



SMART LAB

About Us

SMART LAB CO is one of the leading industrial lab suppliers in Iraq, providing multidisciplinary laboratory equipment, technical support, maintenance, calibration, instalations, and training.



Our Company History

SMART LAB CO established in 2010 as part of BioLab Co

2010

SLC started to work independently, and we continuously grew by networking world leading industrial companies and making a good reputation by delivering excellent support to customers.

2014

SLC Started technical support:

SLC has become an independent company as a leading supplier of the high-quality vender and technical consults for the laboratories of

- Water and air
- Oil and Gas sectors
- Educational Institutions
- Environmental agencies
- Third-party inspectors
- Military
- Power plants
- Milling
- Constructional materials

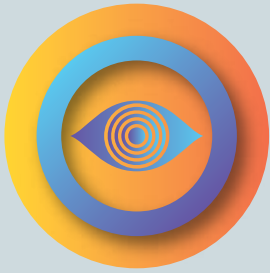
- Installation
- Training
- Calibration
- Maintenance

2018

SLC Started designing and manufacturing petroleum equipment and spare parts

2019





Our Vision

Our vision is to fill the gap between the end-user needs and the manufacturers in order to have the maximum return of any investment or project. Minimizing delay in orders is one of the main company's priorities.



Our Mission

SLC started to work independently, and we continuously grew by networking world leading industrial companies and Our Mission is to become one of the leading companies in Iraq and the Middle East to design, supply, and service the added value procurement and engineering solution for not only water related products but also for petroleum, concrete, soil, among others. Also, based on years of experience and relations with regional and international partners, we strive to service our customers who need analysis and measurements by our big list of lab equipment that adhere to the world standards. Furthermore, as we understand the dynamic nature of the market, we connect with our clients beyond the ordinary supplier-customer relationship to make sure that they achieve their desired growth. Making a good reputation by delivering excellent support to customers.



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DR 6000™ UV-VIS



DR 6000™ UV-VIS:

With UV and Visible Spectrum capabilities, over 250 per-programmed Methods including the most common testing methods used, guided procedures, and integrated quality assurance software, the DR 6000 ensures you are ready to handle your comprehensive water testing needs.

Key advantages:

- 1- Your Water Testing Needs, All in One Spectrophotometer.
- 2- Accessories for High Volume and High Accuracy Testing Needs.
- 3- Advanced Quality Assurance at Your Fingertips.
- 4- Guided Procedures and Elimination of False Readings.
- 5- Automatically Avoids Errors.



DR 6000™ UV-VIS

Available Tests

The following table lists available tests and overall ranges for the Hach DR 6000 Benchtop Spectrophotometer. The ranges may represent more than one available test for the instrument. Consult your Hach representative, Customer Service, the Hach Master Catalog, or the Hach web site at www.hach.com for complete details of all available tests for this instrument.

| Parameter | Range | TNTplus Test | Parameter | Range | TNTplus Test |
|--|---------------------------|--------------|---------------------------------------|-------------------------|--------------|
| Alachlor | 0.1 to 0.5 ppb, threshold | | Lead | 3 µg/L to 2.0 mg/L | • |
| Alkalinity, Total | 25 to 400 mg/L | • | Manganese | 0.006 to 20.0 mg/L | |
| Aluminum | 0.002 to 0.800 mg/L | • | Mercury | 0.1 to 2.5 µg/L | |
| Ammonia, Nitrogen | 0.015 to 50.0 mg/L | • | Methylethylketoxime (MEKO) | 15 to 1000 µg/L | |
| Arsenic | 0.020 to 0.200 mg/L | | Molybdenum, Molybdate | 0.02 to 40.0 mg/L | |
| Atrazine | 0.5 to 3.0 ppb, threshold | | Nickel | 0.006 to 6.0 mg/L | • |
| Barium | 2 to 100 mg/L | | Nitrate, Nitrogen | 0.01 to 35 mg/L | • |
| Benzotriazole | 1.0 to 16.0 mg/L | | Nitrite, Nitrogen | 0.002 to 250 mg/L | • |
| Boron | 0.2 to 14.0 mg/L | | Nitrogen, Simplified Total Kjeldahl | 0 to 16 mg/L | • |
| Bromine | 0.05 to 4.50 mg/L | | Nitrogen, Total | 0.5 to 150 mg/L | • |
| Cadmium | .7 µg/L to 0.30 mg/L | • | Nitrogen, Total Inorganic | 0.2 to 25.0 mg/L | |
| Carbohydrazide | 5 to 600 µg/L | | Nitrogen, Total Kjeldahl | 1 to 150 mg/L | |
| Chloramine, Mono | 0.04 to 10.0 mg/L | | Ozone | 0.01 to 1.50 mg/L | |
| Chloride | 0.1 to 25.0 mg/L | | PCB (Polychlorinated Biphenyls) | 1 to 50 ppm, threshold | |
| Chlorine Dioxide | 0.01 to 1000 mg/L | | Phenols | 0.002 to 0.200 mg/L | |
| Chlorine, Free | 0.02 to 10.0 mg/L | • | Phosphonates | 0.02 to 125.0 mg/L | |
| Chlorine, Total | 2 µg/L to 10.0 mg/L | • | Phosphorus, Acid Hydrolyzable | 0.06 to 100.0 mg/L | |
| Chromium, Hexavalent | 0.010 to 1.00 mg/L | • | Phosphorus, Reactive (Orthophosphate) | 19 µg/L to 100.0 mg/L | • |
| Chromium, Total | 0.01 to 0.70 mg/L | • | Phosphorus, Total | 0.06 to 100.0 mg/L | • |
| Cobalt | 0.01 to 2.00 mg/L | | Potassium | 0.1 to 7.0 mg/L | |
| Color | 3 to 500 units | | Quaternary Ammonium Compounds | 0.2 to 5.0 mg/L | |
| COD (Chemical Oxygen Demand) | 0.7 to 15,000 mg/L | • | Selenium | 0.01 to 1.00 mg/L | |
| Copper | 1 µg/L to 8.0 mg/L | • | Silica | 3 µg/L to 100 mg/L | |
| Cyanide | 0.002 to 0.240 mg/L | | Silver | 0.005 to 0.700 mg/L | |
| Cyanuric Acid | 5 to 50 mg/L | | Sulfate | 2 to 900 mg/L | • |
| DEHA (Diethylhydroxylamine) | 3 to 450 µg/L | | Sulfide | 5 to 800 µg/L | |
| Dissolved Oxygen | 6 µg/L to 40 mg/L | | Surfactants, Anionic | 0.002 to 0.275 mg/L | |
| Erythorbic Acid (Isoascorbic acid) | 13 to 1500 µg/L | | Suspended Solids | 5 to 750 mg/L | |
| Fluoride | 0.02 to 2.00 mg/L | | Tannin and Lignin | 0.1 to 9.0 mg/L | |
| Formaldehyde | 3 to 500 µg/L | | TOC (Total Organic Carbon) | 0.3 to 700 mg/L | |
| Hardness, Total (Calcium and Magnesium as CaCO ₃) | 4 µg/L to 4.00 mg/L | | Tolyltriazole | 1.0 to 20.0 mg/L | |
| Hydrazine | 4 to 600 µg/L | | Toxicity | 0 to 100% Inhibition | |
| Hydroquinone | 9 to 1000 µg/L | | TTHM (Trihalomethanes, Total) | 10 to 600 µg/L | |
| Iodine | 0.07 to 7.00 mg/L | | TPH (Total Petroleum Hydrocarbons) | 2 to 200 ppm, threshold | |
| Iron, Ferrous | 0.02 to 3.00 mg/L | | Volatile Acids | 27 to 2800 mg/L | • |
| Iron, Total | 0.009 to 6.0 mg/L | • | Zinc | 0.01 to 3.00 mg/L | |



