

Organic Application Note



Determination of Mercury in Plant Tissue (Vegetable Food)

Sample Preparation

The dried and powdered samples can be weighed directly into the boat placed on the balance. Freeze drying can also be used as a method of drying.



Sample Weight

Up to 150 mg, balance precision of 0.1 mg or better (higher sample weights are possible).

Boat Type

614-822-114 Large Nickel Boats.

Analysis Time

Approximately 350 seconds for a single determination. Replicates (Hg accumulation) are not necessary.

Instrument Parameters

Drying Time: 60 seconds
Decomposition Time: 200 seconds
Waiting Time: 45 seconds

Calibration

The instrument has been calibrated in the factory by means of Hg standard solutions. The calibration has long-term stability. Before analysis begins, it should be checked using suitable standard check samples (Hg standard solutions or BCR/NIST standards).

Blank Correction

Prior to analysis the instrument must be purged with internal blanks until blank stability is achieved.

Typical Results

Lettuce, Nominal Value 0.035 ppm

Sample Weight (mg)	ng	ppm		
108.9	4.106	0.0377		
113.7	3.684	0.0324		
102.4	3.686	0.0360		
111.9	4.096	0.0366		
97.5	3.227	0.0331		
96.8	3.543	0.0366		
121.8	4.287	0.0352		
125.7	4.563	0.0363		
112.9	3.726	0.0330	Mean Value:	0.0347 ppm
127.5	4.144	0.0325	SD:	0.0021 ppm
117.4	3.780	0.0322	RSD:	5.95%

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Typical Results (continued)

Tomatoes, Nominal Value 0.001 ppm

Sample Weight (mg)	ng	ppm		
113.5	0.111	0.00098		
128.4	0.113	0.00088	Mean Value:	0.00091 ppm
137.6	0.127	0.00092	SD:	0.00005 ppm
117.8	0.102	0.00087	RSD:	5.47%

Potatoes, Nominal Value <0.002 ppm

Sample Weight (mg)	ng	ppm		
125.6	0.157	0.00125		
136.4	0.161	0.00180		
145.8	0.160	0.00110	Mean Value:	0.00116 ppm
126.7	0.156	0.00123	SD:	0.00009 ppm
123.9	0.129	0.00104	RSD:	7.64%

Apple Powder, Nominal Value 0.011 ppm

Sample Weight (mg)	ng	ppm		
96.5	1.409	0.0146		
89.8	1.158	0.0129	Mean Value:	0.0137 ppm
102.4	1.393	0.0136	SD:	0.0007 ppm
98.7	1.352	0.0137	RSD:	5.09%

Apple Powder, Nominal Value 0.011 ppm

Sample Weight (mg)	ng	ppm		
96.5	1.409	0.0146		
89.8	1.158	0.0129		
102.4	1.393	0.0136		
98.7	1.352	0.0137		
86.5	1.202	0.0139		
94.6	1.305	0.0138		
93.8	1.398	0.0149		
99.9	1.459	0.0146	Mean Value:	0.0140 ppm
102.1	1.480	0.0145	SD:	0.0006 ppm
96.3	1.329	0.0138	RSD:	4.33%

Wheat Flour, Nominal Value 0.015 ppm

Sample Weight (mg)	ng	ppm		
123.7	1.905	0.0154		
144.6	2.212	0.0153		
120.2	1.827	0.0152		
137.8	2.150	0.0156	Mean Value:	0.0154 ppm
133.7	2.086	0.0156	SD:	0.0002 ppm
149.1	2.251	0.0151	RSD:	1.34%



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