



FUEL ANALYSIS



# MINISCAN IRXpert

## Intelligent Portable Multi-Fuel Analyzer

The MINISCAN IRXpert is the first completely portable multi-fuel analyzer for Gasoline, Diesel, Jet Fuel and Biofuel Blends, which uses the advantages of full spectrum information and full spectrum comparison for utmost measurement accuracy. More than 100 fuel parameters are accurately determined by scanning the complete spectrum with superior resolution. Based on Grabner Instruments profound knowledge in fuel analysis, the MINISCAN IRXpert is designed as an intelligent, self-learning analyzer.



Data based on real samples collected and analyzed by SGS®!

- **Comprehensive Fuel Analysis**

Several thousand data points from the infrared spectrum are used to determine the concentrations of molecules present in the sample. The MINISCAN IRXpert spectrum yields a "fingerprint" for 100+ important fuel components, compounds and properties. An integrated density meter allows for direct determination of fuel density.

- **Highest Accuracy**

Highest accuracy is achieved by analyzing information from selected areas of the infrared spectrum. Compound analysis is performed according to the international standards ASTM D5845 for oxygenates, ASTM D6277 and EN 238 for Benzene and EN 14078 for Biodiesel blends. Advanced standard-

ized chemometrical methods according to ASTM E1655 are used for "on the spot" fuel property determination: Octane number, AKI and cetane number correlate to ASTM D2699, 2700, 613, ISO 5163, 5164, 5165, distillation to ASTM D86, ISO 3405 and vapor pressure to ASTM D6378, D5191, D323, EN 13016.

- **Maximising Ease of Use**

The IRXpert comes fully configured for testing fuels right from the street. A high end full color touch-screen facilitates menu navigation and allows in depth spectrum analysis. USB and Ethernet interfaces allow quick data-transfer, printing, LIMS integration and remote control and service. For field use the MINISCAN IRXpert can be run with a 12V car adapter.

- **Highest Data Quality**

MINISCAN IRXpert operates calibration data, that has to adhere to highest quality standards. As a unique feature the instrument is equipped with a database of samples that have been collected and analyzed by SGS®.

### Key Features

- Portable Fuel Analyzer for Gasoline, Diesel, Jet Fuel and Biofuel Blends
- Smart Dual Cell Design
- Full Spectrum Analysis
- Superior Resolution
- Contamination detection: Automatic distance analysis between spectra
- Temperature regulated filler, density meter and measuring cells
- Unlimited number of parameters

<b>GASOLINE</b>				<b>DIESEL</b>	
<b>PROPERTIES</b>		<b>Range <sup>1)</sup></b>		<b>PROPERTIES</b>	
RON		70 - 110		Cetane Number	
MON		65 - 105		Cetane Index	
AKI		67 - 107		Kinematic Viscosity @40°C	
RVP & DVPE		40 - 105 kPa		Dynamic Viscosity @40°C	
Distillation / Evaporation		IBP, T10, T50, T90, FBP, E70/100/150 (°C), E200/300 (°F)		CFPP	
Density		0 - 3 g/cm <sup>3</sup> (r <sub>s.d.</sub> = 0.0005 g/cm <sup>3</sup> )		Distillation / Recovery	
Driveability Index (DI), VOC emissions, Vapor Lock Index (VLI)				Density	
<b>COMPONENTS</b>				<b>COMPONENTS</b>	
<b>Oxygenates</b>	<b>Range <sup>2)</sup></b>	<b>Aromatics</b>	<b>Range <sup>2)</sup></b>	<b>Range <sup>2)</sup></b>	
MTBE	0 - 20 m%	Benzene	0 - 10 m%	Total Aromatics	
TAME	0 - 20 m%	Toluene	0 - 20 m%	Poly Nuclear Aromatics	
ETBE	0 - 20 m%	o, p, m-Xylene	0 - 20 m%	Cetane Improver: EHN, IPN	
DIPE	0 - 20 m%	Ethylbenzene	0 - 20 m%	Biodiesel (FAME, FAEE)	
Methanol	0 - 15 m%	Propylbenzene	0 - 20 m%		
Ethanol	0 - 40 m%	Mesitylene	0 - 20 m%	<b>JET FUEL</b>	
Isopropanol	0 - 20 m%	Durene	0 - 20 m%	<b>PROPERTIES</b>	
2-Butanol	0 - 25 m%	Naphtalene	0 - 10 m%	<b>Range <sup>1)</sup></b>	
tert-Butanol	0 - 25 m%	Pseudocumene	0 - 20 m%	Flashpoint	
Sec-Butylacetate	0 - 10 m%	2-/3-/4-Ethyltoluene	0 - 20 m%	Freezing Point	
Iso-Butylacetate	0 - 10 m%	Other Aromatics	0 - 20 m%	Kinematic Viscosity @-20°C	
Dimethylcarbonate	0 - 10 m%	<b>Anilines</b>	<b>Range <sup>2)</sup></b>	Distillation	
Dimethoxymethane	0 - 10 m%	Aniline	0 - 5 m%	IBP, T10/50/90/95, FBP, E10/50, R200	
Acetone	0 - 25 m%	N-Me-Aniline	0 - 5 m%	Smoke Point	
Other Oxygenates	0 - 20 m%	N,N-Dimethylaniline	0 - 5 m%	Total Aromatics	
<b>Octane Boosters</b>	<b>Range <sup>2)</sup></b>	o, p, m-Methylaniline	0 - 5 m%	Naphtalenes	
MMT/CMT (mg/l)	0 - 10000	<b>Total Parameters</b>	<b>Range <sup>1)2)</sup></b>	MSEP	
Manganese (MMT)	0 - 2500	Total Oxygen	0 - 12 m%	Density	
Manganese (CMT)	0 - 2500	Total Aromatics	0 - 80 m%	0 - 3 g/cm <sup>3</sup> (r <sub>s.d.</sub> = 0.0005 g/cm <sup>3</sup> )	
DCPD	0 - 15 m%	Total Olefins	0 - 80 m%	<b>COMPONENTS</b>	
Nitromethane	0 - 9 m%	Di-Olefins	0 - 20 m%	<b>Range <sup>2)</sup></b>	
<b>Other</b>	<b>Range <sup>2)</sup></b>	Total Aniline	0 - 5 m%	Biodiesel (FAME)	
Cyclohexane	0 - 100 m%	Total Esters	0 - 5 m%	0 - 0.12 m%	

**TECHNICAL DATA**

Standards	ASTM D5845, D6277, D7777, D7806, EN 238, EN 14078, ISO 15212
Correlation to	ASTM D86, D323, D445, D1319, D5191, D 6371, D6378, D613, D2699, D2700, D56/3828, D1322, D1840, D2386/D7153, D3948, D6379, ISO 3104, ISO 3405, ISO 5163, ISO 5164, ISO 5165, EN 116, EN 13016
Spectrometer	Temperature and Laser Regulated, Dry Gas Protected, Dual Cell-FTIR
Density Measurement	Temperature Regulated Oscillating U-Tube Cell
Warm Up / Scanning Time	30s / 80s (Multiple Scans)
Units of Measurement	v%, m%
Display	8.4" full color touch screen
Interfaces	4x USB, Ethernet
Power Supply	90-264 VAC, 47-63 Hz, 130 W (field application with DC adaptor for 12 V vehicle battery)
Dimensions (WxHxD), Weight	253 x 368 x 277 mm (10 x 14.5 x 10.9 inch), 12 kg (26 lb)

<sup>1)</sup> Range and quality of property prediction depends on database used<sup>2)</sup> The lowest concentration value is the Limit of Detection (LOD)

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