DR 3900™ SPECTROPHOTOMETER



DR 3900™ SPECTROPHOTOMETER:

You could consider spending valuable time and resources developing a more optimized process and improving accuracy in your measurements, or you could lean on the experts at

Hach for a simpler solution: the DR3900 and Hach TNTplus™ chemistries.

Key advantages:

- 1- Sample preparation: reduced handling steps, precise dosing.
- 2- sample analysis: automatic test recognition, expiration date check, etc.
- 3- Utilization of the new Truecal™ software to eliminate lot to lot variation.
- 4- Documentation of results: versatile data management.



DR 3900™ SPECTROPHOTOMETER

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| Aluminum | 0.002 to 0.800 mg/L | • | Mercury | 0.1 to 2.5 µg/L | |
| Ammonia, Nitrogen | 0.015 to 50.0 mg/L | • | Methylethylketoxime (MEKO) | 15 to 1000 µg/L | |
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| Barium | 2 to 100 mg/L | | Nitrate, Nitrogen | 0.01 to 35 mg/L | • |
| Benzotriazole | 1.0 to 16.0 mg/L | | Nitrite, Nitrogen | 0.002 to 250 mg/L | • |
| Boron | 0.2 to 14.0 mg/L | | Nitrogen, Simplified Total Kjeldahl | 0 to 16 mg/L | • |
| Bromine | 0.05 to 4.50 mg/L | | Nitrogen, Total | 0.5 to 150 mg/L | • |
| Cadmium | .7 µg/L to 0.30 mg/L | • | Nitrogen, Total Inorganic | 0.2 to 25.0 mg/L | |
| Carbohydrazide | 5 to 600 µg/L | | Nitrogen, Total Kjeldahl | 1 to 150 mg/L | |
| Chloramine, Mono | 0.04 to 10.0 mg/L | | Ozone | 0.01 to 1.50 mg/L | |
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| Copper | 1 µg/L to 8.0 mg/L | • | Silica | 3 µg/L to 100 mg/L | |
| Cyanide | 0.002 to 0.240 mg/L | | Silver | 0.005 to 0.700 mg/L | |
| Cyanuric Acid | 5 to 50 mg/L | | Sulfate | 2 to 900 mg/L | • |
| DEHA (Diethylhydroxylamine) | 3 to 450 µg/L | | Sulfide | 5 to 800 µg/L | |
| Dissolved Oxygen | 6 µg/L to 40 mg/L | | Surfactants, Anionic | 0.002 to 0.275 mg/L | |
| Erythorbic Acid (Isoascorbic acid) | 13 to 1500 µg/L | | Suspended Solids | 5 to 750 mg/L | |
| Fluoride | 0.02 to 2.00 mg/L | | Tannin and Lignin | 0.1 to 9.0 mg/L | |
| Formaldehyde | 3 to 500 µg/L | | TOC (Total Organic Carbon) | 0.3 to 700 mg/L | |
| Hardness, Total (Calcium and Magnesium as CaCO ₃) | 4 µg/L to 4.00 mg/L | | Tolytriazole | 1.0 to 20.0 mg/L | |
| Hydrazine | 4 to 600 µg/L | | Toxicity | 0 to 100% Inhibition | |
| Hydroquinone | 9 to 1000 µg/L | | TTHM (Trihalomethanes, Total) | 10 to 600 µg/L | |
| Iodine | 0.07 to 7.00 mg/L | | TPH (Total Petroleum Hydrocarbons) | 2 to 200 ppm, threshold | |
| Iron, Ferrous | 0.02 to 3.00 mg/L | | Volatile Acids | 27 to 2800 mg/L | • |
| Iron, Total | 0.009 to 6.0 mg/L | • | Zinc | 0.01 to 3.00 mg/L | |



InfraCal 2 ATR-SP



APPLICATIONS:

- Testing produced water on offshore or onshore oil rigs.
- Monitoring refinery or industrial plant wastewater effluents.
- Measuring FOG discharge levels.
- Checking oil/water separation systems.
- Measuring oil in drilling mud/cuttings.
- Testing for residual oil on pre-cleaned metal components.
- Determining the purity level of reclaimed solvents.
- Onsite testing of soil at remediation sites

InfraCal 2 ATR-SP:

The Infra Cal 2 ATR-SP analyzer is designed to measure solvent extractable material (oil and grease) by infrared determination in water or soil using hexane, pentane, cyclohexane or Vertrel MCA for the extraction procedure. A detector with a fixed 3.4 μm (2940 cm^{-1}) filter is used to measure oil and grease concentrations. The ATR-SP correlates with EPA Methods 1664 as well as with the ASTM D7066 Method and EPA 413.1 and 418.1.

The ATR-SP makes use of the fact that oil and grease can be extracted from water or soil through the use of an appropriate solvent and extraction procedure. The extracted hydrocarbons absorb infrared energy at a specific wavelength and the amount of energy absorbed is proportional to the concentration of hydrocarbons in the solvent. The analyzer can be calibrated to read out directly in the desired units such as, %, ppm, mg/L or mg/kg.

