MULTI-ELEMENT SPECIATION ANALYSIS OF TRACE ELEMENTS USING ION CHROMATOGRAPHY HYPHENATED TO ICP-MS

Daniel Kutschker1, Carl Fisher2, Shona McSheehy Ducos3, Thermofisher Scientific, 1: Hanna-Kunath-Str. 11, 28199, Bremen, Germany; 2: 490 Lakeside Drive, Sunnyvale, CA94085, USA

ABSTRACT

The separation behavior of 6 common elements is investigated for a multi-element speciation analysis using ion chromatography (IC) hyphenated to ICP-MS. This poster demonstrates the use of both ion chromatography (IC) hyphenated to either a Thermo Scientific™ iCAP™ RQ ICP or iCAP™ TQ ICP-MS, fully equipped with a Qtegra™ Intelligent Scientific Data Solution (ISDS) software, which allows compound specific collection and quantification of the selected elemental speciation.

RESULTS

Elemental species are ideally separated using IC, for example, bromate and bromine containing species in water sample 2 (upper trace) and the same sample of 7 replicates of 5 μg·L⁻¹ of BR species in water sample 2. Bromide is separated from the same sample utilizing either an iCAP RQ ICP or iCAP TQ ICP-MS with respect to different elements and sample contamination levels (MCLs) of 10 μg·L⁻¹. Results for arsenic in water sample 2 are illustrated in the lower trace and table 1.

CONCLUSIONS

Speciation of arsenic in different samples is required in different sample types due to the inherently different transport of different species, so that an accurate result could potential hazards toward toxicology. Table 2 gives an overview of the interference removal capability, since most interfering ions are separated through chromatography. This is a significant benefit when also low abundant species are in the focus of interest.

REFERENCES


TRADEMARKS/LICENSING

© 2017 Thermofisher Scientific Inc. All rights reserved. All trademarks are the property of Thermo Fisher Scientific and its subsidiaries. This information is not intended to encourage use of these trademarked products in any manner that might infringe the intellectual property rights of others.