

ON-LINE LIGHT FUELS ANALYZER

42550D NEC Purge • 42550E CENELEC Purge

PROCESS/ON-LINE

Measure gasoline properties quickly, accurately, completely on-line!



PetroSpec
MID-IR TECHNOLOGY INSIDE

The PSPI/PetroSpec Gasoline Analyzer is a real-time, on-line process analyzer for accurate multi-component gasoline analysis. Utilizing mid-infrared spectroscopic analysis to differentiate and quantify individual components in a gasoline sample, this analyzer is ready to measure right out of the crate. Its built-in calibration set—the results of literally hundreds of thousands of composition analyses by PetroSpec's well-known and widely accepted GS Series portable gasoline analyzers—minimizes need for the special calibrations and correlations common in competitive technologies and instrumentation.

- Field-proven mid-infrared spectrometer based on PetroSpec's rugged, well known GS Series portable gasoline analyzers
- Laboratory accuracy with on-line convenience, providing results in less than two minutes
 - measures oxygenate & benzene in accordance to ASTM D 5845, D 6277
 - measures olefins and aromatics
 - predicts octane (RON, MON, R+M/2)
 - verifies distillation points & RVP values
 - determines driveability index
- Economical, simple to operate, and requires little training to implement and maintain
- Custom modeling allows you to expand property capabilities and implement changes to on-line model
- Low cost of ownership
- Typical applications are locations where automatic, on-line composition analysis for verifying product quality and performance specifications is required:
 - process operation
 - blending optimization
 - chain of custody verification
 - transmix characterization
 - quality assurance

MEASUREMENT RANGE & REPEATABILITY

Oxygenates	MTBE	0–20 vol%	±0.1	Olefins		0–35 vol%	±0.3
	Ethanol	0–15 vol%	±0.1		Total Aromatics		0–60 vol%
	ETBE	0–24 vol%	±0.1	Saturates			0–80 vol%
	TAME	0–24 vol%	±0.1		Octane	RON	90–101
	Methanol	0–8 vol%	±0.1			MON	80–90
	t-butanol	0–15 vol%	±0.1		(R+M)/2	87–96	±0.1
	DIPE	0–20 vol%	±0.1	Distillation Points	T50 °F	150°–265°F	±5.0
	Total Oxygen	0–5 wt%				T90 °F	265°–375°F
Benzene		0–5 vol%	±0.02	Evaporation Points	E200	30–65 vol%	
Toluene		0–25 vol%	±0.3			E300	75–95 vol%
Xylenes		0–15 vol%	±0.3	Driveability Index		950–1380	

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THEORY OF OPERATION

The PSPI/PetroSpec 42550 Gasoline Analyzer utilizes a mid-infrared spectroscopic analysis technique to differentiate and quantify the individual components in a gasoline sample. Every fuel component has a unique spectral absorbance pattern that contains characteristic absorbance "peaks." The 42550 uses a proprietary set of bandpass filters to measure the amount of energy absorbed at these identifying peaks; the amount of light absorbed is proportional to the concentration of that component in the fuel sample.

It is recommended that an external fast loop be used to bring sample to the Analyzer's Sample Polishing System. This will ensure that there are no unnecessary delays in analyzer response time. The polishing system, which is constructed on a panel mounted on the rack below the analyzer, includes components for pressure regulation, filtration, and flow control. Also included are automatic valves for the introduction of cleaning solvent and validation sample. A separate automatic valve is included for capturing process sample when the spectrometer detects an outlier not in the calibration model. The sampling arm from the PetroSpec GS-1000 series is also included to provide for close-up manual calibration of the spectrometer.

The 42550 is controlled locally by an embedded PC system. A local VGA display shows analysis results, cycle status, and any alarm conditions. The software can be configured to automatically run regular cleaning or validation cycles. Programming is accomplished using a magnetic keypad on the main analyzer door.

A typical measurement cycle starts with flushing sample through the spectrometer measurement cell. After the programmed flushing time, a pneumatic valve operates to isolate the spectrometer and capture sample within the measurement cell. After a programmed settling time to allow any gradients to stabilize, the spectrometer initiates an analysis cycle (approximately 2 minutes). The analog outputs and any alarms are then updated, and the pneumatic valve again operates to start a new measurement cycle.

SPECIFICATIONS

Performance

- **Measurement Cycle Time:** Programmable; typically 5 minutes; Spectrometer response time less than 2 minutes
- **Ambient Temperature Limits:** 5° to 40°C (41° to 104°F); weather protection required; no direct sunlight

Sample Requirements

- **Flow Rate:** 1 liter per minute minimum
- **Pressure:** 3.5 kg/cm² (50 psig) minimum; 10.5 kg/cm² (150 psig) maximum

CE compliant

Dimensions & Weight

Uncrated:	H	W	D	units
363 kg (800 lbs)	2045	833	686	mm
	84	34	27	inches
Crated:	H	W	D	units
454 kg (1000 lbs)	2185	990	864	mm
	90	39	34	inches

Optional Accessories

- **Filter Coalescer** separates water from petroleum liquids and acts as high-efficiency filter
- **Sample Conditioning System** prepares and presents representative sample to analyzer with minimum lag time
- **Sample Recovery System** collects and periodically returns analyzed sample to process line
- **Fast Loop Filter** continuously cleans filter, removing particulates down to 38 microns
- **PetroSpec GS 1000 Gasoline Analyzer** for portable and lab use; modeling functions transferrable to on-line analyzer

Due to PSPI's commitment to continual product development, specifications are subject to change without notice.

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