FEATURES:

- Results in less than 15 minutes
- Sub-ppm measurements
- Rugged, portable, easy-to-use
- Internal data logging
- Export via USB
- Multiple calibrations



Precise, low-level TOC



Principle of Operation:

TIC

Acid is added to lower the pH so that inorganic carbon is sparged off as CO₂. This is also measured to ensure the Total Inorganic Carbon (TIC) is not carried over into the TOC

Oxidation

BioTectors's patented oxidation method (TSAO) efficiently oxidizes the organic carbon in the sample to CO₂. TSAO utilizes hydroxyl radicals generated within the analyzer by combining oxygen, which passes through the ozone generator, with sodium hydroxide.

TOC

To remove CO₂ from the oxidized sample, the pH of the sample is lowered again. The CO₂ is sparged and measured by the specially developed NDIR CO₂ analyzer. The result is displayed as Total Organic Carbon (TOC).

Precise, low-level TOC measurement that you can trust:

Changes in water quality for ultra pure applications are disruptive to plant operations. Accurate, on-line analysis is important to protect critical equipment that depends on ultra pure water resources. Leading manufacturers know that it is critical to analyse for contaminants precisely at ppb levels to maintain water quality. Reliability and effective oxidation of large samples ensures that manufacturers can trust the results reported by the BioTector B3500ul analyzer. With a full picture of organic contaminants in critical water applications manufacturers make water treatment decisions more efficiently. The Hach® BioTector B3500ul provides reliable and accurate TOC analysis at ppb levels for ultrapure water applications. The patented two stage advanced oxidation technology behind the BioTector thoroughly, and reliably oxidizes samples for valuable real-time water analysis.

Key advantages:

- 1- Maximum uptime for your process.
- 2- Instant and long term savings.



TU5200



Essential Maintenance Tasks Performed:

- 1- Perform visual inspection of housing for signs of damage or contamination.
- 2- Examine and clean vial compartment.
- 3- Update firmware to latest version.
- 4- Calibrate with certified StablCal .
- 5- Perform hardware check to verify functionality of critical components and detect potential issues that may impact system performance.
- 6- Perform service report and performance certificate to support regulatory compliance.
- 7- Perform advanced troubleshooting to resolve any error conditions.

TU5200:

Automatic Laboratory Turbidimeters the TU5200 is an essential part of your turbidity monitoring program. Let Hach Service help ensure that your instrument operates at peak performance to deliver the accurate, low-level measurements that you require for regulatory reporting and process management

Key advantages:

- 1- Ensures critical turbidity measurements are accurate and reliable.
- 2- Provides documentation to support regulatory compliance.
- 3- Detects and prevents issues that can degrade performance or reduce instrument life.
- 4- Loaner instruments ensure continuous operations during service.
- 5- Technical support hotline provides rapid and direct resolution to many issues.



2100Q Portable Turbidimeter



2100Q Portable Turbidimeter:

Hach is committed to understanding your overall measurement process to provide you and your lab with the right solution.

You could consider spending valuable time and resources developing a more optimized process on your current instrumentation or you could lean on the experts at Hach for an improved optimized technology: 2100Q Portable Turbidimeter.

The 2100Q portable turbidimeter has an innovative mode called Rapidly Settling Turbidity. This provides accurate measurements for difficult to measure, rapidly settling samples. An exclusive algorithm that calculates turbidity based on a series of automatic readings eliminates redundant measurements and estimating.

The 2100Q portable turbidimeter provides convenient data logging. Up to 500 measurements are automatically stored in the instrument for easy access and backup. Stored information includes: date and time, operator ID, reading mode, sample ID, sample number, units, calibration time, calibration status, error messages, and the result.

There is also the benefit of simple data transfer with a USB+Power Module. This does not require additional software and all data will transfer to the module in XML format. The data can be easily downloaded to your computer with a USB connection, providing superior data integrity and availability.



HQ Series Portable Meters



HQ Series Portable Meters:

The HQ Series is for water quality professionals who want to perform electrochemical analysis for field and lab environments. Our new portable platform will allow you to collect intuitive, accurate measurements, manage data, and easily review results, while supplying an IP67 robustness rating. They provide a true rugged, field-ready solution with on-screen, visual step-by-step operating guidance that provides users with confidence in reporting and managing their results. Unlike other field meters with basic user interfaces and without easily accessible data, the HQ Series secures, simplifies, and accelerates the complete measurement process for field users.

Key advantages:

- 1- Performing a successful calibration has never been so simple.
- 2- Deliver your daily activity in just a few clicks.
- 3- Sensors designed for every application.
- 4- Peace of mind: Hach service and support will be there for you.



SL1000 Portable Parallel Analyser (PPA)



Chemkey Technology:

Chemkey reagents contain the same chemicals and execute the same process steps that you have trusted for decades - now delivered in a simple, self-contained package. EPA-approved for reporting of Free and Total Chlorine in drinking water applications.

Water quality testing. Dramatically streamlined:

The new Hach® SL1000 Portable Parallel Analyser (PPA) performs common water tests with less than half the manual steps. It produces highly accurate results with less opportunity for errors in a fraction of the time and allows for up to six parameters to be tested simultaneously.

Key advantages:

- 1- Less variability.
- 2- Less headache.
- 3- Faster testing.
- 4- Chemkey technology.



BOD, COD and TOC Monitoring in Pulp & Paper Wastewater

Introduction:

The pulp and paper production process is a water-intensive process that also generates a large amount of wastewater characterized by a high concentration of suspended solids (SS), COD, TOC and biochemical oxygen demand (BOD).

The volume and pollution load of the generated wastewater depends upon several factors. Various raw materials and chemicals are added to the process of manufacturing different types of paper. The wastewater discharged can have a negative impact on aquatic and land ecosystems and possibly result in fines.

While water reuse and recycling programs are part of the solution, accurate lab and in-process measurements of TSS, COD, BOD and TOC levels allow for treatment prior to discharge. The time needed to perform each test can vary from a few minutes to several days.

Trusted partner for water analysis:



DR3900



DR6000



sc200 Controller



BODTrak



Portable TSS



Solitax sc Sensors



BioTector B7000i



Sulfimax GX Go



Applications:

- 1- Water, drinking water, surface water.
- 2- Municipal wastewater.
- 3- Industrial wastewater.
- 4- Monitoring of landfill-leachate.
- 5- Sulfimax GX Go analysis (e. g. LNG, LPG, Crude, oil, HFO, Gases).
- 6- H₂S in hydrocarbon mixtures.
- 7- Investigation of technical and pharmaceutical products.
- 8- Quality management.

Sulfimax GX Go:

Automatic H₂S analyzer the Sulfimax GX Go determines hydrogen sulfide and volatile sulfides in liquids and gases.

The sample can be dispensed directly by syringe without pretreatment.

By effective gas extraction the H₂S is completely expelled from the sample. Interferences due to the sample matrix practically do not occur.

