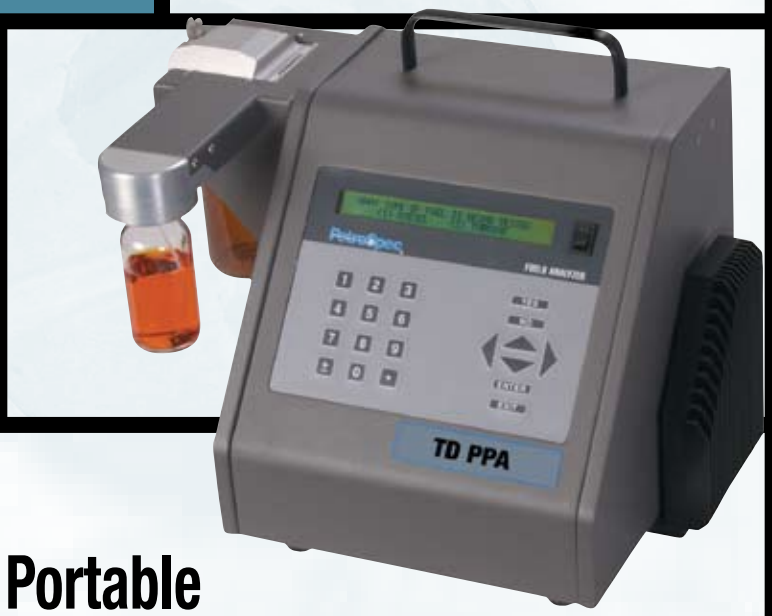
PetroSpec



Complete, Portable Diesel and Jet Fuel Analyzer

ADVANTAGES

- ***Developed cooperation with BP, Shell and Ethyl Corp.***
- ***Uses mid and near IR to perform analyis***
- ***Three minute test time***
- ***10mL sample size***
- ***Low cost test method***
- ***No technical training***
- ***Field, lab or refinery use***
- ***Pre-calibrated***

TD PPA

Now one instrument produces accurate analytical results for both diesel and jet fuel with the touch of a button. PetroSpec's Turbine and Diesel Portable Process Analyzer (TD PPA) quickly measures fuel properties in a fraction of the time required by other standard methods. The TD PPA uses unique **infrared analysis** which combines both near- and mid-infrared information to evaluate for multiple analytes and physical properties simultaneously. In many cases, these analyzers yield **more repeatable and reproducible results** than other standard methods. No prep time is required and the TD PPA is rugged enough for lab or field use.

The TD PPA provides the most complete, global analysis of diesel and jet fuel blends. Each unit is **factory calibrated** with a diverse matrix of over 600 fuels developed from round robins in conjucntion with BP, Shell and Ethyl Corp. Proven performance enables fast, simple verification of fuel quality and specifications where **reliable, low-cost** analysis is desired.

Advanced calibration software allows for onsite fuel adaption enabling applications in or for R&D and refinery labs, at refinery process units, and catalytic pilot plants.

The TD PPA allows for monitoring product quality, optimizing fuel and additive blending, ensuring government compliance, verifing chain of custody, and minimizing transmix and contamination problems.

APPLICATIONS

Fuel Composition

- BIODIESEL (FAME)
- OILS PRODUCING BIODIESEL
- CETANE NUMBER
- CETANE INDEX
- CETANE IMPROVER (2EHN)
- TOTAL AROMATICS
- POLYNUCLEAR AROMATICS (PNA)
- DENSITY
- NAPHTHALENES
- HEATS OF COMBUSTION
- SMOKE POINT
- LOW LEVEL MTBE ANALYSIS

Mid-Distillate Analyzer *Accurate, rugged and low cost*

USER CALIBRATION SOFTWARE

- Analyze the chemical spectrum of any calibration and apply different calibration models for added insight in seconds
- Gain increased accuracy with existing calibration; augment factory calibration; set training instruments to your own unique or local fuel blends
- Develop new refinery blending streams as well as new chemical and physical parameters
- Improve correlation with engine results and other test methods
- Benefit from various integrated features including regression analysis, a database management system and custom model definitions

