

Performance evaluation of a novel, high efficiency, low-dispersion aerosol transport system for laser ablation ICP-MS

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Element mapping is fast becoming a routine analysis technique in laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) as it provides information on the spatial distribution of elements in a sample. Recent developments in mapping methodology have been pushing the washout performance boundaries of ablation cells..

For high resolution mapping of samples, one of the best strategies to obtain the optimum resolution is to ablate discrete points, as either single shots or limited bursts, and build an image pixel by pixel. This methodology allows laser pre-cleaning of each spot and avoids aerosol mixing between features of interest on sample surfaces, and therefore blur in the final image. The main disadvantage of this methodology is that it can take a significant amount of time to gather the image data.

Recently, Van Malderen *et al.* [1] presented data showing how a modified aerosol transport system fitted to a standard commercial excimer laser ablation system improved washout for the sample chamber to < 30 ms to allow faster acquisition of image data for bioimaging applications.

In this contribution, data will be presented to demonstrate the technology's capability in geo-mapping.

[1] Van Malderen *et al.* (2016), *Oral Presentation at the Winter Conference on Plasma Spectrochemistry – Tucson, AZ, U.S.A.*