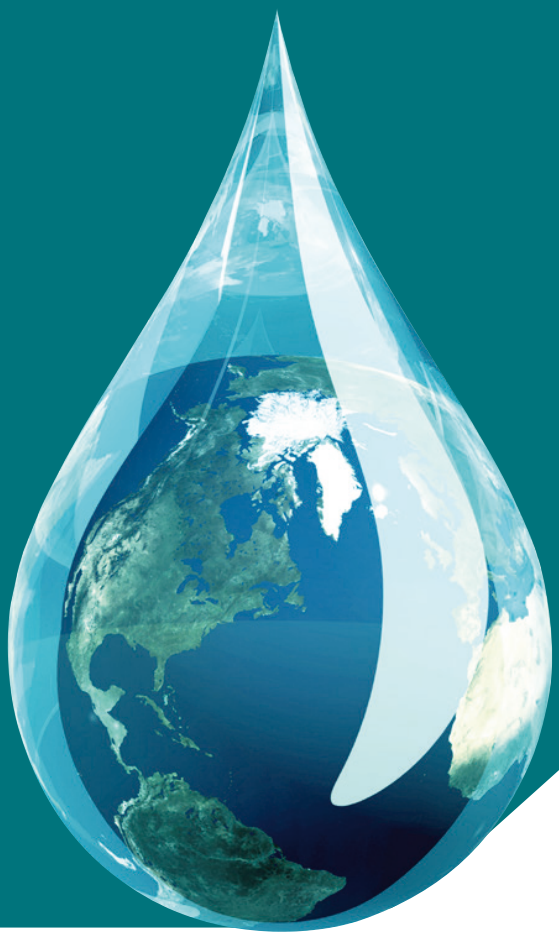
Архангельск (8182)63-90-72
Астана +7(7172)727-132
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Единый адрес для всех регионов: http://grabner.nt-rt.ru/ || gnb@nt-rt.ru

Каталог продукции



GRABNER INSTRUMENTS

VAPOR PRESSURE

MINIVAP testers are worldwide market leader for **vapor pressure testing** in oil and pipeline companies and independent test laboratories, with an installed base of more than 5000 analyzers. Engineered for **superior performance** and **unmatched precision,** Gasoline, Aviation Fuels, Crude Oil, LPG, Solvents and Chemicals are tested according to all major industry standards. MINIVAP analyzers have proven their performance in ASTM interlaboratory studies and are reference analyzers for US EPA and CARB.

Automotive Industry

The vapor pressure of Gasoline and LPG is measured to check conformance of motor fuels to summer and winter grade specifications and to prevent vapor lock. The vapor pressure at different temperatures is used to determine requirements for the development of motors, carburetors, fuel injection systems, gasoline pumps, tanks and fuels systems. It can be used to analyze, if newly developed motors are able to handle the requirements of future fuels at high temperatures.

Aviation Industry

The vapor pressure of AVGAS (ASTM D910 or Def Stan 91-90) is determined according to ASTM D5191 or D6378. It is typically lower than the vapor pressure of automotive fuels, to prevent vapor lock at reduced atmospheric pressure in higher altitude.

Biofuels

Ethanol blends develop nonlinear vapor pressure behaviour, once a critical amount of Ethanol is blended into gasoline. The vapor pressure and the $T_{(V/L)}$ of Ethanol blends is measured to confirm compliance with automotive fuel specifications. The analysis of Ethanol blends plays an important role for the development of new motors, like flex-fuel motor systems.

Flavors, Fragrances, Food, Chemicals

To ensure compliance with hazardous goods and transport regulations or for completing Safety Data Sheets, the absolute vapor pressure of chemicals has to be tested. The Triple Expansion Method is a static method, designed to measure the absolute vapor pressure of liquids. It can be used for measuring single- or multi-compound solvents.

VAPOR PRESSURE

Laboratory Inspection, Environmental

In a laboratory, the vapor pressure of Gasoline, Crude Oil, LPG and solvents is tested to certify product compliance with volatility and air pollution regulations. The versatile MINIVAP testers perform according to all major industry standards, such as ASTM D6378, D6377, D6897, D5188, D5191, EN 13016, IP 394 and IP 409. Measurements can be done at various temperatures and Vapor/Liquid ratios.

Military

Gasoline and Jet Fuel vapor pressure is tested directly in the field. Our instruments are used for monitoring fuel quality in military storage tanks.

Petroleum

The petroleum industry analyzes the vapor pressure of Gasoline, Crude Oil, LPG and LNG to optimize product blending while ensuring that governmental regulations are being met. Applications may also include studies on vapor lock or the determination of the Bubble Point and the TVP, to protect facilities for fuel storage and transportation.

Pharmaceutical

Vapor pressure measurements help to evaluate the evaporation behaviour of compounds and agents, to determine storage and transportation requirements, to ensure pollution control and to define product specifications according to the latest ASTM, EN and IP standards. For research and development the vapor pressure versus temperature behavior (ASTM D5188) can be tested with the MINIVAP.

Transportation and Storage

Gasoline, Crude Oil and LPG vapor pressure is tested to allow proper blending and to determine the product quality prior to transportation. Vapor Pressure is also critical to ensure safe tank storage and to minimize outgassing. Determining the TVP or Bubble Point is extremely important to prevent pumping cavitation in pipelines. Testing the vapor pressure at a Vapor/Liquid ratio of 0.02/1 allows a perfect simulation of conditions in an oil-tanker.

