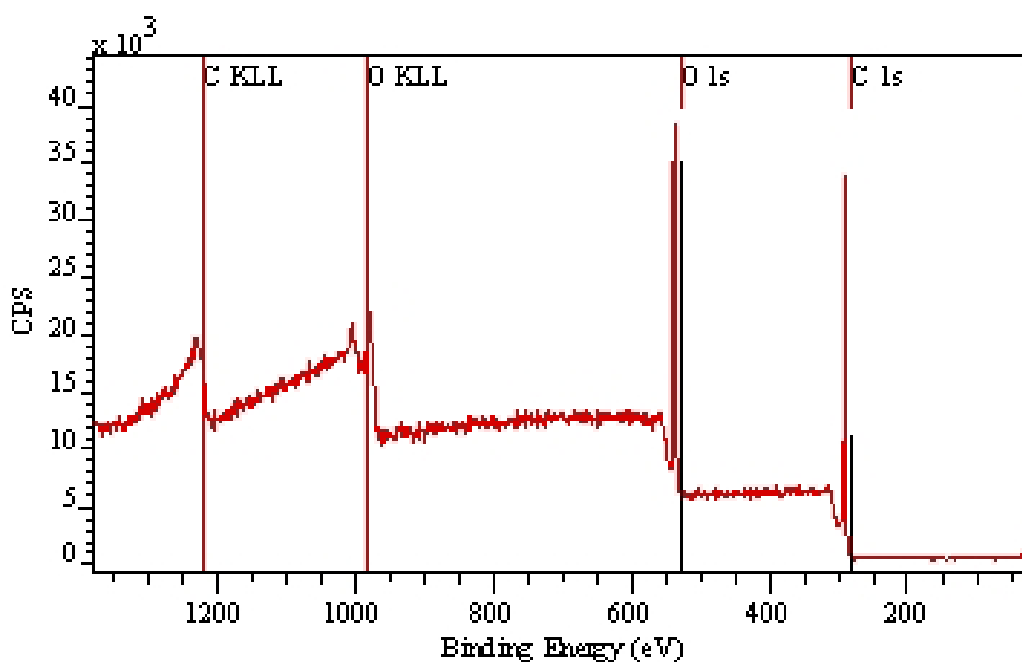
When using monochromatic X-rays however, the spectra can be difficult to obtain due to surface charging effects. In order to observe high quality data under these circumstances, it is necessary to neutralize surface charging carefully.

The FG 15/40 is a compact, easy to handle, reliable flood gun for charge neutralization. The flood gun allows operation in the energy ranges 0 - 10 eV for typical XPS experiments.

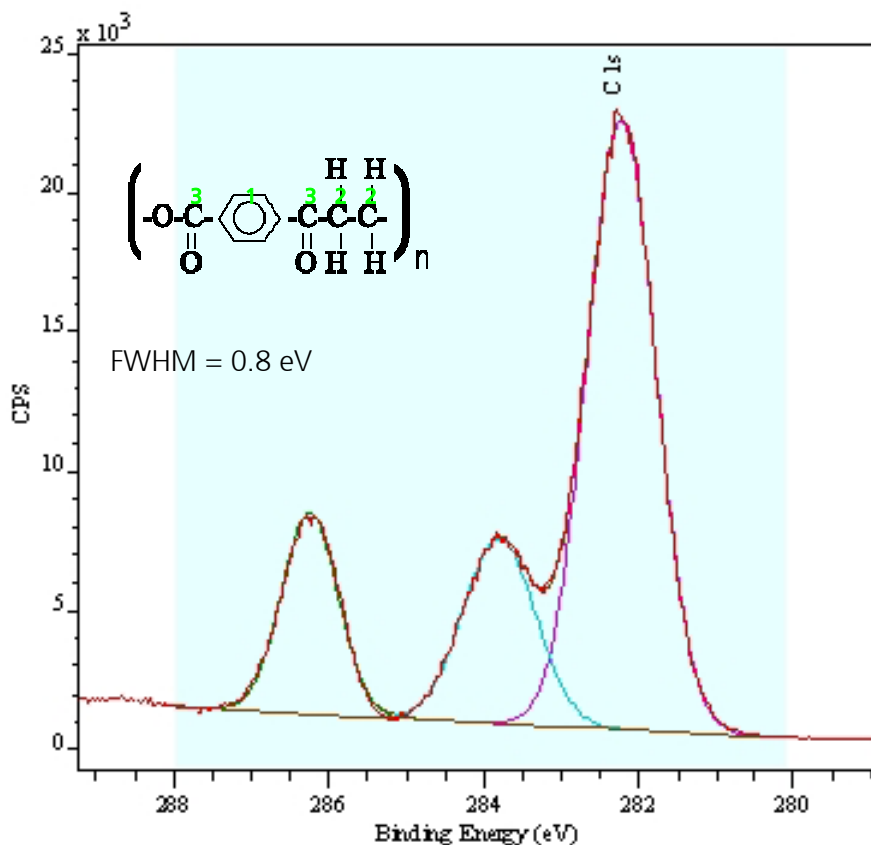


FG 15/40

PET survey spectrum



## PET



This spectrum shows the peak splitting and excellent resolution obtainable with the FOCUS 500 monochromator and the PHOIBOS analyzer series.

Optimum charge compensation is achieved by varying the flood gun settings. Adjustments are made to maximize peak height and minimize peak width. Optimum spectral resolution is obtained with flood gun settings at 3 eV beam energy and 1 mA emission current. At these settings the spectra are shifted about 3 eV to lower binding energies.

### FOCUS 500 monochromator



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