



The Portable Fuel Quality Fuel Analyzer (PFQA) provides rapid fuel quality assessment using Near-Infrared Analysis combined with advanced Chemometric methods. Key fuel properties that determine engine performance are obtained in seconds with only 2 mL of fuel sample.

The PFQA is calibrated at the factory using a diverse matrix of over +800 fuels from around the world. The results obtained with the PFQA are based on fuel property data obtained by ASTM methods. New fuel types can be easily added to the PFQA without modifying the hardware in any way.

In use, the fuel to be tested is placed in a disposable 2 mL container and sealed. The sealed vial is then placed in the PFQA; there is no cleaning or flushing between running samples.

Advantages

- ❖ Light Weight, Portable, and Easy to Use
- ❖ No Technical Training Required
- ❖ Rugged Design, No Moving Parts
- ❖ Permanently Aligned and Calibrated
- ❖ No scheduled Maintenance Required
- ❖ Complete analysis in 10 seconds
- ❖ Only 2.0 mL of sample required
- ❖ No sample preparation required
- ❖ Short Warm-up Time (1 min)
- ❖ Can be used in the laboratory or field
- ❖ One analyzer for three fuel types
- ❖ Analysis based on ASTM Data
- ❖ Economical



PFQA 7 x 8 x 4" (6 lbs)



PFQA in Pelican Case 16 x 13 x 7" (14 lbs)

Table 1. The Portable Fuel Analyzer provides the following:

Diesel	Jet Fuel	Gasoline ^{*coming soon}
Density / API	Density / API	Density / API
Distillation Fractions (IBP, 10%, 50%, 90%, FBP)	Distillation Fractions (IBP, 10%, 50%, 90%, FBP)	Distillation Fractions (IBP, 10%, 50%, 90%, FBP)
Cetane Index	Flash Point	Octane (RON, MON, Road)
Viscosity 40C	Viscosity -20C	Reid Vapor Pressure
Sulfur	Freeze Point	Oxygenates
Flash Point	Lubricity	BTEX
Cloud Point	Acid Number	

The PFQA was developed with the support and cooperation of the United States Marine Corps, U.S. Army, and U.S Naval Department.

Property	Range	Error	Method ⁽³⁾
Density	0.78-0.87 g/mL	±0.005	D1298
Cetane Index	35-60	±1.9	D976
Distillation 0%	140-210 °C	±8.3	D86
Distillation 50%	185-300 °C	±7.3	D86
Distillation 90%	225-350 °C	±4.8	D86
Distillation 100%	245-365 °C	±4.6	D86
Viscosity 40C ⁽¹⁾	1.9-4.1	±0.22	D445
Sulfur ⁽¹⁾	200-1000 ppm	±140	D4294
Flash Point	38-100 °C	±7.7	D93
Cloud Point ⁽¹⁾	-20 to 0 °C	±2.8	D2500
Freezing Point ⁽²⁾	-60 to -40 °C	±2.0	D5297
Lubricity ⁽²⁾	0.4-0.8 scar/mm	±0.06	D5001
Acid Number ⁽²⁾	0-0.175 KOH/g	±0.004	D974
FS-II ⁽²⁾	0 to 0.20	±0.016	D4530

Due to continuing product development, specifications to change at any time.

- (1) Diesel #2 only
- (2) JP8 only
- (3) Correlation to ASTM method

Typical User Interfaces (custom Interfaces also available)



Specifications

Operation

Warm-up Time	1 minute
Measurement Time	10 seconds
Sampling	2 mL glass vials (disposable)
Calibration	Factory set using NIST standard

Analyzer

Measurement Principle	Near IR Spectroscopy
Optical Design	Dispersive (no moving parts)
Light Source	Incandescent Lamp
Detector	256 pixel InGaAs (thermo-electrically cooled)
Spectral Resolution	20 – 30 cm ⁻¹
Spectral Range	1.0 to 1.6 um

Analysis

Calibration	Each unit is calibrated with a diverse worldwide matrix of +800 fuels
Sample Induction	2mL glass vial (reusable)
Outlier Detection	Unusual samples are validated based on SIMCA distance to model
Fuel Analysis	Validated to ASTM methods

Data System

Computer	Laptop or embedded computer
Operating System	Windows 7, 8, or 8.1
Sample storage	Onboard computer; able to store >1000's of measurements
Data Export	USB Port, Ethernet, WiFi

Environment

Dimensions	7.0 x 8.0 x 4.0" (178 x 203 x 89 mm) Shipped in 1450 Pelican Case
Weight	14 lbs (6.35 kg) in Pelican Case
Power	120/240 VAC 50/60Hz or 12 Volt VDC with automotive cigarette lighter adapter
Operating Temperature Range	-4 to 110 °F (-20 to 45 °C)