The released H₂S gas is conducted to the 2 highly sensitive sensor, which detects H₂S in the range of 0.01 to 10,000 ppm.

A typical measurement takes 5 min, depending on the sample composition.

If the Sulfimax GX Go is extended with the optionally available H₂S Head-space 2 Module, solid and pasty samples can also be measured.

Key advantages:

- 1- Analysis of the original sample.
- 2- No sample preparation.
- 3- Minimized cross sensitivity through the indirect method.
- 4- Suitable for on-site use.



SpectrOil 100 Series



Key advantages:

- 1- Provides precise and reliable results
- 2- Fast and easy to operate
- 3- Immediate results on-site
- 4- Laboratory Precision
- 5- On-site Simplicity

SpectrOil 100 Series:

The SpectrOil 100 Rotating Disc Electrode Optical Emission Spectrometer (RDE-OES) is the eighth generation of the market leading RDE elemental spectrometer. It is widely used in industrial plants commercial oil laboratories, on-site or trailer labs, as a proven means of precisely determining elemental composition in lubricating oil, coolant, light or heavy fuels, grease, and process water. It is also a key component of on-site (point of care) oil analysis systems in addition to production, QC, race team support and tribology laboratories.

Applications:

- 1- Process Water Condition Analysis
- 2- Fuel & Lubricant Quality Control
- 3- Coolant Condition Measurements
- 4- Oil & Grease Condition Monitoring:

WEAR: Quantify elemental composition of wear debris to determine the location and severity of component wear.

CONTAMINATION: Detect unexpected elements to indicate fouled air filters, coolant leaks, sea water ingress, or dirt ingestion.

CHEMISTRY: Measure additive package depletion to ensure expected oil protection.





SpectrOil 100 Series Programs and Calibration Ranges in ppm

| | | | Commercial 24 | Commercial Extended 24+7 | Aviation 15 | Aviation 20 | Aviation 30 | Synthetic Aviation POE/Turbo | Fuel | Low Detection Fuel (LD) | Glycol | Water | Engine Basic |
|-----------------|--------|------------------------|------------------|--------------------------|---------------------|---------------------|---------------------|------------------------------|------------------|-------------------------|-------------|-------------|------------------|
| P/N-> | | | M99947 | M99948 | 800-00226 | 800-00225 | 800-00183 | M99950 | M99977 | M99949 | M99903 | M99917 | 110E only |
| Elements Tested | | | 24 | 31 | 15 | 20 | 30 | 8 | 15 | 15 | 13 | 7 | 15 |
| Element | Symbol | Common Source | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) | Range (ppm) |
| Silver | Ag | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | x | x | x | x | 0-1,000 |
| Aluminum | Al | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | 0-500 | 0-100 | 0-50 | x | 0-1,000 |
| Boron | B | Contaminants/Additives | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | x | x | 0-1,000 | x | 0-1,000 |
| Barium | Ba | Additives | 5-6,000 | 5-6,000 | x | 0-10,000 | 0-1,000 | x | x | x | x | x | x |
| Calcium | Ca | Contaminants/Additives | 0-6,000 | 0-6,000 | x | 0-10,000 | 0-1,000 | x | 0-500 | 0-100 | 0-50 | 0-5 | 0-3,000 |
| Cadmium | Cd | Wear Metal | 0-1,000 | 0-1,000 | x | 0-1,000 | 0-1,000 | x | x | x | x | x | x |
| Chromium | Cr | Wear Metal/Additives | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | 0-500 | 0-100 | x | x | 0-1,000 |
| Copper | Cu | Wear Metal/Additives | 0-1,000 | 0-1,000 | 0-1,000 | 0-10,000 | 0-1,000 | 0-50 | 0-500 | 0-100 | 0-50 | x | 0-1,000 |
| Iron | Fe | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | 0-500 | 0-100 | 0-50 | 0-5 | 0-1,000 |
| Potassium | K | Contaminants | 0-1,000 | 0-1,000 | x | 0-1,000 | 0-1,000 | x | 0-500 | 0-100 | 0-1,000 | 0-5 | x |
| Lithium | Li | Contaminant | 0-1,000 | 0-1,000 | x | x | 0-1,000 | x | 0-500 | 0-100 | x | 0-5 | x |
| Magnesium | Mg | Wear Metal/Additives | 0-6,000 | 0-6,000 | 0-1,000 | 0-10,000 | 0-1,000 | 0-50 | 0-1500 | 0-100 | 0-50 | 0-5 | 0-3,000 |
| Manganese | Mn | Wear Metal | 0-1,000 | 0-1,000 | x | x | 0-1,000 | x | 0-500 | 0-100 | x | x | x |
| Molybdenum | Mo | Wear Metal/Additives | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | x | x | 0-500 | x | x |
| Sodium | Na | Contaminants | 0-6,000 | 0-6,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | 0-500 | 0-100 | 0-1,000 | 0-5 | 0-3,000 |
| Nickel | Ni | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | 0-500 | 0-100 | x | x | 0-1,000 |
| Phosphorus | P | Additives | 10-6,000 | 10-6,000 | x | 10-10,000 | 0-1,000 | x | x | x | 0-2,500 | x | 0-3,000 |
| Lead | Pb | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | 0-500 | 0-100 | 0-50 | x | 0-1,000 |
| Silicon | Si | Contaminants/Additives | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | 0-500 | 0-100 | 0-500 | 0-5 | 0-1,000 |
| Antimony | Sb | Wear Metal | 0-1,000 | 0-1,000 | x | x | x | x | x | x | x | x | x |
| Tin | Sn | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | x | x | x | x | x | 0-1,000 |
| Titanium | Ti | Wear Metal | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-1,000 | 0-50 | x | x | x | x | x |
| Vanadium | V | Wear Metal | 0-1,000 | 0-1,000 | x | x | 0-1,000 | x | 0-500 | 0-100 | x | x | x |
| Zinc | Zn | Wear Metal/Additives | 0-6,000 | 0-6,000 | 0-1,000 | 0-10,000 | 0-1,000 | x | 0-500 | 0-100 | 0-50 | x | 0-3,000 |
| Bismuth | Bi | Wear Metal | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Arsenic | As | Contaminant | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Indium | In | Wear Metal | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Cobalt | Co | Wear Metal/Additives | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Zirconium | Zr | Wear Metal | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Tungsten | W | Wear Metal | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Cerium | Ce | Wear Metal | x | 0-100 | x | x | 0-100 | x | x | x | x | x | x |
| Matrix | | | Mineral - 75 cSt | Mineral - 75 cSt | Mineral - DTL 85694 | Mineral - DTL 85694 | Mineral - DTL 85694 | POE- 3514 | Mineral - 75 cSt | Mineral - 75 cSt | Glycol | Water | Mineral - 75 cSt |

| MODEL | CALIBRATION INCLUDED | OPTIONAL CALIBRATION |
|-------|----------------------|----------------------|
| 120C | M99947 | Any above |
| 120F | M99977 | Any above |
| 110E | 110E | None |



