



- Are my Raw Materials correct?
- Are they Contaminated?
- Is my Process in Control?
- Does my Product meet Specifications?



The
Portable Fuel Analyzer
answers these and
other
critical questions
in 3 minutes!

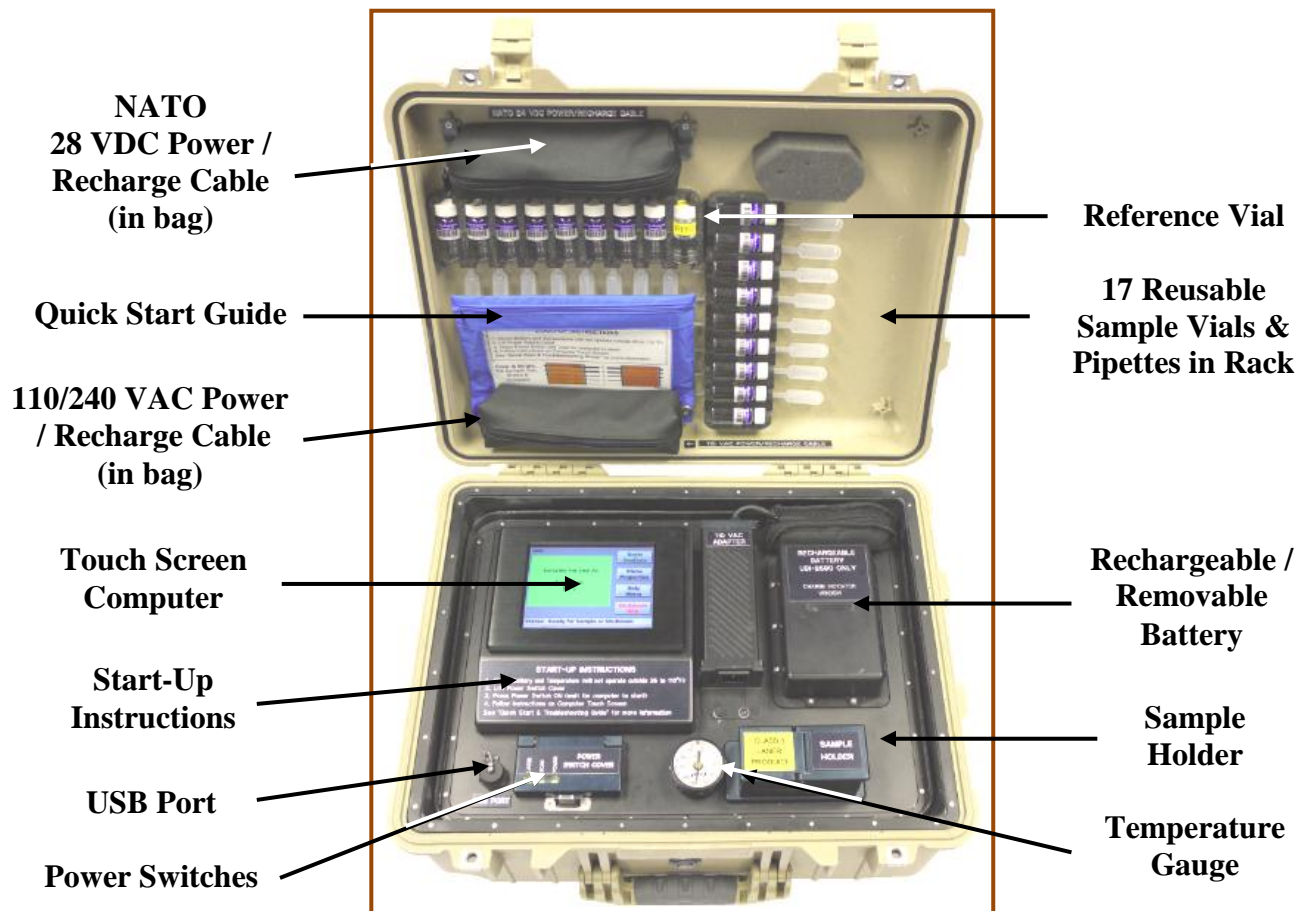
Portable Fuel Analyzer



In 3 minutes, the *Portable Fuel Analyzer* determines:

- **Liquid Type:** fuel, lubricant, solvent (including water)...
- **Fuel Type:** diesel, gasoline, jet, biodiesel, synthetics...
- **Contaminants:** lubricants, solvents, adulterants (sodium silicate), comingled fuels (specifically biodiesel)...
- **Performance Properties:** cetane index, density, sulfur, viscosity, cloud, distillation, flash, freeze, and pour points, acid number, dissolved water, percent aromatics, olefins, saturates, and FSII

Based on these results the *Portable Fuel Analyzer* determines if a liquid can be used in USMC ground equipment and vehicles.



