

Certified Reference Materials (CRMs) & Standards for Petroleum Analysis

ASTM Method Description

D56	Flash Point by Tag Closed Cup Tester
D86	Distillation of Petroleum Products at Atmospheric Pressure
D92	Flash and Fire Points by Cleveland Open Cup Tester
D93	Flash Point by Pensky-Martens Closed Cup Tester
D97	Pour Point of Petroleum Products
D445	Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)
D850	Distillation of Industrial Aromatic Hydrocarbons and Related Materials
D974	Acid and Base Number by Color-Indicator Titration
D2386	Freezing Point of Aviation Fuels
D2500	Cloud Point of Petroleum Products and Liquid Fuels
D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry
D2887	Boiling Range Distribution of Petroleum Fractions by Gas Chromatography
D2896	Base Number of Petroleum Products by Potentiometric Perchloric Acid Titration
D3120	Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Micro coulometry
D3227	(Thiol Mercaptan) Sulfur in Gasoline, Kerosene, Aviation Turbine, and Distillate Fuels (Potentiometric Method)
D3246	Sulfur in Petroleum Gas by Oxidative Microcoulometry
D3524	Diesel Fuel Diluent in Used Diesel Engine Oils by Gas Chromatography
D3525	Gasoline Diluent in Used Gasoline Engine Oils by Gas Chromatography
D3606	Determination of Benzene and Toluene in Finished Motor and Aviation Gasoline by Gas Chromatography

ASTM Method Description

D3710	Boiling Range Distribution of Gasoline and Gasoline Fractions by Gas Chromatography
D4045	Sulfur in Petroleum Products by Hydrogenolysis and Rateometric Colorimetry
D4059	Analysis of Polychlorinated Biphenyls in Insulating Liquids by Gas Chromatography
D4420	Determination of Aromatics in Finished Gasoline by Gas Chromatography
D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-Ray Fluorescence Spectrometry
D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/ Inlet Oxidative Combustion and Chemiluminescence Detection
D4739	Base Number Determination by Potentiometric Hydrochloric Acid Titration
D4815	Determination of MTBE, ETBE, TAME, DIPE, Tertiary-Amyl Alcohol and C1 to C4 Alcohols in Gasoline by Gas Chromatography
D4927	Elemental Analysis of Lubricant and Additive Components — Barium, Calcium, Phosphorus, Sulfur, and Zinc by Wave length-Dispersive X-Ray Fluorescence Spectroscopy
D4929	Determination of Organic Chloride Content in Crude Oil
D4951	Determination of Additive Elements in Lubricating Oils by Inductively Coupled Plasma Atomic Emission Spectrometry
D5059	Lead in Gasoline by X-Ray Spectroscopy
D5134	Detailed Analysis of Petroleum Naphthas through n-Nonane by Capillary Gas Chromatography
D5185	Multi element Determination of Used and Unused Lubricating Oils and Base Oils by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES)
D5191	Vapor Pressure of Petroleum Products
D5384	Chlorine in Used Petroleum Products (Field Test Kit Method)
D5441	Analysis of Methyl Tert-Butyl Ether (MTBE) by Gas Chromatography
D5442	Analysis of Petroleum Waxes by Gas Chromatography
D5443	Paraffin, Naphthene, and Aromatic Hydrocarbon Type Analysis in Petroleum Distillates through 200 °C by Multi-Dimensional Gas Chromatography

ASTM Method Description

D5453	Determination of Total Sulfur in Light Hydrocarbons, Spark-ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
D5501	Determination of Ethanol and Methanol Content in Fuels Containing Greater than 20% Ethanol by Gas Chromatography
D5580	Determination of Benzene, Toluene, Ethylbenzene, p/m-Xylene, o-Xylene, C9 and Heavier Aromatics, and Total Aromatics in Finished Gasoline by Gas Chromatography
D5599	Determination of Oxygenates in Gasoline by Gas Chromatography and Oxygen Selective Flame Ionization Detection
D5623	Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection
D5708	Determination of Nickel, Vanadium, and Iron in Crude Oils and Residual Fuels by Inductively Coupled Plasma (ICP) Atomic Emission Spectrometry
D5769	Determination of Benzene, Toluene, and Total Aromatics in Finished Gasolines by Gas Chromatography/Mass Spectrometry
D5967	Evaluation of Diesel Engine Oils in T-8 Diesel Engine
D5986	Determination of Oxygenates, Benzene, Toluene, C8-C12 Aromatics and total Aromatics in Finished Gasoline by Gas Chromatography/Fourier Transform Infrared Spectroscopy
D6160	Determination of Polychlorinated Biphenyls (PCBs) in Waste Materials by Gas Chromatography
D6296	Total Olefins in Spark-ignition Engine Fuels by Multidimensional Gas Chromatography
D6304	Determination of Water in Petroleum Products, Lubricating Oils, and Additives by Coulometric Karl Fischer Titration
D6334	Sulfur in Gasoline by Wavelength Dispersive X-Ray Fluorescence
D6352	Boiling Range Distribution of Petroleum Distillates in Boiling Range from 174 °C to 700 °C by Gas Chromatography
D6366	Total Trace Nitrogen and its Derivatives in Liquid Aromatic Hydrocarbons by Oxidative Combustion and Electrochemical Detection
D6371	Cold Filter Plugging Point of Diesel and Heating Fuels

ASTM Method Description

D6443	Determination of Calcium, Chlorine, Copper, Magnesium, Phosphorus, Sulfur, and Zinc in Unused Lubricating Oils and Additives by Wavelength Dispersive X-Ray Fluorescence Spectrometry (Mathematical Correction Procedure)
D6445	Sulfur in Gasoline by Energy-Dispersive X-Ray Fluorescence Spectrometry
D6481	Determination of Phosphorus, Sulfur, Calcium, and Zinc in Lubrication Oils by Energy Dispersive X-Ray Fluorescence Spectroscopy
D6595	Determination of Wear Metals and Contaminants in Used Lubricating Oils or Used Hydraulic Fluids by Rotating Disc Electrode Atomic Emission Spectrometry
D6729	Determination of Individual Components in Spark-ignition Engine Fuels by 100-Metre Capillary High-Resolution Gas Chromatography
D6730	Determination of Individual Components in Spark-ignition Engine Fuels by 100-Metre Capillary (with Pre-column) High-Resolution Gas Chromatography
D6733	Determination of Individual Components in Spark-ignition Engine Fuels by 50-Metre Capillary High-Resolution Gas Chromatography
D6751	Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels
D7169	Boiling Point Distribution of Samples with Residues such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography
D7213	Boiling Range Distribution of Petroleum Distillates in the Boiling Range from 100 °C to 615 °C by Gas Chromatography
D7371	Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil using Mid Infrared Spectroscopy (FTIR-ATR-PLS Method)
D7423	Determination of Oxygenates in C2, C3, C4, and C5 Hydrocarbon Matrices by Gas Chromatography and Flame Ionization Detection

ASTM Method Description

D7593	Determination of Fuel Dilution for In-Service Engine Oils by Gas Chromatography
D7686	Field-Based Condition Monitoring of Soot in In-Service Lubricants using a Fixed-Filter Infrared (IR) Instrument
D7844	Condition Monitoring of Soot in In-Service Lubricants by Trend Analysis using Fourier Transform Infrared (FT-IR) Spectrometry
D7922	Determination of Glycol for In-Service Engine Oils by Gas Chromatography



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