



**U.S. FOOD & DRUG  
ADMINISTRATION**

## **FDA Foods Program Compendium of Analytical Laboratory Methods: Chemical Analytical Manual (CAM)**

**METHOD NUMBER:** C-007.01

**POSTING DATE:** September 23, 2019

**POSTING EXPIRATION DATE:** None

**PROGRAM AREA:** Toxic and Nutrient Elements

**METHOD TITLE:** [EAM 4.11 Arsenic Speciation in Rice and Rice Products Using High Performance Liquid Chromatography-Inductively Coupled Plasma-Mass Spectrometric Determination](#) (follow link for method write-up; see also [FDA Elemental Analysis Manual](#) ).

**VALIDATION STATUS:** Level 3 Multi-laboratory Validated (MLV) under Foods Program Method Development, Validation and Implementation Program

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### **METHOD SUMMARY/SCOPE:**

**Analyte(s):** Arsenite, Arsenate, Monomethylarsonic acid (MMA), Dimethylarsinic acid (DMA)

**Matrices:** Rice and rice-containing food products

The method provides a procedure for arsenic speciation analysis of rice and rice-containing food products including white and brown rice, rice breakfast cereals, rice crackers, rice cakes, and rice beverages. The method utilizes high performance liquid chromatography coupled to inductively coupled plasma mass spectrometry (HPLC-ICP-MS) to determine inorganic arsenic (iAs) as the sum of two inorganic forms of arsenic, arsenite (As(III)) and arsenate (As(V)). Additionally, monomethylarsonic acid (MMA) and dimethylarsinic acid (DMA) are determined.

Concentrations of individual arsenic species determined in samples are reported based on elemental arsenic concentrations (i.e.,  $\mu\text{g}$  of As per kg food). Other matrices may be analyzed by this procedure if performance is verified in the matrix of interest and at the analyte(s) concentration of interest.

### **REVISION HISTORY:**

### **OTHER NOTES:**