The *Portable Fuel Analyzer* is field usable:

- No Sample Preparation
- 2 Minute Start-up
- 3 Minute Measurement
- Easy-to-Use (4 step operation)
- Man Portable (53 pounds)
- Battery Operated (5 hours)
- Vibration & Spill Resistant
- Drop Tested
- Operates 35 to 110 °F

Validated by *Southwest Research Institute*

Portable Fuel Analyzer

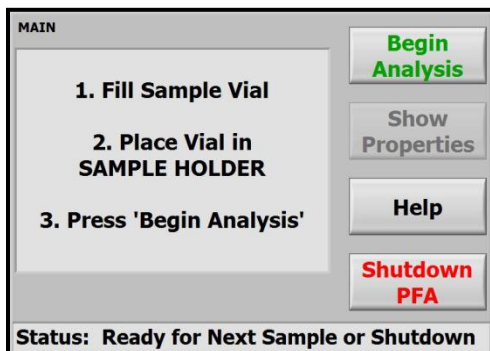


The *Portable Fuel Analyzer* is as easy to use.

START-UP INSTRUCTIONS

1. Check Battery and Temperature (will not operate outside 35 to 110 °F)
2. Lift Power Switch Cover
3. Press Power Switch ON (wait for computer to start)
4. Follow Instructions on Computer Touch Screen

Follow Instructions:



Fill Sample Vial

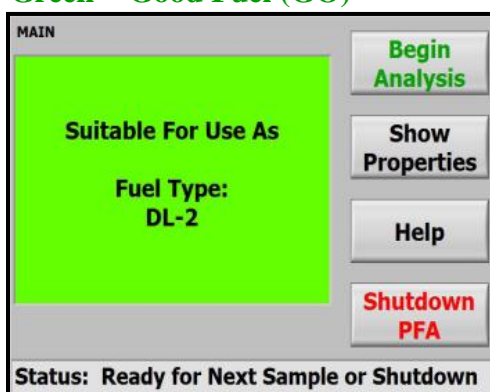


Place Vial in Sample Holder

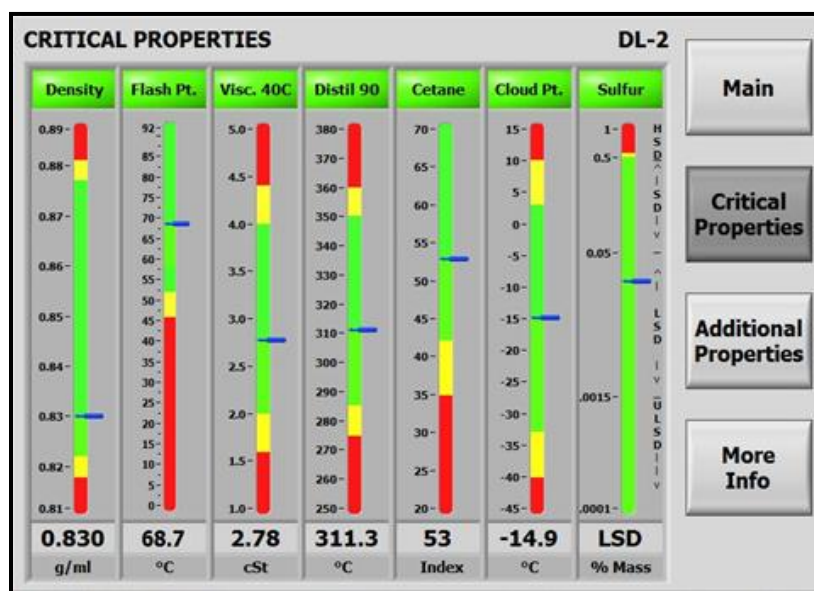
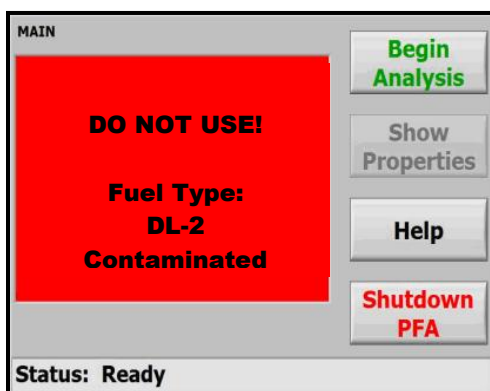


