Multi-Element Analysis of Cannabis and Hemp Using the 7800 ICP-MS

Application Note Abstract

This Application Note describes the analysis of 25 elements, including arsenic, cadmium, lead and mercury, in cannabis, hemp, and associated products. Complete sample preparation and system operational conditions are described in the application note. A range of products -cannabis, cannabis tablets, a cannabidiol tincture, chewable sweets, hemp-based body cream and Standard Reference Materials (SRM)- were microwave digested followed by ICP-MS analysis. Results of the sample types are presented along with calibration, stability, recoveries, DL's and SRM results in the application note below.

Instrument configuration

Agilent 7800 ICP-MS with the High Matrix Introduction (HMI) and the SPS 4 autosampler system.
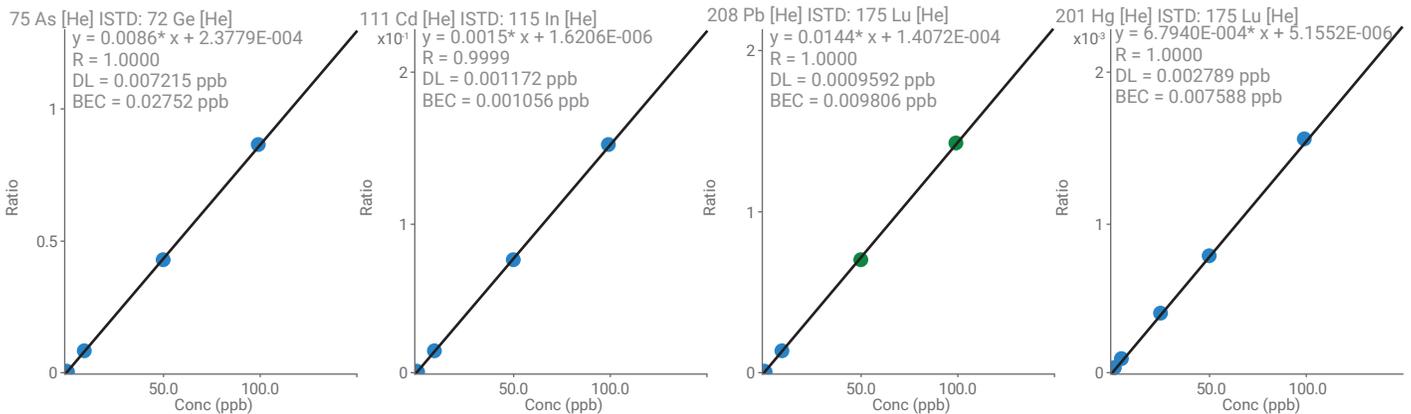

The standard 7800 ICP-MS configuration was used, which consisted of a Micromist glass concentric nebulizer, quartz spray chamber, quartz torch with 2.5 mm id injector, nickel plated copper sampling cone and a nickel skimmer cone. The system is also offered as an ICP-MS Cannabis Analyzer.

Detailed application note

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Calibration curves for As, Cd, Pb, and Hg

75 As [He] ISTD: 72 Ge [He]
$y = 0.0086^* x + 2.3779E\text{-}004$
$R = 1.0000$
DL = 0.007215 ppb
BEC = 0.02752 ppb

111 Cd [He] ISTD: 115 In [He]
$y = 0.0015^* x + 1.6206E\text{-}006$
$R = 0.9999$
DL = 0.001172 ppb
BEC = 0.001056 ppb

208 Pb [He] ISTD: 175 Lu [He]
$y = 0.0144^* x + 1.4072E\text{-}004$
$R = 1.0000$
DL = 0.0009592 ppb
BEC = 0.009806 ppb

201 Hg [He] ISTD: 175 Lu [He]
$y = 6.7940E\text{-}004^* x + 5.1552E\text{-}006$
$R = 1.0000$
DL = 0.002789 ppb
BEC = 0.007588 ppb

For more information visit **http://www.agilent.com/chem/cannabis-testing-emethods**

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