VAPOR PRESSURE
INSTRUMENTS

Highest Precision
Quick Turnaround
No Product Give-Away
No Operator Bias
Minimum Waste

MINIVAP VP VISION

Samples
- Gasoline, Gasohol
- Crude Oil
- Jet Fuels
- LPG
- Solvents
- Chemicals

- VP Measurement According to All Relevant Standards for Gasoline, Crude and LPG
- Highest Precision and Accuracy
- Best-in-class Sampling Pro™ Valve Design
- Widest Pressure Range: 0 - 2000 kPa
- Certified for Robustness and Durability
- Complete Calibration History and Backup
- Customizeable User Templates
- 10" Color Touch Screen
- Total Connectivity through Cockpit™ Software

MINIVAP VPL VISION

Samples
- Gasoline, Gasohol
- Jet Fuels
- Solvents
- Chemicals

- Unmatched Precision and Accuracy for Low Volatility VP Measurements
- Modern Replacement of ASTM D2879 Isoteniscope Method
- Static Triple Expansion Method
- Pressure range from 0 - 150 kPa
- Only 1 mL Sample (excl. rinsing)
- 5 Minutes Measuring Time
- 10" Color Touch Screen
- Total Connectivity through Cockpit™ Software

MINIVAP VPXPERT

Samples
- Gasoline, Gasohol
- Crude Oil
- Jet Fuels
- LPG
- Solvents
- Chemicals

- All Standard VP Methods included
- Pressure range from 0-1000 kPa
- Excellent Precision and Accuracy
- Only 1 mL Sample (excl. rinsing)
- 5 Minutes Measuring Time
- DVPE and T (V/L = 20) in One Run
- Sampling Pro ™ Valve Design
- Integrated Shaker for Rapid Equilibrium
- Optional Crude Oil or LPG Package
- Maintenance Free Measuring Cell

MINIVAP ON-LINE

Samples
- Gasoline, Gasohol
- Crude Oil
- Jet Fuels
- LPG

- ASTM Compliant, Direct VP Measurement
- RVPE, DVPE, TVP, $T_{(V/L)} = 20$
- Unmatched Accuracy in Process
- Up to 2 Sample Streams
- 7 Minutes Cycle Time
- Automatic Calibration
- Variable V/L Ratio
- Fast & Easy Maintenance
- Amortization Within Weeks

VAPOR PRESSURE

SPECIFICATIONS

MINIVAP VP VISION

Test Methods	ASTM D5188, 5191, 6377, 6378, 6897; EN 13016; IP 394, 409, 481; GOST 52340, JIS K2258-2, SHT 0769; ASTM D4953 and D323 equivalent
Temperature Range	Measured: 0 to 120°C (32 to 248°F), user programmable Extrapolated: -100 to 300°C (-148 to 572°F)
Temperature Stability	±0.01°C (±0.018°F)
Pressure Range	0 to 2000 kPa (0 to 290 psi)
Vapor/Liquid Ratio	0.02/1 to 100/1, depending on method
Sample Volume	1 mL (2.2 mL per rinsing cycle)
Precision	Repeatability ≤ 0.2 kPa (pure substance @ 37.8°C) Reproducibility ≤ 0.5 kPa (pure substance @ 37.8°C)

MINIVAP VPL VISION

Test Methods	ASTM D5191, D5188, D6378; EN 13016-1+2, IP 394, 409, JIS K2258-2, SHT 0769
Temperature Range	Measured: 0 to 120°C (32 to 248°F), user programmable Extrapolated: -100 to 300°C (-148 to 572°F)
Temperature Stability	±0.01°C (±0.018°F)
Pressure Range	0 to 150 kPa (0 to 21.8 psi)
Vapor/Liquid Ratio	0.02/1 to 100/1, depending on method
Sample Volume	1 mL (2.2 mL per rinsing cycle)
Precision	Repeatability ≤ 0.2 kPa (pure substance @ 37.8°C) Reproducibility ≤ 0.5 kPa (pure substance @ 37.8°C)

MINIVAP VPXPERT

Test Methods	ASTM D5188, 5191, 6377, 6378, 6897; EN 13016; IP 394, 409, 481; GOST 52340, JIS K2258-2, SHT 0769; ASTM D4953 and D323 equivalent
Temperature Range	0 - 120°C (32 - 248°F)
Temperature Stability	±0.01°C (±0.02°F)
Pressure Range	0 - 1000 kPa (0 - 145 psi)
Vapor/Liquid Ratio	0.02/1 to 100/1, adjustable per selected method
Sample Volume	1 mL (2.2 mL per rinsing)
Precision	Repeatability = 0.3 kPa, Reproducibility = 0.7 kPa

MINIVAP ON-LINE

Test Methods	ASTM D5188, 5191, 6377, 6378, 6897; EN 13016; IP 394, 409, 481; ASTM D323 and D4953 equivalent
Temperature Range	20 - 60°C (68 - 140°F)
Temperature Stability	±0.1°C (±0.2°F)
Pressure Range	Gasoline/Crude Oil: 0 - 1000 kPa (0 - 145 psi) LPG: 0 - 2000 kPa (0 - 290 psi)
Vapor/Liquid Ratio	0.02/1 to 20/1
Sample Volume	1 mL (10 mL incl. rinsing)
Precision	Repeatability = 0.3 kPa, Reproducibility = 0.7 kPa
Power Supply	100/120/230/240 V AC, 50/60 Hz, 110W
WxHxD; Weight	580 x 1060 x 260 mm; 50 kg

