



## Summary

Precise and rapid determination of total mercury in Manganese can be performed using Direct Mercury Analyzer. Such an instrument requires no sample wet chemistry or pre-treatment.

Once a weighed sample portion is introduced into the instrument, analysis is completed in six minutes. Direct analysis of mercury, using the integrated sequence of Thermal Decomposition, Catalyst Conversion, Amalgamation, and Atomic Absorption Spectrophotometer, is described in EPA 7473 and is validated for laboratory as well as field analysis.

## Instrumentation

### *Direct Mercury Analyzer apparatus and supplies*

Milestone DMA-80, 640-1640 terminal with DMA-80 software or DMA-80 PC software, metal boats.

Analytical balance, spatula, pipette, or appropriate mechanical pipette and volumetric flask(Class A), 50 or 100 ml.

### **Sample weight :**

Up to 100 mg (max)

The sample has been mixed and then introduced into the metal boat.

## Procedure

1. Place a boat on the balance plate, tare it and weigh the sample.
2. Introduce the boat into sample tray.
3. Run the DMA-80 program to completion.

## DMA-80 program

N° step	Time	Temperature
1	00:00:10	200°C
2	00:02:00	750°C
3	00:01:00	750°C

Max start temperature: 200°C  
Purge: 60 sec

## Results

Hg	Statistical data
2.5± 0.2 mg/kg	Rsd: 9.14%

## Conclusion

The DMA-80 Mercury Analyzer successfully processed Manganese oxides sample. Total analysis time per sample was less than 7 minutes, including the time taken to weigh each sample into the boat.

Manganese is not found as the free metal in nature, however manganese minerals consisting of oxides, silicates, and carbonates are the common. Most Manganese is obtained from ores in Australia, Brazil, Gabon, India, Russia, and South Africa. Manganese nodules on ocean floors holds contain about 24% manganese.