

Simple, Fast and Accurate Ethanol and Water Analysis
with a Single Instrument

QUICKSPEC™


www.paclp.com



PetroSpec
by PAC

Highly Accurate Ethanol and Water Analysis in only 20 Seconds

- Measures Full Range, 0 - 100%, Ethanol in Gasoline Blends
 - Measures Water in Gasoline Blends from 0 - 5%
- Ideal for Lab and Field Measurement of Fuel Grade Ethanol
 - Rugged Design, Portable – AC or Battery Operated
 - Low cost, Easy to Use

SIMPLE, FAST, AND ACCURATE ETHANOL AND WATER ANALYSIS WITH A SINGLE INSTRUMENT

PetroSpec's portable QuickSpec™ analyzer delivers simple, fast, and accurate analysis of ethanol and water in gasoline blends throughout the fuel blending process. The QuickSpec™ provides a broad analysis range of ethanol from 0.1 vol% to 100.0 vol%, which is crucial for ethanol blending in gasoline and for measuring purity of fuel-grade ethanol. Water can be measured from 0.01 vol% to 5.00 vol%.

The user-friendly, solid-state QuickSpec™ is extremely rugged, with no moving parts. Analysis is performed using a near-infrared spectral method, and is accurate down to tenths of volume percent. To use the QuickSpec™, a technician simply fills a sample cell with a fuel ethanol mixture, places the sample cell in the instrument, starts the test, and receives an answer in seconds. The instrument sets a baseline and adjusts the electronics through automatic calibration. It delivers optimum results after each analysis, without the use of reagents.

ETHANOL PURITY/ETHANOL IN FUEL BLENDS

By developing the PetroSpec QuickSpec™, PAC addresses the growing need for determining ethanol purity or ethanol in fuel blends. Why? Because Ethanol, as fuel or fuel additive, is here to stay. Ethanol as fuel has several advantages; it imparts high octane compared to its relatively low cost, the ethanol molecule is 35% oxygen, so it aids in complete engine combustion, thus lowering harmful emissions. Ethanol also displaces petroleum-based fuel components, some of which are recognized carcinogens.

Global consumption of fuel-grade ethanol is rising. The US and Brazil lead the way in ethanol production. Most of this production is principally from bio- or renewable sources: sugar cane, corn, potato, cassava, and other common crops. More consumption is followed by the need to quickly and accurately measure the purity of the ethanol, as well as the ethanol and water in blended fuels for final consumption. Terminal operators and others need to know at all times that they are receiving fuel ethanol that meets the ASTM D4806 standard. Quick Spec™ lets producers know precisely the purity of the denatured ethanol being delivered to the terminal, in the refinery, or in the blending tank within seconds. With QuickSpec™, producers know that they're blending high quality gasoline fuels consistently to specifications and exacting standards.

SIMPLE, DEPENDABLE, ACCURATE DETECTION

- Accurate results in seconds
- Lightweight, compact, and conveniently portable design
- Fast, fully automated, and easy to use by non-technical personnel

PRECISE, LOW MAINTENANCE OPERATION

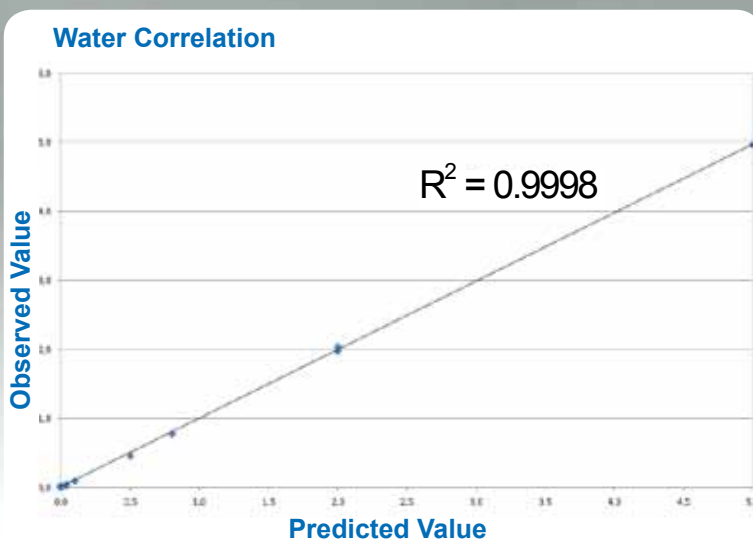
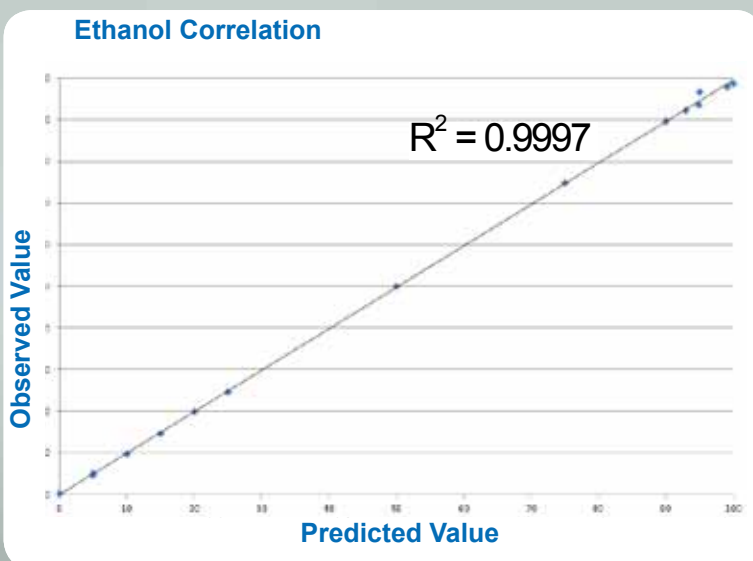
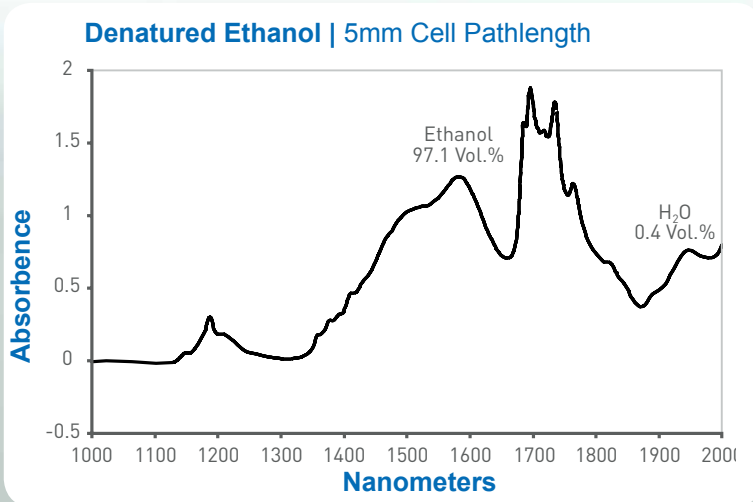
- Precise determination of ethanol, water, and denaturant
- Virtually maintenance-free under normal operating conditions

