Determination of mercury in food is a difficult analytical task, because of its high volatility and the possibilities for contamination and losses during the sampling and sample preparation steps [1]. Milestone DMA-80 is an integrated system for direct determination of total mercury based on atomic absorption principle, including as an analytical procedure drying, pyrolysis, amalgamation, desorption and concentration measurements [2]. The aim of the study was a validation of the EPA 7473 “Method for direct mercury determination in solid and liquid samples” [3] for total mercury determination in food by means of the direct mercury analyzer Milestone DMA-80. The method was validated by analyzing certified reference materials “Total diet” No ARC/CL (HDP) and “Milk powder”, FAPAS Series 7 Round 43. The instrumental parameters such as drying and decomposition times (for Milk powder) and single measurements or preconcentration (for Total diet) were optimized. The figures of merit of the validated method are: limit of detection (LOD) 0.0005 mg kg\(^{-1}\), limit of quantification (LOQ) 0.0008 mg kg\(^{-1}\) (calculated on the basis of a sample weight 100 mg); working range (0.0008–6.00) mg kg\(^{-1}\); recovery 90–110 % and within-day repeatability (RSD) 8-12% for the concentration interval (0.005–0.05) mg kg\(^{-1}\). The method was applied for analysis of 32 food samples (canned vegetables and meat, wheat, flour, sugar and dried herbs). The results obtained for the total Hg concentrations in the investigated flour and sugar samples are below the LOD, for the other food they vary from <LOQ to 0.035 mg kg\(^{-1}\).


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