Petra 4294 Sulfur Analyzer (X-Ray)



ELIMINATE CENTRIFUGE:

Interfering elements like Si, Ca, Cl, Fe and water are commonly present in crude oil and will settle to the bottom of a sample over time. These interferences can absorb the X-ray signal and reduce the concentration of sulfur reported. To prevent biased results, many laboratories centrifuge the samples prior to analysis, which increases the amount of processing and time it takes to perform the measurement. Petra's sample chamber rotates the sample on its side providing a clear measurement window for more accurate results, and eliminating the need to centrifuge.

Petra 4294 Sulfur Analyzer (X-Ray):

The Petra series complies with ASTM D4294 and ISO 8754 for sulfur analysis in various hydrocarbon matrices. Petra 4294™ delivers precise sulfur analysis with limits of detection (LOD) as low as 2.6 ppm. Petra MAX™ delivers a sulfur LOD as low as 5.7 ppm with rapid monitoring of critical elements like Ni, V, and Fe at sub-ppm levels.

Key advantages:

- 1- Advanced Software and Data Management.
- 2- Advanced Analysis with HDXRF.
- 3- Advanced Workflow.
- 4- Advanced Sample Introduction.

HDXRF Technology:

Petra is powered by High Definition X-ray Fluorescence (HDXRF®) technology: an elemental analysis technique offering significantly enhanced detection performance over traditional XRF technology. This technique applies state-of-the-art monochromate and focusing optics, enabling dramatically higher signal-to-background ratio compared to traditional polychromatic X-ray Fluorescence. Figure 1 shows the basic configuration of HDXRF and its use of focused monochromatic excitation.



Aquamax KF Plus



Key advantages:

- 1- Simple operation.
- 2- 10 user programmable methods.
- 3- Moisture range 1 ppm / 100 %.
- 4- Results in ppm, mg/kg, % and μg water.
- 5- Multi language display & print out.
- 6- Small footprint.
- 7- Integral printer.
- 8- Integral battery .
- 9- Fully portable.
- 10- Low drift cell design.

Aquamax KF Plus:

The Aquamax KF Plus titrators have been specifically designed for the determination of water content, combining coulometry with the Karl Fischer method. The Aquamax KF Plus titrators are conform to standards for water determination: DIN 51777, ASTM D 1364, ASTM D 1533, ASTM D 4377, ASTM E 203, IP 356, IP 471, ISO 10336, ISO 6296.

Applications:

- 1- Hydrocarbons.
- 2- Lubricating oils.
- 3- Motor oils ! Hydraulic oils.
- 4- Insulating oils.
- 5- Transformer oils.
- 6- Mineral oils.
- 7- Crude oils.
- 8- Petroleum products.
- 9- Fuels.
- 10- Bunker fuels aquamax KF Plus.
- 11- Jet fuels.
- 12- Diesel.
- 13- Bio fuels.
- 14- Ionic liquids.
- 15- Organic liquids.
- 16- Solvents.



Viscol-10-Series



Key advantages:

- 1- Adjustable bath temperature between -30°C to 170°C .
- 2- Sensitive temperature control ($\pm 0.001^{\circ}\text{C}$).
- 3- Flow detection sensitivity of 0.001 seconds.
- 4- Built-in rapid-cooling unit.
- 5- Preheating unit for solid and heavy samples.
- 6- Analysis capacity from 0,5 cSt to 25.000 cSt.
- 7- Low solvent consumption and waste output.
- 8- Fully-automatic measuring, washing and drying functions.
- 9- Built-in single and dual solvent washing function.
- 10- Windows-based integrated touch-screen IPC.
- 11- USB data transfer.
- 12- Leakage and high temperature warning system.
- 13- Benchtop, easy-to-operate, ergonomic structure.

Automatic Kinematic Viscometer:

Viscosity is defined as the rate of a fluid's internal resistance to the force that is required to flow. Intermolecular force, molecular mass and temperature of a fluid is considered as the three main factors effecting the viscosity. Fluids such as water, air, oil etc. that have directly proportional flow rate with friction resistance are called as Newtonian fluids. Best method to measure viscosity of Newtonian fluids is by using capillary viscometers. With capillary viscometers, viscosity is determined based on the flow time of a fluid which is kept at a specific temperature inside a capillary with known diameter and length. Viscol-10 Series, fully-automatic kinematic viscometers, equipped by the latest temperature control, detector, chronometer and washing specifications with different models for oil, fuel, bitumen, polymer, paper, food and similar industrial demands.

Applications:

1- Viscol 10A - Oil & Fuel Viscometer

ASTM D445, ASTM D446, ISO 3104, ISO 3105, IP 71, DIN 51562.

2- Viscol 10P - Plastic/Polymer Viscometer

ASTM D2857, ASTM D789, ASTM D4603, ASTM D1243, ASTM D1795, ASTM D4243, ASTM D871, ISO 1628, ISO 307, ISO 5351, IEC 60450, TAPPI 230.

3- Viscol 10B - Asphalt/Bitumen Viscometer

ASTM D445/D446, ASTM D2170, ISO 3104, ISO 3105, IP 71, DIN 51562.

4- Viscol 10J - Low Temperature Viscometer

ASTM D445, ASTM D446, ISO 3104, ISO 3105.



StarDist



Methods:

- 1- ASTM D86.
- 2- ASTM D1078.
- 3- ASTM D850.
- 4- ASTM E123.
- 5- IP195.
- 6- DIN51751.
- 7- ISO 3405.
- 8- GOST 2177.
- 9- JIS K2254.

Excellent performance in Automatic Distillation testing:

STARDist includes unique features such as Optical Dry Point testing, PreScan and fast heater cooling.

The smart heater control algorithms are designed for high performance.

Its automatic performance during the different heat phases (time to IBP, distillation rate, FBP) ensure the smoothest heater control and great accuracy & reproducibility, even with difficult blended products such as E15 or E20.

Key advantages:

- 1- Accurate temperature measurement.
- 2- Precise volume detection.
- 3- Early speed prediction.
- 4- Agile heater control.
- 5- Complete overview with quick access to most relevant data and actions such as print, export to
- 6- LIMS and Optimize.
- 7- Create and report any custom point (e.g. temp. at 250 °C) even after the test is long finished. Print results in both extensive table and graph.
- 8- Easy-to-follow workflow for quarterly verification and yearly calibration procedures.



