

Optimized High Energy Performance of Polycapillary Optics for μ XRF Analysis

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Polycapillary optics have been successfully used for a broad range of industrial applications, among which μ XRF analysis is one of the most popular. One factor that impacts the accuracy of μ XRF analysis is referred to as a “halo effect.” This effect is due to high-energy radiation passing through the capillary walls at the output end, creating a high-energy halo around the focused spot. The high-energy halo radiation excites an area much larger than the focal spot of the optic and generates signals outside of the area of interest which results in faulty data analysis and misleading conclusions.

In this presentation, we will highlight the experimental μ XRF analysis of industrial materials using a high-performance halo-reduction polycapillary optic. The benefit of the halo-reduction polycapillary optic will be demonstrated by comparing μ XRF data for different samples and under various power settings of the x-ray tube. Practical considerations to optimize the high-energy performance of polycapillary optics will be discussed.