VAPOR PRESSURE
INSTRUMENTS

Highest Precision
Quick Turnaround
No Product Give-Away
No Operator Bias
Minimum Waste

Samples

- Crude Oil
- LPG

VPXPERT CRUDE OIL PACKAGE

- 250 mL Floating Piston Cylinder
- Fixed Pressure Regulator
- Crude Oil Standard Inlet
- Tubings for 2000 and 7000 kPa Filling Pressure
- Tubing for Non-Pressurized Filling
- Filters for Particle Filtration

CRUDE OIL PACKAGE

Samples

- Gasoline, Gasohol
- Jet Fuels

VPXPERT AUTOSAMPLER FOR RAPID AND CONTINUOUS VAPOR PRESSURE TESTS

- Plug and Play
- Sampling Pro™ Valve Design
- Water Cooling
- Corrosion Protection
- 12 position sampler for highest throughput

RUN12 AUTOSAMPLER

Samples

- High Pressure Pipeline Samples

VP VISION PIPELINE PACKAGE

- For Pressures ›2000 kPa
- Tubing for 7000 kPa Filling
- 250 mL Floating Piston Cylinder
- Fixed Pressure Regulator
- Crude Oil Standard Inlet

HIGH PRESSURE PIPELINE PACKAGE

SPECIFICATIONS

CRUDE OIL PACKAGE (VPXPERT)

Test Method	ASTM 6377
Floating Piston Cylinder	Max. 7000 kPa (1000 psi), 250 mL sample volume, incl. stirrer, manometer and rupture disk
Filling Tube (Stainless Steel)	Pressurized filling up to max. 7000 kPa (1000 psi)
Filling Tube (PTFE)	Pressurized filling up to max. 2000 kPa (290 psi)
Calibration Tube (PTFE)	Filling at atmospheric pressure
Filters for FPC 250	5 spare filters to prevent clogging / wax contamination
Pressure Regulator	Reduces inlet pressure
Coupling	Special coupling for crude oil filling tubes
Optional	Additional manometer for back pressure measurement, with built-in relief valve

RUN12 AUTOSAMPLER (VPXPERT)

Sampling	12 separate ports, equipped with filters
Corrosion resistant construction	Wetted parts are made of stainless steel, brass, aluminum or PTFE
Viscosity range	0 - 250 mPas at filling temperature
Filling	automatic via tubes or from glass syringes
Interfaces	I^2C, USB
Power Supply	12V, 2.5 A

PIPELINE PACKAGE (VP VISION)

Test Method	ASTM 6377, D6897
Floating Piston Cylinder	Max. 7000 kPa (1000 psi), 250 mL sample volume, incl. stirrer, manometer and rupture disk
Filling Tube (Stainless Steel)	Pressurized filling up to max. 7000 kPa (1000 psi)
Pressure Regulator	Reduces inlet pressure to <2000 kPa
Coupling	Special coupling for crude oil filling tubes
Optional	Additional manometer for back pressure measurement, with built-in relief valve

FLASHPOINT

MINIFLASH is a uniquely designed **flashpoint tester series** that uses the continuously closed cup method to determine the flash point of petroleum products, liquids and solids with only 1 mL of sample. The Grabner method is the **safest** and **most economic** flashpoint method that also offers the highest repeatability and reproducibility, an excellent and ASTM proven correlation to the D93 Pensky-Martens method and delivers results equivalent to other closed cup standards.

Automotive and Aviation Industry

MINIFLASH testers are used for safe and fast flashpoint testing of Diesel and Aviation Turbine fuels, for the assessment of fuel contamination, and for the development and and quality control of motor oils. The analyzers measure according to ASTM D6450 and D7094, results are rated equivalent to the D93A Pensky Martens method and correlate well to Abel, TAG and small scale methods.

Construction and Mining

Flashpoint measurements help to monitor the quality of Diesel and lubricating oils. The MINIFLASH also includes a fuel dilution feature, which is used to verify fuel contamination into oil for heavy duty machinery. A portable flashpoint tester is a perfect testing tool for remote areas, that offer only a minimum of infrastructure. Companies like CATERPILLAR are using the MINIFLASH.

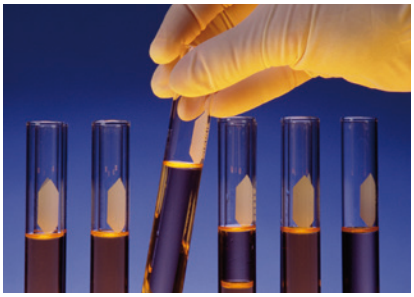
Flavors and Fragrances, Chemicals

MINIFLASH is the world wide market leader in the Flavors & Fragrances industry. Only 1-2 mL sample is required! Further applications include testing of solvents, paints, adhesives and other chemicals. The determination of the flashpoint is required to document compliance with transport regulations, for defining product specifications and to complete material safety data sheets.

Energy

In conventional and nuclear power plants, flashpoint tests are being used for analysing the quality of hydraulic and transformer oils.

