

Organic Application Note

Determination of Mercury in Cement Raw Meal, Flue Ash, and Clay Slate/Coke Mixture

Sample Preparation The sample can be weighed directly into the sample boat.

Sample Weight

Approximately 200 mg, balance precision of 0.1 mg or better.

Boat Type 614-822-114 Large Nickel Boats.

Analysis Time

Approximately 300 seconds for a single determination. Replicates (Hg accumulation) are not necessary.

Instrument Parameters

Drying Time: 60 seconds
Decomposition Time: 150 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

Flue Ash

Expected Content <0.5 ppm

| Sample Weight | | |
|---------------|-----------|-------|
| (mg) | ng | ppm |
| 140.2 | 39.40 | 0.281 |
| 143.5 | 39.89 | 0.278 |
| 135.9 | 38.73 | 0.285 |
| Mean Value: | 0.281 ppm | |
| SD: | 0.004 ppm | |
| RSD: | 1.25% | |

Cement Raw Meal

Preheated in Tube Furnace to 700°C
Expected Content <0.05 ppm

| Sample Weight | | |
|---------------|-------------|---------|
| (mg) | ng | ppm |
| 201.6 | 0.169 | 0.00084 |
| 203.7 | 0.161 | 0.00079 |
| 197.4 | 0.164 | 0.00083 |
| Mean Value: | 0.00082 ppm | |
| SD: | 0.00003 ppm | |
| RSD: | 3.23% | |

Clay Slate/Coke Blend

Expected Content 0.1 ppm

| Sample Weight | | |
|---------------|------------|--------|
| (mg) | ng | ppm |
| 80.5 | 7.583 | 0.0942 |
| 140.6 | 12.57 | 0.0894 |
| 136.5 | 13.34 | 0.0977 |
| Mean Value: | 0.0938 ppm | |
| SD: | 0.0042 ppm | |
| RSD: | 4.44% | |



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