IMEP-115: Determination of methylmercury in seafood by elemental mercury analysis: Collaborative study

Abstract:
A collaborative study IMEP-115 was organized by the European Union Reference Laboratory for Heavy Metals in Feed and Food (EURL-HM) to validate a method for the determination of methylmercury in seafood. The method was based on a liquid-liquid extraction with an organic solvent and with an aqueous cysteine solution. The final quantitation was done with an elemental mercury analyzer. Fifteen laboratories experienced in elemental mercury analyses, from 10 European countries, took part in the exercise. Five test items were selected to cover the concentration range from 0.013 to 5.12 mg/kg. All test items were reference materials certified for the methylmercury mass fraction: DOLT-4 (dogfish liver), TORT-2 (lobster hepatopancreas), SRM 2974a (mussel), SRM 1566b (oyster), and ERM CE-464 (tuna). Participants also received a bottle of ERM CE-463 (tuna) to test their analytical method before starting the collaborative study. Method validation showed adequate accuracy and acceptable precision for all test items, thus fitting its intended analytical purpose. The repeatability RSD ranged from 3.9 to 12.3%, while the reproducibility RSD ranged from 8.4 to 24.8%.

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