FLASHPOINT



Laboratory Inspection

Our instruments are used for accurate flashpoint determination of petrochemicals, lube and used oils, solvents, paints and chemicals, according to the modern flash-point standards ASTM D6450 and D7094, in excellent correlation to ASTM D93, D56, ISO 2719, ISO 3679 and ISO 3680 standards. D7094 is listed as alternative method in ASTM Diesel Fuel and Biodiesel Blend specifications. The MINIFLASH is approved by US D.O.T. for analysing class 3 flammable liquids for transportation in commerce.

Lubricants, Greases

The flashpoint of lubricants has to be tested to determine product specification and to verify compliance with transport regulations. For laboratories with a high throughput, that require testing of more than 20,000 samples per year, Grabner Instruments designed the 8-position sampler MINIFLASH FLAH.

Military and Marine Fuels

Military vessels navigating the oceans around the globe use the portable MINI-FLASH flashpoint tester to check the quality of their fuels and oils. The fuel dilution measurement method in the MINIFLASH was developed to test the level of fuel contamination in oil onboard Navy ships. This method can also be used for leak detection in lubricated bearings.

Petroleum and Biofuels

Strict safety regulations in refinery laboratories speak against using open flames near highly flammable liquids. The MINIFLASH is the safest flashpoint tester available, very user friendly, efficient and strong enough to last even in an offshore environment. It is used for testing Petrochemicals, Diesel, Lube and Used Oils, Biofuels, Blends and for analyzing oily waste water in upstream exploration. ASTM D7094 is listed as alternative method in ASTM Diesel Fuel and Biodiesel Blend specifications and ASTM D6450 is listed as alternative method in ASTM D6751 B100 specifications.

Waste

For safe thermal disposal or for storage of flammable liquids, the flashpoint of liquid and solid waste, used oil, oily waste water and pharmaceutical waste water has to be analyzed. The versatile MINIFLASH is highly recommended by disposal plants and approved by RCRA.

FLASHPOINT
INSTRUMENTS

Saves Test Costs
Reduces Hazardous Waste
Eliminates Safety Risks
Increases Turnaround
Reduces Cleaning

MINIFLASH FLP/H TOUCH

Samples
- Petroleum, Biofuels
- Chemicals
- Flavors & Fragrances
- Lube & Used Oils
- Paints & Varnishes
- Solids, Bitumen

- The Most Economic Flashpoint Test Method
- Includes all MINIFLASH Advantages plus
  - Equilibrium Flashpoint Methods
  - Automatic Ignition Cleaning
  - Full Remote Operation via Web Browser
  - Remote Diagnostics and Support
  - Direct USB, LAN, LIMS and PC Connection
  - Intuitive Menu Navigation on 8.4" Touch Screen
  - Microsoft® Windows® Software
  - Extended Temperature Range
  - Front USB Port for Convenient Data Transfer

MINIFLASH FLP/H/L

Samples
- Petroleum, Biofuels
- Chemicals
- Flavors & Fragrances
- Lube & Used Oils
- Paints & Varnishes
- Solids, Bitumen

- Advanced Standards ASTM D6450 and D7094
- No Bias to ASTM D93A
- Best Repeatability and Reproducibility
- Highest Safety: No Open Flame
- Smallest Sample Size: 1 or 2 mL
- Fastest Turnaround: Peltier Cooling
- Portable, Easy to Clean and Durable Design
- Approved by US DOT, RCRA, NATO, US Navy
- NSN 6630-25-145-3256 (FLPH)

MARFLASH / NAVIFLASH

Samples
- Diesel
- Jet Fuels
- Lube & Used Oils
- Marine Fuels

- ASTM D6450 and D7094
- US Marine Aviation Fuel Acceptance Protocols
- US Navy-Specs Protocols (NAVIFLASH)
- Oil/Diesel Contamination Detection
- F-76 Fuel Dilution of 9250 Oil
- JP-5 Fuel Dilution of 9250 Oil
- JP-5, JP-8, Jet A1, Diesel and DF-2 Specs
- Ideal for Shipboard Testing
- NSN 6625-01-472-6783 (NAVIFLASH)
- NSN 6630-01-534-1774 (MARFLASH)

MINIFLASH FLA/H

Samples
- Petroleum, Biofuels
- Chemicals
- Flavors & Fragrances
- Lube & Used Oils
- Paints & Varnishes
- Solids, Bitumen

- Fully Integrated 8 Position Sampler
- Fast and Unattended Operation
- Up to 80 Samples per Day
- Fast Cleaning
- Fast Thermoelectric Cooling
- Easy Programming Dialogue
- NSN 6630-25-146-0895 (FLAH)

FLASHPOINT

SPECIFICATIONS

MINIFLASH FLP/H TOUCH

Test Methods	ASTM D6450 (SHT0768), D7094 excellent correlation to ASTM D93, D56, D3828, ISO 2719, 3679, 3680
Fuel Specifications	D7094: ASTM D396, D975, D2880, D3699 (Diesel); D7467 (B6-B20) D6450: ASTM D6751 (B100)
Temperature Range	FLP TOUCH: 0 - 200°C (32 - 392°F) FLPH TOUCH: 0 - 400°C (32 - 752°F); tab water cooling
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	1 mL (ASTM D6450) 2 mL (ASTM D7094)
Sample Throughput	up to 12 samples/h