Titramax VT

Volumetric titrators



Features:

- 1- Titrator is immediately ready for use.
- 2- Titration process runs automatically.
- 3- Including application note with step-by-step instructions.
- 4- Easy handling for everyone.
- 5- Complete measuring station for the desired parameter.
- 6- Measuring method prepared according to the corresponding standard.

Automatic Titramax VT - Volumetric titrators:

Enhanced the universal features of the TitroLine® 7750 with an additional IDS® measurement input. Hence the TitroLine® 7800 is able to perform potentiometric titrations with analogue or IDS® electrodes up to volumetric Karl Fischer titrations. The IDS® measuring input is multifunctional. Digital sensors for the determination of pH and ORP value, the conductivity up to the dissolved oxygen can be connected.

Application:

1- TAN/TBN Titrator.

DIN 51558 · ASTM D 664 · Pharmacopoeia · IEC 62021-1 · ASTM D 2896 · ISO 3771 · UOP 269 · ASTM D 4739.

2- Water Titrator.

ASTM D 6869 · ASTM D 4377 · ASTM E 203 · DIN 51777 · Pharmacopoeia IP 356 · IP 471 · ISO 6296 · ISO 10336

3- Sulphur Titrator.

ASTM D 3227 · ISO 3012 · UOP 212 · UOP 163

4- Bromine Titrator.

ASTM D 2710 · ASTM D 5776 · ASTM D 1159

5- Alkalinity Titrator.

DIN EN ISO 787-4 · ASTM D 1121 · ISO 10539 · DIN ISO 125



MiniVap VP Vision



Key advantages:

- 1- Engineered for Excellence.
- 2- Simplicity and Flexibility.
- 3- Access. Anywhere. Anytime.
- 4- Durability and Robustness.
- 5- Most versatile, most complete.
- 6- Highest Accuracy - Lowest Limit.
- 7- Direct / Indirect Determination of the Absolute Vapor Pressure ("VOC-Methods").

MiniVap VP Vision:

Is a highly versatile portable vapor pressure tester that features best-in-class precision and a pressure range of 0-2000 kPa (290 psi). It is the first analyzer that demonstrates excellence in engineering by earning certificates for robustness and durability. Based on Grabner's cutting-edge Cockpit™ technology, the instrument offers unmatched networking capabilities and enables worldwide access to analyzers.

FEATURES:

- 1- Unmatched precision for the VP measurement of gasoline and aviation fuels, crude oil, LPG, hydrocarbon solvents and chemical compounds.
- 2- Pressure range from 0 - 2000 kPa (VPL Vision: 0.5 - 110 kPa).
- 3- Unique 2-D Correction™ to ensure highest measuring precision over the full testing range
- 4- Integrated shaker for Crude Oil with adjustable speed
- 5- Smallest sample size: 1 ml w/o rinsing
- 6- Fast measurements: Results in 5 minutes
- 7- Automatic sample introduction and cell cleaning through piston-based design
- 8- No vacuum pump or sample preparation necessary!
- 9- Sampling Pro™ valve design, best in class for minimizing sample cross contamination
- 10- Thermoelectric temperature control - no external cooling necessary
- 11- 2 years warranty



MINIFLASH FP(H) VISION



Key advantages:

- 1- Maximum safety with continuously closed cup technology.
- 2- No open flame, no hazardous vapors.
- 3- 1-2 ml sample size.
- 4- Automatic stand-alone operation.
- 5- Fast and accurate.
- 6- Easy to use, easy to clean.
- 7- Electric arc ignition.
- 8- Portable for field use.
- 9- US D.O.T, RCRA, NAVY, NATO approved.

MINIFLASH FP(H) VISION:

Is uniquely designed to determine the flash points of liquids and solids. The analyzer uses Grabner flash point detection method, which is triggered by an energy-controlled electric arc and measures instantaneous pressure increase inside a closed chamber. By heating the test chamber from the top, the analyzer prevents condensation of high volatile compounds and guarantees improved test results.

MINIFLASH FP Vision continuously closed cup design and small sample volume of only 1-2 ml offer maximum safety. No offensive fumes are released in the testing area and little to no sample waste is registered when performing a flash point test. The fast thermoelectric cooling at the end of each flash point test plus the easy handling of the instrument also save expensive labor time.

FEATURES:

- 1- Advanced Flash Point Methods
- 2- Combustion Analysis
- 3- Advanced Peltier Cooling Technology
- 4- Patented Ignition Protection Technology
- 5- Automatic Ignition Cleaning Program
- 6- Maximum Safety
- 7- Ease of Use
- 8- Access. Anywhere. Anytime.



Pensky Martens



FEATURES:

- 1- Electrically heated by electronic regulator
- 2- Mounted on a case painted with anti-acid epoxy products
- 3- Calibrated brass crucible
- 4- Cover with gas ignition device allowing to ignite the testing sample by a manual trip-opening
- 5- Motor stirrer for Procedure A and B
- 6- Air bath made in brass with external stainless steel protection cover
- 7- PT 100 probe Class A for sample temperature measuring
- 8- Measuring range from 15 to 370°C.
- 9- Over heat protection.

Pensky Martens:

From Method Flash Point by Pensky Martens Closed Cup Tester:

This test method covers the determination of the flash point of petroleum products in the temperature range from 35 to 360°C. Procedure A is applicable to distillate fuels (diesel, kerosene, heating oil, turbine fuels), new lubricating oils, and other homogeneous petroleum liquids not included in the scope of Procedure B.

Procedure B:

Is applicable to residual fuel oils, cutback residual, used lubricating oils, mixtures of petroleum liquids with solids, petroleum liquids that tend to form a surface film under test conditions, or are petroleum liquids of such Kinematic viscosity that they are not uniformly heated under the stirring and heating conditions of Procedure A.

Models:

- 1- LT/PM-75500/M.
- 2- LT/PM-75000/DC.



Cleveland



Cleveland:

Flash and Fire Point by Cleveland Open Cup Tester.

This test method describes the determination of the flash and fire point of petroleum products with flash points above 79°C (175°F) and below 400°C (752°F) except fuel oils.

