National Institute of Standards & Technology

Certificate of Analysis

Standard Reference Material 2724

Sulfur in Diesel Fuel Oil

Sulfur Content ..... 0.0425 ± 0.0004 weight percent

This Standard Reference Material (SRM) is intended for use in the determination of total sulfur in fuel oils or material of similar matrix. SRM 2724 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 diesel fuel oil that was thoroughly mixed and bottled.

The sulfur content in SRM 2724 was certified using isotope dilution thermal ionization mass spectrometry. The certified value was also confirmed using ASTM methods D-1552, D-2622, and D-4294. Homogeneity testing was performed using X-ray fluorescence spectrometry.

The stated uncertainty is a 95% confidence interval for the certified value and includes all known sources of random and systematic errors.

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

Analyses for certification were performed by W.R. Kelly, R.D. Vocke, A.F. Marlow, and P.A. Pella of the NIST Inorganic Analytical Research Division.

The supplemental information reported on page 2 was obtained from physical tests and measurements using ASTM methods and was performed by a commercial firm on contract to the National Institute of Standards and Technology.

The statistical analysis of the certification data was performed by S.B. Schiller of the NIST Statistical Engineering Division.

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

Gaithersburg, MD 20899
July 20, 1993
(Revision of certificate dated 8-17-92)

Thomas E. Gills, Acting Chief
Standard Reference Materials Program

(over)

SUPPLEMENTAL INFORMATION

Physical properties of SRM 2724 are listed in Table 1. The values given are not certified but are provided as additional information on the matrix.

Table 1

Test	ASTM Method	Result
Carbon		86.72 wt. %*
Hydrogen		12.80 wt. %
Nitrogen		< 0.02 wt. %
Specific Gravity @ 15 °C	D-1298	0.8146 g/cm^3
Cloud Point	D-2500	-16 °C
Flash Point	D-56	69 °C
Pour Point	D-97	-27 °C
Calorific Value, Gross	D-240	45.41 MJ·kg^{-1} (19522 Btu·lb^{-1})
Viscosity Kinematic @ 38 °C	D-445	2.71 cSt
Ramsbottom residue on 10% distillation residue	D-524/D-86	0.27 wt. %

* wt % = mg/kg x 10^{-4}

ASTM Methods Used for Physical Tests

D-1298-85 (1990) Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.

D-2500-88 Cloud Point of Petroleum Oils.

D-56-87 Flash Point by Tag Closed Tester

D-97-87 Pour Point of Petroleum Oils.

D-240-87 Heat of Combustion of Liquid Hydrocarbon Fueled by Bomb Calorimeter.

D-445-88 Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity).

D-524-88 Ramsbottom Carbon Residue of Petroleum Products.

D-86-90 Distillation of Petroleum Products.