MINIFLASH FLP/H/L

Test Methods	ASTM D6450 (SHT0768), D7094; excellent correlation to ASTM D93, D56, ISO 2719
Fuel Specifications	D7094: ASTM D396, D975, D2880, D3699 (Diesel); D7467 (B6-B20) D6450: ASTM D6751 (B100)
Temperature Range	FLP: 0 to 200°C (32 to 392°F) FLPH: 10 to 400°C (50 to 752°F) FLPL: -25 to 100°C (-13 to 212°F)
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	1 mL (ASTM D6450) 2 mL (ASTM D7094)
Sample Throughput	up to 12 samples/h

MARFLASH / NAVIFLASH

Test Methods	ASTM D6450 (SHT0768), D7094
Fuel Specifications	D7094: ASTM D396, D975, D2880, D3699 (Diesel); D7467 (B6-B20) D6450: ASTM D6751 (B100)
Temperature Range	MARFLASH: 0 - 200°C (32 - 392°F) NAVIFLASH: 0 - 400°C (32 - 752°F)
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	1 mL (ASTM D6450) 2 mL (ASTM D7094)
Sample Throughput	up to 12 samples/h

MINIFLASH FLA/H

Test Methods	ASTM D6450 (SHT0768), D7094; excellent correlation to ASTM D93, D56, ISO 2719
Fuel Specifications	D7094: ASTM D396, D975, D2880, D3699 (Diesel); D7467 (B6-B20) D6450: ASTM D6751 (B100)
Temperature Range	FLA: 0 to 200°C (32 to 392°F) FLAH: 10 to 400°C (50 to 752°F)
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	1 mL (ASTM D6450) 2 mL (ASTM D7094)
Sample Throughput	up to 12 samples/h

FUEL ANALYSIS

The Grabner fuel analyzers are the ultimate solution for monitoring and optimizing refining and blending, to assess compliance with automotive fuel specifications, to control product contamination and adulteration, for fuel research and for motor development. The product line is headed by the MINISCAN IRXpert, the first portable FT-IR multi-fuel analyzer for Gasoline, Jet Fuel, Diesel and Biofuel Blends, which uses full spectrum information and advanced chemometrics for utmost measurement accuracy.

Automotive Industry

The small sample volume of the Grabner analyzers allows quality checks on small amounts of residual fuels found in the fuel feed line, to clarify warranty issues. The analyzer is used for detecting fuel contamination or adulteration in fuels and to check compliance with Oxygen, Benzene and MMT specifications. Further applications include the analysis of alternative fuels for motor development and the product control in motor racing.

Aviation Industry

FT-IR measurements are a fast and cost effective way to check the quality of Aviation Turbine Fuels and Aviation Gasoline.

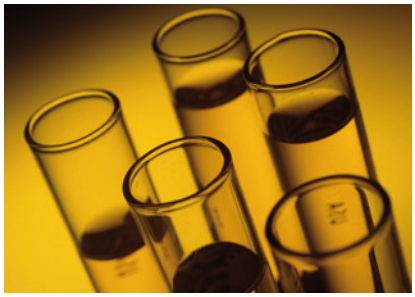
Biofuels

The MINISCAN IRXpert is designed for the analysis of biofuels content in Gasoline and Diesel. More than 30% Ethanol in Gasoline and 30% FAME in Diesel can be measured according to the international standards EN 14078 and ASTM D7806. Important fuel properties such as Octane and Cetane number, Density and Methanol content are determined within minutes.

Construction and Mining

Fuel Adulteration and Fuel Contamination is a widespread problem in the construction and in the mining business. The MINISCAN IRXpert Diesel analyzer allows portable contamination and adulteration analysis of Diesel fuels. Key fuel parameters such as Cetane Number, Cetane Index, Cetane Improver, Density, Aromatics, Distillation Properties and Biodiesel content are checked within minutes.

FUEL ANALYSIS



Laboratory Inspection

The Grabner fuel analyzers allow a comprehensive analysis on fuel quality. Octane Number, Octane Boosters, MMT, Benzene, Oxygenates, Aromatics, Cetane Number, Cetane Improver, Density, Distillation and Vapor Pressure are analyzed within minutes. Compliance with Oxygen, Benzene, Ethanol or FAME limits can be assessed easily, fuel contamination and adulteration is readily identified.

Military

The portable and robust MINISCAN IRXpert fuel analyzers are an ideal solution for inspection of military stock fuels directly in the field.

Petroleum

The petroleum industry uses our quick and accurate fuel analyzers to adjust their blending process and to ensure that product quality is maintained. Compared to gas chromatography, FT-IR instruments are a faster, more cost effective and more versatile way to test fuels in refineries, at terminals and in pipelines.

Transportation and Storage

Adulteration is a widespread problem, especially in developing countries. Fuel contamination on the other hand can be a costly issue for every pipeline operator. Portable fuel analyzers are perfectly suited for monitoring product quality throughout the distribution system. For product comparison, results can be transferred via web to the next sample point.