Models:

- 1- LT/CO-88000/M
- 2- LT/CO-89000/DC

A- LT/CO-88000/M:

Cleveland, manual instrument composed by:

- 1- Metallic case structure painted with anti-acid products.
- 2- Electric heater 500 Watt with main switch, power regulator and centring aluminium ring.
- 3- Calibrated brass cup with handle.
- 4- Gas ignition device fitted with a manually operated pivot passing through the cup Rod and clamp for thermometer

B- LT/CO-89000/DC:

Cleveland, semi-automatic instrument composed by:

- 1- Metallic case structure painted with anti-acid products.
- 2- Digital display for temperature reading with 0,1°C resolution.
- 3- Temperature read by a stainless steel PT100 A class.
- 4- Gas ignition device fitted with a motor operated pivot passing through the cup.
- 5- Calibrated brass crucible with level line, handle and correct positioning support.
- 6- Safety cover activated when flame/flash occur.
- 7- Electrical ignitor/enlighter with intensity regulation knob and stand-by SS protection.
- 8- Electric heater 500 Watt with main switch, power regulator and centring aluminium ring.
- 9- Cooling fan with activation switch.
- 10- Test button for check the instrument performance.



AirSTAR – Cold Properties Testing



AirSTAR – Cold Properties Testing:

AirSTAR follows the traditional test methods. The most well-known being ASTM D97 (Pour Point), ASTM D2500 (Cloud Point) and ASTM D6371 (Cold Filter Plugging Point).

AirSTAR can be used as a dedicated CFPP “only” or Cloud / Pour Point “only” Tester. Or, conveniently, as a 3-in-1 solution, by simply swapping CFPP and CPPP Heads

Apparatus Parts:

1- CFPP Head:

Vacuum system, sample detection, pipette, test jar, temperature probe, 45µm filter, electronics, test control and communication with the ColdBlock.



2- Cleaning-Docking Station:

Ideal for CFPP cleaning cycles. Or just as a docking station in a multiple-head setup.



3- CPPP Head's:

Built-in camera detects Cloud and Pour Point as accurate as the human eye would. As the manual methods D97 and D2500 describe, the jar is lifted out from the cooling bath for sample detection.



4- ColdBlock:

Is AirSTAR's cooling system. Even for temperatures down to -105°C it does not require an external chiller. Simply place a Head on top; Cold-Block detects it and connects it.





PrO-Oiltest.BE



PrO-Oiltest.BE:

These Centrifuges have strong construction yet offering a sleek modern design that will fit into any industrial environment.

No compromises on quality only the best components are used in the manufacturing process. By working with all our suppliers, our reliability has been retained and improved to give all our range a 1 year warranty as standard.

Key advantages:

- 1- Clarity & ease of use.
- 2- Safe selection of rotors.
- 3- Sample assistance.
- 4- Multi department & Users.
- 5- Easy clean & rust free.

Centrifuges type:

- 1- Bench Centrifuge to 4 x 100m.
- 2- Floor Centrifuge.
- 3- Small Bench Centrifuge 4 x 12.5ml





Viscometer Bath



LT/VB-37000/M:

- 1- Used for measuring oils viscosity by Cannon-Fenske, Ubbelohde and similar capillary
- 2- Working temperature from ambient to +70°C
- 3- Transparent tank
- 4- Cover with 5 holes 51 mm
- 5- Control box on the cover
- 6- Digital display with over temperature alarm and PT100A probe, resolution 0.1°C
- 7- Stainless steel heater and motor stirrer
- 8- Stand-by covers



LT/VB-39000/M:

- 1- Used for measuring oils viscosity by Cannon-Fenske, Ubbelohde, U-Tube and similar capillary
- 2- Solid painted structure with internal stainless steel bath and double wall insulation
- 3- Working temperature from ambient to +200°C, with possibility to work to +20°C using external chiller
- 4- Display resolution 0.01°, with instant temperature graphic, set point, °C / °F and possibility to switch on/off the stirrer
- 5- Temperature stability, uniformity and accuracy $\pm 0.01^\circ\text{C}$ at 150°C
- 6- Double viewing glass 20 × 25 cm with thermal insulation and extra bright led
- 7- Stainless steel full immersion heater, safety stirrer motor and PT100 class A in medium position
- 8- Cover with 5 holes of approx. 51 mm complete with stand-by stainless steel covers
- 9- Cover with 6 holes available on request
- 10- Tank capacity approx. 16 litres
- 11- Atmospheric drain
- 12- Space between top cover and top of the inspection window: 38 mm
- 7- Stainless steel heater and motor stirrer



aquamax KF PRO OIL



Key advantages:

- 1- Closed loop principle does not allow methanol to evaporate from the KF solvent
- 2- Reagent capacity is used completely
- 3- Additive and Sulphur side reactions minimized
- 4- By using of temperature programs it is possible to separate free and chemically bonded water
- 5- Temperature ramping program allows you to distinguish between various types of bonded water
- 6- No blank value meaning true ppm accuracy
- 7- Aquamax KF PRO Oil can be used in the laboratory or used as part of a mobile lab when taking a measurement from the sample point is critical
- 8- Compact and rugged device

Water determination in oil and fuel samples:

The Aquamax KF PRO Oil is the perfect instrument to measure ppm water in oils and fuels without the worry of interference side reactions caused by additives or sulphur/mercaptans. The unique “closed loop” principle means no additional carrier gas is necessary.

Directly injecting the sample in to the oven means no blank value is required, making the Aquamax KF PRO Oil a truly accurate, trace level water in petroleum products titrator.

Learn more about your oils by using the temperature ramping program. This unique ECH feature allows you to see all various types of bonded water, making the Aquamax KF Pro Oil the perfect tool in the R & D, Refining, Used Oil analysis laboratories and lubricant blending plants. Crude oils are also perfectly analysed as we have the ability to display both free and bonded water.

Applications:

- Transformer oils
- Hydraulic oils
- Engine oils
- Gear oils
- Crude oils
- Fuel oils
- Petroleum product
- Lubricating oils
- Biological oils
- Biopetroleum
- Gasoline
- Diesel
- AI Jet fuel
- Military jet fuel
- Bio fuel
- Silicone oils



Water Determination in All Types of Samples



Key advantages:

- 1- Reduced reagent consumption.
- 2- No evaporation of methanol from the reagent.
- 3- Additional gas drying is not required due to closed-loop circulation of extraction gas.
- 4- Stand-by titration for automatic conditioning and easy blank tests.
- 5- Short measuring times, even with complicated samples.
- 6- Suitable for 2 R - 50 R vials.
- 7- Easy automation with autosampler.

AQUA 40.00 Vario :

The AQUA 40.00 Vario combines the Karl Fischer Titration with the heads-pace technique. This offers a wide range of interesting applications to determine moisture in solid and pasty samples, oils and viscous compounds.