Press Begin Analysis & Read Results:

Green = Good Fuel (GO)



Red = Bad Fuel (NO GO)



The Show Properties button allows viewing the 7 Critical Properties that determine if a fuel can be used. The acceptable range is green, marginal range is yellow, and unacceptable range is red. Additional Properties are also available. If a sample is rejected, as much information as possible is be provided, such as sample type, fuel type, contaminant type. **This software can be customized.**

Portable Fuel Analyzer



Specification	Portable Fuel Analyzer	
Analyzer Type	FT-Raman Spectrometer with 1064 nm laser	
Warm-up/Analysis Time	120/150 seconds	
Dimensions	22.06 x 17.93 x 10.43" (56 x 45.5 x 26.5 cm)	
Weight	54 lbs (25.4 kg), Man Portable per MIL-STD 1472	
Power Supply	UBI-2590 Battery (12V Li ion- 5 hours)	
Back-up Power Supply	28 VDC or 120/240 VAC (50/60Hz)	
	<u>Computer</u>	
CPU	AMD Geode LX800 (500 MHz)	
Hard Disk Drive/Memory	4 GB Compact Flash/ 512 MB	
Data Access	USB Port	
Display	6.5" TFT LCD Touch Screen (4 wire resistive) with Protective Film	
	<u>Software</u>	
Name	Fuel Analysis	
OS Supported	Windows XP/XP-Embedded/Vista/7	
Data Export	Various formats supported	
<u>Critical Properties</u>	<u>Analysis (Limit or Range & Error)</u>	
* Validated by SWRI		
	<u>Diesel-2</u>	<u>JP-5 or JP-8</u>
Cetane Index*	40 ± 2.4 °C, minimum	Does not apply
Cloud Point*	-5 to -35 ± 4.5 °C (>6 °C<ambient)	Does not apply
Density*	0.82 to 0.86 ± 0.003 g/mL	0.775 to 0.845 ± 0.003 g/mL
Distillation*	282 to 338 ± 9.5 °C @ 90%	300 ± 10.5, maximum @ 100%
Flash Point*	52 ± 6 °C, minimum	38 (JP-5:60) ± 6 °C, minimum
Viscosity*	1.9 to 4.1 ± 0.15 cSt @ 40 °C	8.5 ± 0.25 cSt, maximum @ -20 °C
Sulfur	0.5 ± 0.05 % mass, maximum	0.3 ± 0.05 % mass, maximum
<u>Additional Properties</u>	** Unspecified Range	
Aromatics	35 ± 3 % volume, maximum	25 ± 3 % volume, maximum
Olefins & Saturates	± 3 (10 and 70, typical**)	Does not apply
Pour Point	Regional ± 5 °C	Regional ± 7 °C
Acid Number	Does not apply	0.015±0.05 mg KOH/g, maximum
Lubricity	0.52 ± 0.05 scar/mm, maximum	Unspecified ± 0.05 scar/mm
Dissolved Water	Does not apply	Unspecified ± 40 ppm
Freeze Point	Does not apply	-47 ± 2.5 °C, maximum
<u>Contaminants</u>		
Solvents (% volume)	0 to 100 ± 2	0 to 100 ± 2
Dissolvable Solids (% mass)	0 to 100 ± 5	0 to 100 ± 5
Petroleum Products (% vol.)	0 to 100 ± 20	0 to 100 ± 20
Other Fuels	0 to 100 ± 30	0 to 100 ± 30
	<u>Environmental</u>	
Operation Temperature	35 to 110 °F (2 to 43 °C)	
Storage Temperature	-25 to 140 °F (-32 to 60 °C)	
Humidity	Operates at up to 95 % relative humidity	
Vibration	Certified: MIL-STD 810f, Vibration 514.5, Category 4, C.2: Composite Wheeled Vehicles – Restrained Cargo	
Shock	International Safe Transit Association – ASTM D 5276	