FUEL ANALYSIS

INSTRUMENTS

Monitor Quality
Optimize Products
Detect Contamination
Save Laboratory Costs
Save Test Time

Samples

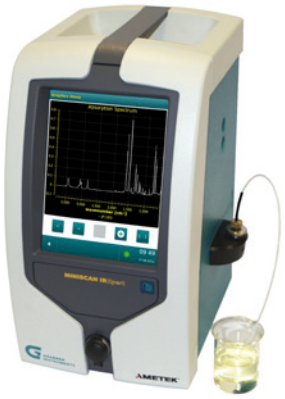
- Gasoline, Gasohol
- Diesel
- Jet Fuels
- Biofuel Blends
- Fuel Adulteration

- Portable FT-IR Fuel Analyzer
- Laser- and Temperature Regulated System
- Superior Resolution
- Advanced Chemometrics
- 8.4" Full Color Touch Screen
- Full Network and LIMS Integration

90+ FUEL PARAMETERS ANALYZED

- Oxygenates (ASTM D5845)
- Aromatics, PNA and Benzene (D6277, EN 238)
- Biodiesel (FAME) Content (EN 14078, D7806)
- Octane Booster and Cetane Improver
- Anilines
- Total Aromatics, Olefins, Saturates, Oxygen
- Octane Number: RON, MON, AKI
- Cetane Number, Cetane Index
- Distillation and Vapor Pressure
- Driveability, Vapor Lock and VOC Analysis
- Built-In Temperature Regulated Density
- Jet Fuel: Flash-, Smoke-, Freezing Point, etc.

MINISCAN IRXPERT



Samples

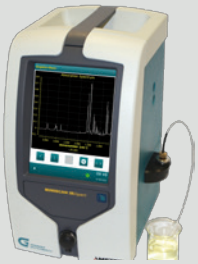
- Gasoline, Gasohol
- Diesel
- Jet Fuels
- Crude Oil
- Biofuel Blends
- Asphalt
- Lube & Used Oils

- Fast Inline or Laboratory Measurement
- Real Time Monitoring of Multiple Process Streams
- Automated Results on a Simple Interface
- Validation of Incoming Product
- Improved Product Quality
- Improved Repeatability
- Reduced Expenses
- Minimal Operator Training
- Rapid Return on Investment

PARAFUEL™ IN-LINE ANALYZER

SPECIFICATIONS

MINISCAN IRXPERT



Test Methods	ASTM D5845, D6277, D7777, D7806; EN 238, EN 14078; ISO 15212
Property Prediction based on	ASTM D56/D3828, D86, D323, D445, D613, D1319, D1322, D1840, D2386/ D7153, D2699, D2700, D3948, D5191, D6371, D6378, D6379; ISO 3405, 5163, 5164, 5165; EN 13016;
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	Less than 25 mL
Scanning Time	80s (Multiple Scans)

PARAFUEL™ IN-LINE ANALYZER

ParaFuel™ Models	ParaFuel™ NIR Process Analyzer + one High Energy Bubble Shedding Probe
	ParaFuel™ NIR Process Analyzer + Multiplexer + Up to twenty Probes
	ParaFuel™ NIR Benchtop Analyzer + one Dip Probe
Scan Time	30 seconds (user-adjustable)
Power Supply	100-240 V AC, 50/60 Hz
PROCESS ANALYZER	
Classification	C1D2 Standard, C1D1 Optional
Control System Communication	Modbus RTU Standard (Options: Modbus TCP, 4-20 mA Analog Output Module)
Sample requirements	Up to 150°C and 7000 kPa (1000 psi)
BENCHTOP ANALYZER	
Data Storage	Data automatically logged and stored; Standard TCP/IP connection for integration to LIMS
Dimensions (WxHxD)	305 x 397 x 349 mm (12" x 15" x 13")

DISTILLATION

MINIDIS ADXpert is a portable, true atmospheric and **automatic distillation analyzer**, designed for laboratory and field use. Fast and highly precise distillation runs make the MINIDIS ADXpert a smart alternative to classical **D86 testing,** for **biofuels testing** and for determining the **true boiling point** of liquids. The instrument is specified for use of gasoline, jet fuel and diesel products (groups 0-4), biofuels, solvents, aromatics, organic liquids, chemicals and contaminated or blended samples, using a resolution twice as good as classical apparatus. A distillation run on light products takes just 15 minutes and requires only a 6 mL sample.

Automotive Industry

Our compact, fast and fully automatic distillation unit is an ideal tool for testing Gasoline, Diesel, Biofuels and Solvents for compliance with specifications and for contamination detection. In the MINIDIS ADXpert measurements are performed according to ASTM D7344 and correlate well to ASTM D86 and ISO 3405.

Aviation Industry

Distillation properties of Aviation Gasolines, Aviation Turbine Fuels and Synthetic Fuels are accurately determined by the MINIDIS ADXpert.

Biofuels

The Grabner analyzer is used to verify distillation properties on high Ethanol blends and B100 Biodiesel. Small and portable, the instrument offers excellent precision and better repeatability on B100 than the classical ASTM D1160 vacuum distillation method and a good repeatability on the T50 of Ethanol blends. Grabner´s ASTM D7344 method is listed as alternative method in ASTM D6751 B100 specifications.

Chemicals and Pharmaceuticals

The MINIDIS ADXpert is a unique analyzer that measures both, the True Boiling Point or D86 / ISO 3405 distillation properties, of Chemicals, Solvents and Organic Liquids. A complete analysis on initial boiling point, distillation curve and final boiling point of solvents is delivered within minutes.

DISTILLATION

Construction and Mining

Distillation properties are key in determining the quality of Diesel. Distillation yields important information to prevent the use of non-spec fuels and subsequently damage expensive machinery, used for mining and construction work. Because of its automatic heater regulation, the use of the MINIDIS ADXpert is not limited to Diesel: Difficult samples, like raffinates and mining solvents can also be distilled with this instrument.

