



# Sulphur

## Summary

Precise and rapid determination of total mercury in Sulphur 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, quartz boats.

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

### Sample weight :

Up to 20 mg (max)

### Additive:

The sample Sulphur 100% has been mixed and introduced into the metal boat and then added 100 mg of a mixture (1:1) of ZnO<sub>2</sub> and Fe<sub>2</sub>O<sub>3</sub> (analytical grade). The Zn/Fe oxides are used to convert the S in the stable form of Sulfate.

## Procedure

1. Place a boat on the balance plate, tare it and weigh the sample.
2. Add 100 mg of Additive.
3. Introduce the boat into sample tray.
4. Run the DMA-80 program to completion.

## DMA-80 program

N° step	Time	Temperature
1	00:00:10	200°C
2	00:02:00	700°C
3	00:01:00	700°C
Max start temperature: 200°C		
Purge: 60 sec		

## Results

Results µg/kg	Statistical Data		
16.60–17.56	<i>avg:</i>	<i>sd:</i>	<i>rsd:</i>
17.55–16.47	17.18 µg/kg	0.52 µg/kg	3.05 %
17.68			

## Conclusion

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