Electronic Supplementary information for

Direct determination of trace mercury and cadmium in foods by sequential electrothermal vaporization atomic fluorescence spectrometry using tungsten and gold coil traps

Bo Wang,‡a,d Li Feng,‡b, Xuefei Mao,*a Jixin Liu,*a Chongchong Yu,c Lan Ding,d Siqi Li,e Chuangmu Zheng,a Yongzhong Qian,a

*aInstitute of Quality Standard and Testing Technology for Agro-products, Chinese Academy of Agricultural Sciences, and Key Laboratory of Agro-food Safety and Quality, Ministry of Agriculture, Beijing 100081, China

bBeijing Titan Instruments Company, Limited, Beijing 100015, China
cBeijing Key Laboratory of Big Data Technology for Food Safety, Beijing Technology & Business University (BTBU), Beijing 100048, China
dCollege of Chemistry, Jilin University, Changchun 130012, China
eHebei University of Engineering, Handan 056021, China

‡These authors contributed equally.

Corresponding authors: Tel & fax: +86-10-82106563.

E-mail address: mxf08@163.com & maoxuefei@caas.cn (X. F. Mao), ljx2117@gmail.com (J. X. Liu)
Experimental  

Instrumentation. Fig. S1 shows the full picture of the Hg-Cd analyzer. In Fig. S2, the Hg-vaporizer is also the on-line ashing unit for Cd analysis in food samples, where the quartz tube with an air gas line covered by electrical heating Ni-Cr coils connects to the catalytic oxidation tube. In Fig. S3, the catalytic oxidation tube is filled with the catalysts made of KMnO₄, Mn₃O₄, V₂O₅ and CaO to decompose the organic gas and smoke from the sample oxidation, as well as absorb halogen and sulfur oxides in smoke at 600 °C - 700 °C to ensure the Hg⁰ export. The sampling boat (Fig. S4) comprises of porous carbon material, whose cost can be controlled within 1 dollar. We have proved that different boats have no influence on accurate and stable measurement when changing sampling boats. So, the present sampling boat can satisfy the demand of the solid sampling instrument.
Figure S1 The full picture of the solid sampling Hg-Cd analyzer.

Figure S2 The picture of Hg-vaporizer (ashing unit) of the solid sampling Hg-Cd analyzer.

Figure S3 The picture of the catalytic oxidation tube.
Figure S4 The picture of the sampling boat.

Powdered rice sample in the hole

Sample boat (Φ 5×35 mm)