Laboratory Inspection

The MINIDIS ADXpert is a versatile distillation unit for testing Gasoline, Naphta, Diesel, Jet Fuels, Biofuels, Chemicals, Solvents, Spirits, Narrow Boiling Products and Organic Liquids. Measurements are performed according to ASTM D7344, the instrument yields either ASTM D86 or True Boiling Point results. Measurements on B100 show excellent repeatability, ASTM D7344 is listed in ASTM D6751 B100 specifications. The portable instrument is ideal for mobile testing at the point of sale.

Military

A compact, robust and reliable distillation unit is a "must have" for military personnel testing stock fuels directly in the field. The MINIDIS ADXpert guarantees highest safety, neither glassware nor a fire extinguisher is required for this distillation method.

Petroleum

Our portable analyzer is used to analyze distillation properties of petroleum products in the lab or in the field, to monitor product and pipeline specifications or to simulate fractional distillation. True Boiling Point or ASTM D86 distillation properties are determined automatically, pure Biodiesel is measured with the highest repeatability. Due to the nature of the instrument, the resolution is twice as good as in classical D86 apparatus.

Transportation and Storage

Manufacturers and distributors of petroleum products have to verify product quality and test compliance with transport regulations by means of distillation. A portable distillation analyzer can easily be moved to terminals, retail outlets, tank farms or pipeline sample points, that are scattered over a wide area.

DISTILLATION
INSTRUMENT

Fast Results
Small Sample
Low Running Costs
Unmatched Versatility
No Manual Cleaning
Highest Safety

Samples

- Biofuels
- Chemicals
- Diesel
- Fuel Contamination
- Gasoline, Gasohol
- Jet Fuels
- Solvents

MOST VERSATILE:

- Measurement according to D7344
- Correlates to ASTM D86
- Listed in D6751 B100 Biodiesel Specs
- Tests True Boiling Point
- Tests Unknown Samples
- Tests Refinery Residue
- Detects Dry Point
- Portable for Field Use

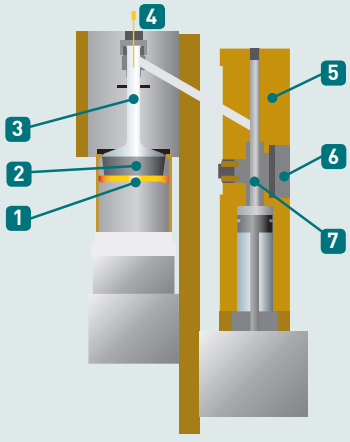
FEATURES:

- True Atmospheric Distillation
- 6 mL Sample Volume
- No Glassware
- 15 min. Distillation on Light Samples
- Automatic Filling & Cleaning
- Automatic Temperature Optimization
- Automatic Final Heat Adjustment
- Best in Class Volume Detection
- Highest Safety
- Low on Consumables

MINIDIS ADXpert

MEASURING PRINCIPLE

A disposable sample cup (2) is filled with anti bumping granules to avoid a boil-up effect of the sample. The cup is placed into the cup holder that contains the heating element (1).
Finally the filling tube of the MINIDIS ADXpert is placed into the sample and the RUN button is pressed. The cup is automatically lifted and pressed against the stainless steel distillation column (3). By moving down the piston of the receiving system, a vacuum is generated and monitored for a few seconds to verify the precise positioning and tightness of the sample cup, ensuring no escape of flammable vapors.
A 6 mL sample is transferred from the temperature controlled filling system to the sample cup (2) and heated with the low mass electric heating element (1). The temperature of the released vapor is measured with a NiCr/Ni thermocouple (4). Vapor passes through a condenser tube into a thermostated chamber (5), whose temperature is controlled by a Peltier element. The vapor condenses and the volume of the condensate is monitored using a combination of a stationary optical meniscus detector (6) and a receiver cell (7), whose volume can be changed by a piston driven by the high precision stepper motor. Once the final boiling point is reached, the sample cup is cooled down to a safe temperature, then removed and weighed using the built-in balance. Residue is determined from the weight difference before and after the distillation.



SPECIFICATIONS

MINIDIS ADXpert

Test Method	ASTM D7344
Excellent Correlation to	ASTM D86, D1160 (B100), D850, D1078; ISO 3405
Temperature Range	0 to 400°C (32 to 752°F)
Temperature Stability	±0.1°C (±0.2°F)
Sample Volume	6 mL
Measuring Time	15 min. (light samples)

GREASE

Fast Throughput
Minimal Waste
Easy to Operate
Easy to Clean

MINITEST FFK automatically determines the **flow-pressure properties of lubricating grease** at low temperatures down to -60°C by means of the Kesternich test. The original and time-consuming method is now fully automated and the measuring range is extended far below the original one, resulting in a considerably improved precision. A powerful two stage Peltier element avoids the use of a large and expensive cyrostat. The principle of the test is based upon the necessary pressure build-up to press an amount of grease through a standard test nozzle at a preset temperature.

