Quality control of fuels (gasoline, diesel, kerosene)

Fast results with NIR pre-calibrations

HIGHLIGHTS

- Chemical and physical parameters
- Based on real product spectra
- Can be used by non-specialists

Ω Metrohm

Pre-calibrations expedite and simplify quality control of fuels

Metrohm offers a turnkey solution for the determination of multiple key parameters in gasoline, diesel and kerosene according to ASTM D6122. The measurement device consists of a DS2500 Liquid Near-infrared Analyzer with pre-calibration models based on a large collection of real product spectra. This solution enables fuel producers and fuel storage facilities, such as refineries, tank farms and testing labs, to save time and reduce the cost of their analysis.

Fuels such as gasoline, diesel and kerosene are widespread products in daily life. At the end of the production process and at various steps in the distribution chain, the quality of the product needs to be determined. Typically several key parameters such as RON, MON, aromatics, cetane index and flash point are determined in the laboratory by chemical and physical methods. These methods do not only have high running cost but are also time consuming.

Near Infrared Spectroscopy (NIRS) on the other hand requires neither chemicals nor sample preparation, it can even be used by non-chemists and provides results in less than a minute. Furthermore, multiple chemical and physical parameters can be determined simultaneously. The combined benefits of this technology make NIRS the ideal solution for a large number of daily QA/QC measurements or ad-hoc at-line analysis.

Reliable results from day one
The robust pre-calibration models allow precise and accurate determination of different parameters with excellent reproducibility. The Metrohm solution can be used directly as a starter model without any method development.

Straightforward and intuitive operation
The pre-calibrations are operated by the intuitive Vision Air software. Vision Air is tailored to the needs of different users: shift workers can only start a measurement and get clear pass/fail results. Authorized users get full control of the instrument, can create SOPs and can easily review and filter data.

EASY TO USE
- Ready-to-use solution
- Results at the push of a button
- No expertise required

COST-MINIMIZING
- No solvents, no reagents
- No waste disposal

FAST
- No sample preparation
- Analysis results within 30 seconds
- More than 15 minutes' time saving compared to reference methods

CLEAN
- Non-destructive, chemical-free method
- Minimum of impact on health and environment

AVAILABLE PETRO PRE-CALIBRATIONS

Polymer	Part. No	Parameters	Range	SECV	R^2
Gasoline	6.6072.306	RON	81–100	0.68	0.958
		MON	81–88	0.53	0.889
		Anti-Knock Index	85–94	0.45	0.948
		Aromatics	20–45%	1.1 %	0.959
		Benzene	0.15–0.70 %	0.04 %	0.902
		Density	0.74–0.76 g/cm³	0.0024 g/cm³	0.797
		Olefins	0–25 %	1.3 %	0.909
		Oxygen	0.2–2.0 %	0.045 %	0.994
Diesel	6.6072.305	Cetane index	46–77	0.62	0.987
		Cetane number	45–60	0.942	0.942
		Density	0.82–0.89 g/cm3	0.0021	0.968
		CFPP	−22–(+19) °C	2.8 °C	0.963
		T95	325–410 °C	7.04 °C	0.799
		Flash Point	56–120 °C	2.7 °C	0.970
		Viscosity	2–5.5 cSt	0.15	0.910

Table continued on back page.

Trust in our Expertise

Pre-calibrations are calibration models based on numerous real product spectra. By using these solutions, you can benefit immediately from the experience Metrohm has gained with those applications.

Customized service and support

Metrohm supports users by updating the petrol pre-calibrations on demand with customer specific samples. This improves the performance of the method and/or extends it to additional quality, parameters e.g. acid value and moisture.

Kerosene	6.6702.307	Cetane index	36–50	1.1	0.871
		API gravity	38–48 °	0.56 °	0.931
		Aromatics	10–25 %	1 %	0.851
		T10	158–200 °C	4.1 °C	0.801
		T20	165–205 °C	3.1 °C	0.880
		T50	180–220 °C	4.1 °C	0.789
		Density	0.78–0.83 g/cm³	0.003 g/cm³	0.936
		Flash Point	38–65 °C	4.3 °C	0.620
		Freeze Point	−65–(−40) °C	3. 5°C	0.576
		Hydrogen	13.2–14.2 %	0.05 %	0.934
		Saturates	75–90 %	0.9 %	0.888
		Viscosity at 20 °C	3–7 cSt	0.33 cSt	0.804

ORDERING INFORMATION

	Pre-calibrations for fuel analysis
6.6072.305	**Pre-calibration for Diesel**
6.6072.306	**Pre-calibration for Gasoline**
6.6072.307	**Pre-calibration for Jet-Fuel**

	Requires hardware
2.929.0010	DS2500 Liquid Analyzer
6.7492.020	DS2500 Holder 8 mm disposable vials
	Requires software
6.6072.201	Vision Air
	Recommended standards
6.7494.000	DS2500 Liquid Wavelength Standard
	Accessories
6.7402.000	Disposable Vials 8mm, 250 Pcs

COMPLETE PACKAGE: METROHM PETRO ANALYZER

2.929.200	**NIRS DS2500 Petro Analyzer (comprised of):**
2.929.0010	DS2500 Liquid Analyzer
6.7492.020	DS2500 Holder 8mm disposable vials
6.7402.000	Disposable Vials 8mm, 250 Pcs
6.6072.208	Vision Air Complete
See above	Pre-calibration for polymers (choose 1)

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