U.S. Department of Commerce
C. William Verity
Secretary

National Bureau of Standards
Ernest Ambler, Director

National Bureau of Standards

Certificate of Analysis

Standard Reference Material 1616

Sulfur in Kerosine

This Standard Reference Material (SRM) is intended for use as an analytical standard for the determination of sulfur in fuel oils or materials of similar matrix.

SRM 1616 consists of 100 mL of a special, commercial low-sulfur grade kerosine suitable for use in nonflue-connected kerosine burner appliances and for use in wick-fed illuminating lamps (ASTM Standard Specification for Kerosine D 3699-83). The certified sulfur content was determined using isotope dilution thermal ionization mass spectrometry and ion chromatography. The certified value given below is based on at least 0.2 gram samples of the fuel oil, the minimum quantity that should be used for analysis.

Sulfur----------0.0152 ± 0.0002[1] weight percent

[1] The uncertainty is ± two times the standard deviation of the certified value and includes allowance for any variability within and between measurement methods.

Notice: The certification of SRM 1616 is valid 3 years from the date of purchase.

Use: Before use, the contents of the bottle must be mixed by vigorous shaking. However, it is recommended that care be exercised when dispensing the material from the bottle so that the material is not exposed to the air for lengthy periods of time.

Long term stability (> 3 years) of this SRM has not been rigorously established. NBS will continue to monitor this material and any substantive change in its certification will be reported to the purchaser.

Analyses for certification were performed in the Inorganic Analytical Research Division by W.R. Kelly, Le-Tian Chen, W.F. Koch, L.A. Holland, P.J. Paulsen, and E.S. Beary.

The statistical analysis of the certification data was performed by R.C. Paule, NBS National Measurement Laboratory.

The overall direction and coordination of the analytical measurements leading to certification were performed in the Inorganic Analytical Research Division by J.R. DeVoe.

The technical and support aspects involved in the preparation, certification, and issuance of this Standard Reference Material were coordinated through the Office of Standard Reference Materials by T.E. Gills.

February 19, 1988
Gaithersburg, MD 20899

Stanley D. Rasberry, Chief
Office of Standard Reference Materials

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Preparation, Testing, and Analysis

The base material for this SRM was obtained from a commercial supplier. The material was blended and bottled into 100 mL units.

Twelve bottles were randomly selected and analyzed in duplicate using ion chromatography. Statistical analysis of the data showed no evidence of material heterogeneity.

Supplemental Information

SRM 1616 was tested for metal impurities (Table 1) and physical properties (Table 2). These values are not certified, but are supplied for information only. The semi-quantitative analysis for the metal impurities was performed using inductively coupled plasma/mass spectrometry.

Table 1. Semi-Quantitative Analysis for Metal Impurities, μg/g

Concentration/Element	Concentration/Element
< 10: Fe, Ni	< 0.1: Pb, Tl, Pt, W, Ce
≤ 3: Zn	Nd, Te, Sb, In, Cd
< 1: Cr, Ti, Mg	Pb, Mo, Zr, Sr, Rb
U, Th, Bi, Ir, Os, Re, Ta	Ga, Ge, Cu, V, Li
rare earths, Cs, Sn, Ru, Rh, Nb	
As, Y, Co, Mn, Sc, Al	

Table 2. Physical Properties of SRM 1616

API Gravity @ 60°F	Flash Point °F	Kinematic Viscosity @ 100°F (cSt)	Pour Point °F
42.2	114	14.2	-58 °F