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Determination of toxic trace elements in canned vegetables. The importance of sample preparation.

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Highlights

This manuscript presents:

- The organisational challenges of a proficiency test using a test item that resembles routinely measured test items as close as possible.
- The impact of the different sample preparation approaches followed by the participants of the proficiency test, to their performance, to the policy makers and to the conformity assessment of the test item.
- The importance of the correct estimation of measurement uncertainties

Abstract

This manuscript presents the outcome of a proficiency test, named IMEP-118, for the determination of total As, Cd, Pb, Hg, Sn and inorganic As mass fractions in canned vegetables (peas in brine). With this exercise a new approach was followed by the organizers, aimed at the production of a test item identical to those screened in official controls. A total of 127 participants from 36 countries registered to the exercise out of which 123 reported results back.

Laboratory results were rated using z- and ζ-scores in accordance with ISO 13528:2005. Due to lack of specific sample preparation protocol for such commodities, the participants used two different approaches. From the analytical point of view the majority of laboratories (more than 74 %) performed satisfactorily. However, several participants (32) characterised the test item as compliant with the respective EU legislation, although it was not.