

RESOLVING SPECTRAL INTERFERENCES IN ICP-MS ANALYSIS USING A NOVEL MULTIPOLE REACTIVE COLLISION CELL

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Spectral interferences can limit the determination of extremely low levels of some analytes. Matrix separation, high resolution inductively coupled plasma-mass spectrometry (ICP-MS) and cold-plasma techniques have been used to reduce spectral interferences in certain cases, but reagent blank contamination, sensitivity losses or multiplicative matrix effects can sometimes limit the effectiveness of these approaches. A new technique has been developed to resolve spectral interferences in ICP-MS. In this paper, a novel reactive collision cell is described for removing interfering species by means of purifying ion-reactions in the sampled ICP-MS ion beam itself. Blank contamination problems are reduced because the sample is not pretreated with any chemical reagents. Also, because the plasma is operated at normal temperatures, full advantage is taken of the ICP as a robust ion source. Analytical figure of merit demonstrating the utility of this new tool for ultra-trace analysis will be presented using ultra-pure chemical reagents designed for semiconductor manufacture. The utility of this technique for environmental and clinical applications will be discussed.