Samples

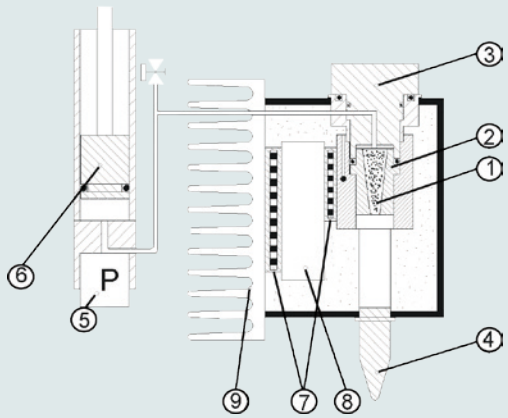
- Greases

- Automatic Detection of Flow Pressure
- Fast 2-Stage-Peltier Cooling
- No Cryostate Needed
- Fit for Field Use
- Highest Accuracy
- Easy Handling
- Portable Design

MINITEST FFK

MEASURING PRINCIPLE

The instrument has a standardized measuring nozzle (1) and a thermostatic block (2). The measuring system is firmly closed with a seal stopper (3). The system is closed at the bottom with an Eppendorf flask (4) to protect the test nozzle against condensation of water. This flask is also collecting the lubrication grease after the test. The test pressure is generated by a motor-driven piston (6) and measured with a precision pressure transducer (5). The required low temperature is regulated by a cascade block (8) with Peltier elements (7). Down to temperatures of -30°C the heat is dissipated over a heat exchanger (9). For lower temperatures the heat exchanger has to be cooled with tap water.



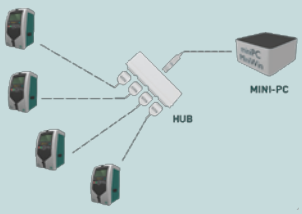
SPECIFICATIONS

MINITEST FFK

Test Method	DIN 51805 (Kesternich Method)
Temperature Range	-60 to 30°C (-76 to +86°F)
Tap Water Cooling	for below -30°C (-22°F)
Temperature Resolution	±0.1°C (±0.2°F)
Pressure Range	0 to 200 kPa
Pressure Resolution	±0.1 kPa
Precision	better than DIN 51805

ACCESSORIES

GRABNER INSTRUMENTS accessories facilitate your work and help to increase efficiency in the lab or in the field.



SEAMLESS RESULTS TRANSFER

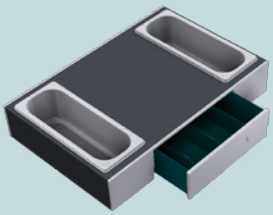
LIMS-PACKAGE

- Fully Automatic Results Transfer to LIMS
- Compact Mini-PC
- Easy to Install
- Runs MINIWIN software
- Connect up to four analyzers with the LIMS-HUB

ACTIVE COOLING FOR FLASHPOINT TESTS

COOLING HOOD

- Thermoelectric Cooling and Air Ventilation
- Keeps samples cool at 10°C below ambient
- PT100 temperature sensor
- Ideal for volatile samples with low flashpoint
- Ensures highest sample troughput



FACILITATE YOUR LABORATORY WORK

WORKSTATION

- Convenient Storage for Instrument Manual, Consumables and Spare Parts
- Easy to Set Up
- Keeps Workspace Tidy
- Can be combined with every Grabner Instruments analyzer

SPECIFICATIONS

LIMS-PACKAGE

Compatible with	• MINIFLASH flashpoint tester models FLP, FLPL, FLPH, FLA, FLAH • MINIVAP vapor pressure models VPS, VPSH, LPG, VPXpert/-L • MINIDIS distillation units MINIDIS ADXpert, MINIDIS • IROX 2000 fuel analyzers

COOLING HOOD

Material	High quality stainless steel
Active cooling	Cooling up to 10°C below ambient temperature
Power Supply	220 V AC, 60 W (24V adapter included)

WORKSTATION

Dimension (WxHxD)	570 x 130 x 393 mm
Weight	16.3 kg

MOBILE FUEL LAB

Fully Equipped
Modular Configuration
Ready to Measure

The MOBILE FUEL LAB is the ideal solution for fast and precise fuel quality checks in the field. Equipped with the portable, rugged and fully automated analyzers of Grabner Instruments, a detailed fuel analysis can be performed in 30 minutes by a single person directly on-site.

- Biofuels
- Crude Oil
- Diesel
- Fuel Contamination
- Gasoline, Gasohol
- Jet Fuels
- LPG
- Marine Fuels

- Total Quality Control Directly at Site
- Complete Set of Instruments
- Complete Fuel Analysis in 30 min.
- Flexible Instrument Configuration
- Shock Proof Installation
- Instruments Secured for Transport
- Water and Power Supply
- Air Conditioned
- Anti-Skid Flooring
- PC Network
- Optional Sleeper Department

MOBILE FUEL LAB

TOTAL QUALITY CONTROL ON THE MOVE

The Mobile Fuel Lab is the best example to highlight our competence: Get results, where you need them. Our instruments are made to sustain the demands on the road: they are small, robust and reliable.

The Mobile Fuel Lab is built and equipped according to your requirements. Select a vehicle and choose the appropriate lab size. Available labs are:

- 3.8 m standard lab
- 4.8 m lab with sleeper compartment
- 7.0 m Super Mobile Lab, including an office
- 13.5 m Articulate Truck, including a living area

All labs are equipped with air-conditioning, ventilation, ducted warm air heating system, a sink with cold and hot water, anti-skid flooring, fire detection and fire extinguishing systems in accordance with local regulations, a generator, worktops, benches and cupboards. An optional fume-hood is available.

Choose from our large selection of on-board instruments. All instruments are mounted on specially designed shock-absorbers. We are flexible when it comes to integrating your choice of printer, PC or GPS navigation system.

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