



# List of Services

Effective January 1, 2019

## Service List by Group

### Gas Chromatography - Hydrocarbon

Fluid	Method	Description
Gas/Vapor	GPA 2261	Fractional through C6+, includes Nitrogen and Carbon Dioxide. Oxygen/Argon, Helium, Hydrogen available for additional charge.
	GPA 2261	Fractional through C7+, includes Nitrogen and Carbon Dioxide. Oxygen/Argon, Helium, Hydrogen available for additional charge.
	GPA 2286	Fractional through C15+, includes Nitrogen, Carbon Dioxide, Helium, and Oxygen/Argon. Hydrogen available for additional charge.
	Pantechs O2Ar	Oxygen and Argon Split using Cryogenics
NGL/LPG	GPA 2177	Fractional through C6+, includes Nitrogen and Carbon Dioxide.
	GPA 2177	Fractional through C7+, includes Nitrogen and Carbon Dioxide.
	GPA 2186	Fractional through C15+, includes Nitrogen, Carbon Dioxide.
Crude Oil/ Condensate	ASTM D8003/ GPA 2103	Fractional through C24+, includes Nitrogen, Carbon Dioxide.

### Gas Chromatography - Sulfur Speciation

Fluid	Method	Description
Gas/Vapor	ASTM D5504	Determination of Sulfur Compounds in Natural Gas and



		Gaseous Fuels by Gas Chromatography and Chemiluminescence.
	ASTM D6228	Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection
NGL/LPG	ASTM D5623	Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection
	ASTM D6228	Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection

### X-ray Fluorescence Spectrometry - Sulfur

Fluid	Method	Description
Stable Liquid at Atmospheric Conditions	ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
	ASTM D7039	Sulfur in Gasoline, Diesel Fuel, Jet Fuel, Kerosine, Biodiesel, Biodiesel Blends, and Gasoline-Ethanol Blends by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry

### X-ray Fluorescence Spectrometry - Chlorine

Fluid	Method	Description
Stable Liquid at Atmospheric Conditions	ASTM D4929C	Determination of Organic Chloride Content in Crude Oil - Procedure C
	ASTM D7536	Chlorine in Aromatics by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry

### Vapor Pressure

Fluid	Method	Description
Liquid with	ASTM D323	Vapor Pressure of Petroleum Products (Reid Method)



VP<145 psi		
	ASTM D5191	Standard Test Method for Vapor Pressure of Petroleum Products and Liquid Fuels (Mini Method)
	ASTM D6377	Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method)
	ASTM D6378	Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)

### Other Lab Analyses

Fluid	Method	Description
NGL/LPG	ASTM D1838	Standard Test Method for Copper Strip Corrosion by Liquefied Petroleum (LP) Gases
Crude Oil/ Condensate	ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure
	ASTM D88	Saybolt Viscosity
	ASTM D5705	Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils
	GLR	Simulated Gas/Liquid Ratio by Flash Vaporization
Stable Liquid at Atmospheric Conditions	ASTM D156	Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
	ASTM D287-12b	API Gravity of Crude Petroleum and Petroleum Products



		(Hydrometer Method)
	ASTM D1271	Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer
	ASTM D6304	Determination of Water in Petroleum Products, Lubricating Oils, and Additives by Coulometric Karl Fischer Titration
Aqueous	ASTM D1125	Electrical Conductivity and Resistivity of Water
Aqueous	pH	pH of Aqueous Solutions

### Onsite Analyses

	Method	Description
Gas/Vapor	GPA 2377	Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes
	ASTM D2385	Hydrogen Sulfide and Mercaptan Sulfur in Natural Gas (Cadmium Sulfate-Iodometric Titration "Tutwiler" Method)

### Onsite Services

1. Onsite sample collection by GPA 2166 and 2174



## Service List by Method Designation

### ASTM

Method	Description
D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure
D88	Saybolt Viscosity
D156	Saybolt Color of Petroleum Products (Saybolt Chromometer Method)
D287-12b	API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)
D323	Vapor Pressure of Petroleum Products (Reid Method)
D1125	Electrical Conductivity and Resistivity of Water
D1271	Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer
D1838	Standard Test Method for Copper Strip Corrosion by Liquefied Petroleum (LP) Gases
D2385	Hydrogen Sulfide and Mercaptan Sulfur in Natural Gas (Cadmium Sulfate-Iodometric Titration "Tutwiler" Method)
D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
D5191	Standard Test Method for Vapor Pressure of Petroleum Products and Liquid



	Fuels (Mini Method)
D5504	Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence.
D5623	Sulfur Compounds in Light Petroleum Liquids by Gas Chromatography and Sulfur Selective Detection
D5705	Measurement of Hydrogen Sulfide in the Vapor Phase Above Residual Fuel Oils
D6228	Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection
D6304	Determination of Water in Petroleum Products, Lubricating Oils, and Additives by Coulometric Karl Fischer Titration
D6377	Determination of Vapor Pressure of Crude Oil: VPCR <sub>x</sub> (Expansion Method)
D6378	Standard Test Method for Determination of Vapor Pressure (VPX) of Petroleum Products, Hydrocarbons, and Hydrocarbon-Oxygenate Mixtures (Triple Expansion Method)
D7039	Sulfur in Gasoline, Diesel Fuel, Jet Fuel, Kerosine, Biodiesel, Biodiesel Blends, and Gasoline-Ethanol Blends by Monochromatic Wavelength Dispersive X-ray Fluorescence Spectrometry
D8003	Determination of Light Hydrocarbons and Cut Point Intervals in Live Crude Oils and Condensates by Gas Chromatography



## GPA

Method	Description
2103	Natural Gas Condensate Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography
2166	Obtaining Natural Gas Samples for Analysis by Gas Chromatography
2174	Obtaining Liquid Hydrocarbons Samples For Analysis by Gas Chromatography
2177	Analysis of Natural Gas Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography
2186	Extended Analysis of Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Temperature Programmed Gas Chromatography
2261	Analysis for Natural Gas and Similar Gaseous Mixtures by Gas Chromatography
2286	Method for the Extended Analysis of Natural Gas and Similar Gaseous Mixtures by Temperature Programmed Gas Chromatography
2377	Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes