

### Molecular Characterization

Method	Test Description	Sample Size
ASTM D94	Saponification Number	25 g
ASTM D189	Carbon Residue, Conradson	50 mL
ASTM D482	Total Ash	80 g
ASTM D524	Carbon Residue, Ramsbottom	50 mL
ASTM D611	Aniline Point	100 mL
ASTM D613	Cetane Number	1 L
• ASTM D664	Acid Number	50 mL
• ASTM D874	Sulfated Ash	50 g
ASTM D893	Insolubles, Pentane	25 mL
ASTM D974	Acid Number	50 mL
ASTM D974	Base Number	50 mL
ASTM D976 & D4737	Cetane Index (Calculated from D1298 & D86)	500 mL
ASTM D1319	Hydrocarbon Type	40 mL
ASTM D1662	Sulfur, Active	100 g
ASTM D1957	Hydroxyl Number	25 mL
ASTM D2007	Clay Gel Analysis	100 mL
ASTM D2273	Trace Sediment	200 g
• ASTM D2622	Sulfur by XRF - Wavelength Dispersive	30 mL
ASTM D2699	Octane Number (Research Rating – RON)	800 mL
ASTM D2700	Octane Number (Motor Rating – MON)	800 mL
• ASTM D2887	Gas Chromatography - Carbon Distribution	10 mL
• ASTM D2896	Base Number	50 mL
ASTM D2982	Glycol	20 mL
ASTM D3238	Carbon Distribution Analysis	250 mL
ASTM D3703	Peroxide Value	200 mL
ASTM D4291	Glycol	5 mL
ASTM D4294	Sulfur by XRF - Energy Dispersive	10 mL
ASTM D4530	Carbon Residue, Micro	150 mL
• ASTM D4629	Nitrogen by Chemiluminescence	30 mL
ASTM D4737	Cetane Index (Calculated from D1298 & D86)	500 mL
• ASTM D4739	Base Number	20 mL
ASTM D4927	Sulfur Content for Automatic Transmission Fluid by XRF	30 mL
• ASTM D4951	Elemental Analysis by Inductively Coupled Plasma, Wear Metals	10 mL
• ASTM D5185	Elemental Analysis by Inductively Coupled Plasma (No S)	10 mL
• ASTM D5185	Sulfur by Elemental Analysis by Inductively Coupled Plasma	10 mL
ASTM D5186	Aromatics in Diesel Fuel	150 mL
ASTM D5291	Carbon Hydrogen Nitrogen Content	30 mL
ASTM D5291	Nitrogen - Carlo Erba	30 mL
• ASTM D5453	Sulfur	10 mL
• ASTM D5453 & D5762	Sulfur & Nitrogen Package	20 mL
ASTM D5554	Iodine Value	60 mL
• ASTM D5762	Nitrogen	10 mL
ASTM D5769	Benzene, Toluene, Total Aromatics by GC/MS	10 mL
ASTM D5827	Sulfate Analysis	30 mL
ASTM D6130	Elemental Analysis by ICP, Aqueous / Coolants / Sulfur, 5 elements	10 mL
• ASTM D6304	Water by Karl Fischer	100 mL
• ASTM D6443	Chlorine - XRF Wavelength Dispersive	30 mL
ASTM D6560	Asphaltene Content	25 g

### Molecular Characterization

Method	Test Description	Sample Size
ASTM D7214	FTIR Analysis, Oxidation by Peak Area Increase	50 mL
ASTM D7317	Pentane Insolubles by Filtration	25 mL
ASTM D7371	FAME Fatty Acid Methyl Esters Content in Diesel Fuel Oil	100 mL
• ASTM D7412	FTIR Analysis, In-Service Fluid, Phosphate Anti-Wear	50 mL
• ASTM D7415	FTIR Analysis, In-Service Fluid, Sulfate Content	50 mL
• ASTM D7624	FTIR Analysis, In-Service Fluid, Nitration	50 mL
• ASTM D7844	FTIR Analysis, In-Service Fluid, Soot	50 mL
ASTM E1131	TGA Soot	5 mL
ASTM E2412	FTIR Analysis, In-Service Fluid	50 mL
EN 14078	FAME Fatty Acid Methyl Esters Content in Diesel Fuel Oil	100 mL
EPA Test 24	Volatile Organic Content (VOC)	10 mL
IP 346	PCA - Polycyclic Analysis	100 mL
• SAVLAB IR	Fourier Transform Infra-Red, FTIR, Spectra Only	50 mL
• SAVLAB IRG	Fourier Transform Infra-Red, FTIR, Glycol Analysis	50 mL
• SAVLAB IRW	Fourier Transform Infra-Red, FTIR, Water Analysis	50 mL
SAVLAB SFACALC	Sulfated Ash, Calculated from ICP Results	N/A
• SAVLAB XRFSCAN	Elemental Analysis, Qualitative by XRF	30 mL

