Virgin Naphtha

Summary

Precise and rapid determination of total mercury in Virgin Naphtha 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 :

20 mg

Due to the high organic of crude oil sample, the largest sample size that should be analyzed by this instrument is 60mg.

Additive:

Sample Additive A (supplied by Milestone)

Procedure

1. Place a boat on the balance plate, tare it and weigh 500 mg of Add. A.
2. Add the sample.
3. Introduce the boat into sample tray.
4. Run the DMA-80 program to completion.

DMA-80 program

N° step	Time	Temperature
1	00:02:00	200°C
2	00:02:00	650°C
3	00:01:00	650°C
Max start temperature: 200°C Purge: 60 sec		

Results

sample	µg/kg
1	5.21 ± 0.17
2	3.71 ± 0,24

Conclusion

Taking into account small sample size and density of the sample, to increase precision the weight and not the volume should be reported. Hg concentration also should be calculated based on the sample weight. This is an ideal application for operation of the DMA-80 Mercury Analyzer in the field. With proper consideration for electrical power, and a firm platform on which to place the instrument and analytical balance, the DMA-80 Mercury Analyzer could easily be used on-site to evaluate the virgin naphtha.