ANALYTES: RANGE & PERFORMANCE

	Range	Repeatability	Reproducibility
Blodiesel	0-25 vol %	0.1	0.3
Oil Producing Biodiesel	0-20 vol %	–	–
Cetane Number	30-70	0.3	0.8
Cetane Index	35-65	0.4	0.8
Cetane Improver (2EHN)	0-5000 ppm	(vol) 33	200
Total Aromatics	0-45 wt %	0.3	2.1
Naphthalenes	0-12 vol %	–	–
Polynuclear Aromatics (PNA)	0-15 wt %	0.3	0.7
Density	0.750-0.880 g/cc	0.002	0.005
Gross Heat of Combustion	19,000-21,000 BTU/lb	–	–
Net Heat of Combustion	41-44 MJ kg	–	–
Smoke Point	12-32 mm	–	–

Due to continuing product development, specifications subject to change at any time without notice.

All PetroSpec products are CE compliant.

SPECIFICATIONS

Ordering Information	TD PPA Mid-Distillate US Calibrations & TD PPA I Mid-Distillate International Calibrations (both Diesel & Jet Fuel) Portable Process Analyzers are designed for at-line use in the refinery or for R&D laboratories. Predict biodiesel, oil producing biodiesel, cetane number, cetane index, cetane improver (2EHN), total aromatics, poly nuclear aromatics (PNA), density, naphthalenes, heat of combustion and smoke point. R version user calibration software offers added methos development and flexibility (see "User Calibration Software" below).
P/N	BTTD-PPA US users
P/N	BTTD-PPA-I International users
Detection Method	
Unique Near- and Mid-IR Spectroscopic Analysis	The PetroSpec instrument uses near and mid infrared light to probe a fuel sample to determine its composition and predict properties. This combination of Near- and Mid-IR produces analytical information important to Cetane Number not available when using either spectral areas alone.
Optical Design	Dual beam, tuned optical, temperature controlled, filter-based instrument provides long-term accuracy and stability, resistant to vibrations.
Analysis	
Calibration	Each unit is factory calibrated with a diverse matrix of over 600 fuels.
Sample Induction	Pressurized delivery system purges and fills sample cell with < 10 mL of fuel for sample integrity.
Outlier Detection	Unusual samples are identified based on their *Mahalanobis* distances from the calibration set and are indicated by an alarm message. The data from the outlier can be used to augment the factory calibration set using the provided user software.
User Calibration Software	In the event that outlier fuels are detected, these outliers are easily added by the user to the calibration through user-friendly, Windows®-based calibration software. This software allows the user to download the unknown spectrum to an external computer, develop new data sets including the new spectrum, produce a new regression analysis and model coefficients and substitute these new models onto the instrument. With this software the TD PPA can be run from an external computer (computer not included). Taking advantage of fully computer-controlled operation, users can easily develop new calibrations and mathematical models for existing parameters, as well as create 10 new user-defined paramenters. Calibrations easily transfer to online equipment.
Operation	
Temperature Control	Temperature controlled instrument box
Response Time	< 3 minutes
Warm-Up Time	30 minutes
Results	
Display	2 line LCD with back light
Data Management	Internal memory capacity stores results of up to 99 analyses, which may be viewed on the display or printed in either of two formats; infinite storage possible by remote data acquisition
Communication	RS 232 serial port, exporting software; parallel printer port
Physical Specifications	
Cabinet/Chassis	Fully portable; rugged aluminum with baked epoxy coating, includes a sturdy sampling fixture and carrying handle
Utility Requirements	120/240 VAC 50/60 Hz or 12 VDC with automobile cigarette lighter adapter mobile use
Instrument Size	25 x 25 x 30 cm; 12 kg
Optional Equipment	12 VDC automobile cigarette lighter adapter for mobile use Auto surge suppressor

FOR ADDITIONAL INFORMATION

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