



# National Institute of Standards & Technology

## Certificate of Analysis

### Standard Reference Material 1624b

#### Sulfur in Distillate (Diesel) Fuel Oil

Sulfur Content . . . . .  $0.332 \pm 0.003$  wt. %

This Standard Reference Material (SRM) is intended for use in the determination of total sulfur in fuel oils or materials of similar matrix. SRM 1624b is a commercial "No. 2-D" distillate fuel oil as defined by the American Society for Testing and Materials, ASTM. It consists of 100 mL of distillate fuel oil that was blended and bottled.

The sulfur content in SRM 1624b was certified using two independent methods of analysis, isotope dilution mass spectrometry and ion chromatography. The certified value was also confirmed using ASTM Methods D 4294 and D 1552. Homogeneity testing was performed using X-ray fluorescence spectrometry.

The stated uncertainty is expressed as two standard deviations of the certified value and includes observed variability both within and between measurement methods.

**Notice to Users:** The certification of this SRM is considered valid three years from the date of purchase. Any substantive change in the certified value will be reported to the user.

Analyses for certification were performed by W.F. Koch, W.R. Kelly, K.E. Hehn, A.F. Marlow, and P.A. Pella of the Inorganic Analytical Research Division.

The supplemental information reported on the next page was obtained from physical tests and measurements using ASTM methods and was performed by the E.W. Saybolt & Co. Inc., of Corpus Christi, TX on contract to the National Institute of Standards and Technology.

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

The overall direction and coordination of the technical measurements leading to the certification of this SRM were coordinated through the Standard Reference Materials Program by T.E. Gills.

Gaithersburg, MD 20899  
March 14, 1994  
(Revision of certificate dated 4-5-90)

Thomas E. Gills, Chief  
Standard Reference Materials Program

(over)

## SUPPLEMENTAL INFORMATION

Physical properties of SRM 1624b are listed in the table below. The values are not certified but are provided as additional information on the matrix.

<u>Test</u>	<u>ASTM Method</u>	<u>Result</u>
Density @ 15.56 °C (60 °F)	D 1298	862.8 kg/m <sup>3</sup>
Flash Point, PMCC	D 93	75 °C (167 °F)
Pour Point	D 97	-27 °C (-16.6 °F)
Heat of Combustion, Gross	D 2382	45.70 MJ·kg <sup>-1</sup> (19,650 Btu/lb)
Viscosity Kinematic @ 38 °C(100 °F)	D 445	2.62 x 10 <sup>-6</sup> M <sup>2</sup> /s (2.62 cSt)

### ASTM Methods Used for Physical Tests

D 1298 Standard Test Method for Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.

D 93 Standard Test Method for Flash Point by Pensky-Martens Closed Tester.

D 97 Standard Test Method for Pour Point of Petroleum Oils.

D 2382 Standard Test Method for Heat of Combustion of Hydrocarbon Fuels by Bomb Calorimeter (High-Precision Method)

D 445 Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity).