

Signal Uniformity in an Active Two Volume Laser Ablation Cell

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Two volume cells are accepted as yielding optimum performance for Laser Ablation Inductively Coupled Plasma Mass Spectrometry in terms of fast washout and consistent ablation environment, both due to the small inner volume employed by this generic design of cell.

Recently in the community, it has been hypothesized that designs employing a rigid arm that slides in and out of the outer sample cell, connecting the ablation volume to the ICP-MS, change the overall system volume. This, in turn, is thought to affect the data quality obtained dependent on the spatial position of the inner volume within the outer cell.

In this paper, the authors investigate the validity of this argument and show the ablation characteristics at multiple inner volume positions, particularly effects related to fractionation and nuclide ratio measurements. Moreover, the authors present the importance of properly purging the outer volume on data quality.