

## Inductively Coupled Plasma Mass Spectrometric Detection for Speciation-analytical Applications at only 1 L/min Total Argon Consumption

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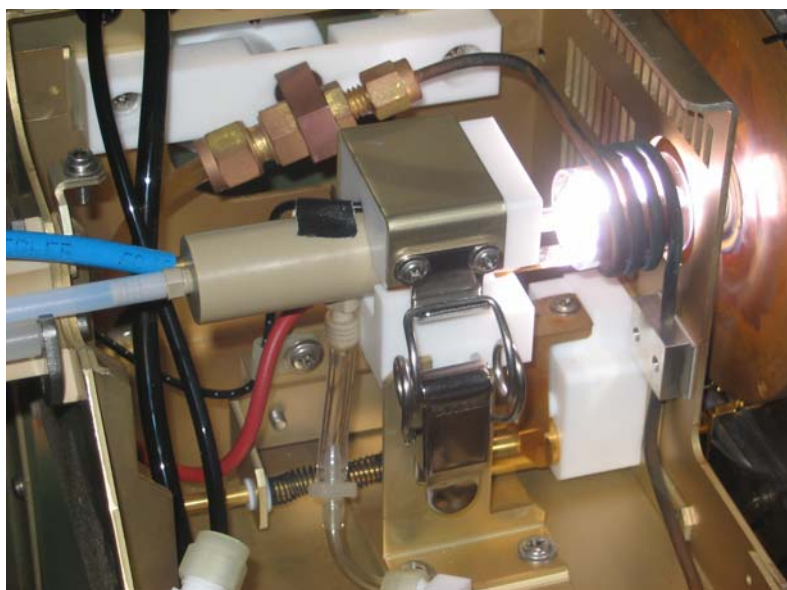
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Inductively coupled plasma mass spectrometry (ICP-MS) has proven to be a very powerful detector for separation techniques but unfortunately consumes typically 15-17 L min<sup>-1</sup> of the noble gas argon. To circumvent this drawback, we have developed a new ICP-MS ion source that can be operated at argon gas flow rates of only 1.2 L min<sup>-1</sup> and less. We have named this new ion source 'UMAS' for 'Universal Mass Spectrometric Detector for Speciation Analysis'.

Particularly when used as element selective detector after chromatographic separation of metal-containing (bio)molecules the UMAS source is of advantage over the conventional ICP-MS excitation source. The argon consumption per analyzed sample can be reduced substantially due to the long waiting phases in chromatography. The limits of detection ( $3\sigma$ ) of this new ion source are comparable to those of conventional ICP-MS systems.

The UMAS ion source has successfully been coupled to both liquid and gas chromatography. For both methods it was demonstrated that this new element selective mass spectrometric detection system is well suited to be used as alternative method to current detection techniques in speciation analysis.



The UMAS ion source installed in a conventional ICP-MS system