DEDICATED SUPPORT

- Expert sales and service support from PAC's worldwide network of factory-trained authorized representatives
- Quality construction and reliable operation backed by factory-direct 12 month warranty with telephone technical support

ETHANOL ANALYSIS BY QUICKSPEC™

Analysis is performed using a near-infrared spectral method, and is accurate down to tenths of volume percent. To use the QuickSpec™, a technician simply fills a sample cell with a fuel/ethanol mixture, places the sample cell in the instrument, and receives an answer in seconds. The instrument sets a baseline and adjusts electronics through automatic calibration. It delivers optimum results after each analysis, without the use of reagents.



QuickSpec™ is delivered pre-calibrated for ethanol and water analysis. Shown (top left) is the near infrared spectrum of an ethanol and water mixture. Water (1950 nm) and ethanol (1590 nm) are clearly separated. By developing a series of calibration solutions that span the expected concentrations, the absorbance at 1590 nm and 1950 nm can be converted to concentration of ethanol and water, respectively. The amount of denaturant is calculated to be the balance of the mixture. Also shown are two graphs representing the calibration results for ethanol and water.

The QuickSpec™ can quickly determine ethanol in the range of 0 – 100%, water at 0 – 5%, and denaturant or gasoline from the balance.

QuickSpec™ is portable due to its small size and light weight. An optional battery pack allows instant mobility for lab and field analysis.



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PAC Authorized Representatives are also located in most countries worldwide. For more information visit www.pacpl.com

SPECIFICATIONS

Ordering information	
	ANALYTES
100244 (120 VAC)	Ethanol, Water, Denaturant/Gasoline
100245 (240 VAC)	Ethanol, Water, Denaturant/Gasoline
Specifications	
Detection Method	
Near Infrared Spectroscopy	Highly accurate method that uses light to probe a sample containing ethanol to determine its composition.
Optical Design	LED photometric technique measures absorbance at selected wavelengths.
Performance	Water, Ethanol, Denaturant/Gasoline Vol %
	Resolution 0.01%(Water), 0.1% (Ethanol, Denaturant)
	Measuring Range 0.01 - 5.00 vol% (Water), 0.1 - 100.0 vol% (Ethanol), Balance (Denaturant or Gasoline)
	Sample Size 2 ml
	Response Test Time 20 seconds
Analysis & Results	
Pre-calibrated	Each unit is factory calibrated. Verification samples are available to check for proper performance.
Display	4 lines x 20 column LCD with back light
Communication	Automatic export via RS 232 serial port; 9600 Baud, 8 bits, 1 start, 1 stop, no parity
Physical	
Cabinet/Chassis	Fully portable; rugged aluminum with baked epoxy coating
Utility Requirements	120 or 240 VAC 50/60 Hz
Instrument Size	15 x 20 x 10 cm; 1 kg 25 x 20 x 10 cm; 2 kg
Accessories Included	120 or 240 VAC power adapter Operating manual 2 Quartz sample cuvettes 6 Disposable Sample Pipettes 2 Accuracy Check Standards (low and high end ethanol content)
Recommended	Battery pack 12 VDC Power Adapter Replacement quartz sample cuvette Printer, paper & ink ribbon Package of 10 accuracy check standards Carrying Case

PetroSpec by PAC

PetroSpec by PAC is the leading provider of dependable, portable, high-quality spectroscopic analyzers for measuring the chemical and physical properties of fuels. PetroSpec instruments are dedicated to field compliance testing for gasoline and diesel, in cooperation with the USEPA RFG program. PetroSpec produces fast and accurate analyzers for hydrocarbon fuels, bio-based fuels and petroleum products. Products include the QuickSpec™ Ethanol and Water Analyzer, GS PPA Gasoline Analyzer and TD PPA Diesel/Jet Fuel Analyzer and the DT100 family for determining dye concentrations in middle distillate fuels.

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