The sample preparation takes place using the dynamic head-space technique. The sample - in a closed vial - is placed into the head-space oven and tempered.

A closed-loop gas circulation with dry carrier gas flows across the sample and transports the extracted water completely into the measuring cell, where the analysis is carried out by titration according to the Karl Fischer method. It does not require time-consuming sample preparation:

- Weigh out the sample into the head-space vial and close it
- Place the vial in the device (manually or automatically) - Prepare the measurement and start it

Applications:

- Pharmaceutical products
- Biological substances
- Plastics
- Hygroscopic compounds
- Freeze-dried products, e. g. lyophilized cultures
- Oils and lubricants, creams, pastes
- Viscous materials (bitumen, tar, sludges)
- Powder and pellets
- Food
- Petrochemicals



Lico Spectral Colorimeter



Lico Spectral Colorimeter:

The spectral color measurement of clear liquids is indispensable in many fields and serves as a quality assurance method for solvents, paints and pharmaceuticals. The highest measuring reliability is essential. Hach® ensures simple, fast measurements for the user. More than 25 years of expertise in the development of colorimeters have gone into the Lico line of instruments.

Applications:

- Chemical
- Food and Beverage
- Petrochemical Industry
- Pharmaceutical

Key advantages:

1- All important color scales included in one instrument:

The Lico 620 with up to 5 color scales is designed for fast routine measurements in the laboratory and in production facilities. It is already in use in a wide variety of areas in the chemical industries for quality and production control, e.g. to assess surfactants, oils, fats, resins and synthetic resins.

The Lico 690 Spectral Colorimeter is flexible to use and works with many applications, such as chemical, pharmaceuticals, oil industries and the food and beverage industry. 26 color scales are directly integrated in the instrument: conventional scales like iodine, Hazen (Pt Co), Gardner, Pharmacopoeia as well as specific scales like Saybolt or ASTM.

2- Simple integration into the laboratory network through Ethernet connection:

Lico instruments can be easily integrated to existing laboratory networks through an Ethernet interface.

High level of measurement reliability through a comprehensive set of test aids Certified test filters, reproducible standard color solutions and an integrated implementation of AQA (Analytical Quality Assurance) ensure optimum measurement reliability.

Measured values can be evaluated in all scales, even post measurement with archived spectral data.

3- Easy handling:

The measurement process starts automatically when the sample cell is inserted, and the measurement vial is identified by the instrument.

The easy-to-change cell compartment facilitates cleaning and/or replacement.

The operation of the Lico colorimeters requires only minimum training effort thanks to clear instructions on the color touch-screen



Salt In Crude Analyzer (SETA)



SETA:

The **Seta** Salt-in-Crude Analyzer is a robust and portable instrument for determining the chloride (salt) content of crude oils in full conformity to ASTM D3230, IP 265 and equivalent test methods.

The Analyzer is pre-calibrated and automatically displays salt concentration measurements in g/m³ or lbs/1000bbl (pounds per thousand barrels), this avoids the need to mix salt calibration standards and makes testing a simple and fast procedure.

Test Method:

ASTM/PRECAL - pre-calibrated for use in conformity to ASTM D3230.

ASTM USER- allows user calibration of ASTM values (ie: display values can be verified and/or recalibrated by the user against salt solutions of known conductivity)

IP USER - allows user calibration according to IP 265 values Measurements can be displayed or exported to a PC or to LIMS network. The instrument is suitable for bench top or hand-held operation and operates from battery or mains voltage

Key advantages :

- 1- Salt concentration values displayed automatically.
- 2- No need for mixing of salt standards.
- 3- Pre-calibrated for immediate use as per ASTM D3230.
- 4- User calibration modes allow verification against user standards.
- 5- Typical test time of less than 30 seconds.
- 6- Moisture proof membrane touch panel with large keys.
- 7- Fully portable, all items contained in aluminum carry case.
- 8- Supplied with beaker and sensor support stands.
- 9- Interchangeable plug-in sensor.
- 10- Battery or mains power supply.



Salt In Crude Analyzer (Koehler)



Features :

- Conforms to ASTM D3230 and related test specifications.
- Measures salt content, conductivity, and temperature of crude oil samples, and pH measurements of aqueous samples.
- Measures salt concentration in the range of 0 to 150 PTB (lb/1000 bbl).
- Portable for field or laboratory testing with a LiPo battery.
- Data storage up to 12 test results.

K23065:

Determines the salt content, conductivity and temperature of crude oil samples according to ASTM D3230 specifications.

Utilizes low-voltage, synchronous detection technology for conductivity measurements and a high-accuracy thermistor array to measure sample temperature.

Automatically calculates salt concentration directly from acquired temperature and conductivity values.

Self-calibration feature allows operator to adjust for any drift without re-entering standard temperature curves.

Easy-to-read 2.6" TFT-LCD display shows up to four of the following parameters at one time as chosen by the operator: salts, conductivity, conductivity @25°C, pH, pH millivolts, temperature (°C or °F), battery level, date, time, and indicator.

Test Method:

Salt content is determined by measuring the conductivity of a solution of crude oil in a polar solvent when subjected to an alternating electrical current and is obtained by comparison of the resulting conductivity to a calibration curve of known salt mixtures.



PAMAS S40



PAMAS S40:

Portable particle counting instrument for oil-based liquids

Particle counter for the remote on-site analysis of fluid samples – pressure-less sampling and up to 420 bar system Pressure testing.

The PAMAS S40 Skydrol version can be used to analyses phosphate ester-based hydraulic fluids.

Key advantages:

- 1- Robust & convenient design
- 2- Lightweight only 8 kg
- 3- Customizable measurement analysis settings
- 4- Intuitive operation via touch screen
- 5- Automatic sample flow and volume control by wear resistant ceramic piston pump
- 6- Measurement from pressureless up to 420 bar system pressure
- 7- Pressureless measurement of fluids with viscosities of up to 1.000 cSt at 22°C (equal to ISO VG 320) without the need for accessories
- 8- Use of any sample vessel
- 9- Internal data storage of more than 4,000 measurements
- 10- Measurement printout via integrated thermoprinter
- 11- Same measurement accuracy as a laboratory unit
- 12- Multilingual menu navigation
- 13- Battery running time of more than 4 hours

Applications:

- 1- Hydraulic oils
- 2- Turbine and insulation oils
- 3- Gear oils
- 4- Fuels



Bacteria in Fuels and Water



OILFIELD MICROBIOLOGY:

Intertek's oilfield microbiology services are designed to safeguard your assets. From microbiologically influenced corrosion (MIC), analysis of pigging returns, reservoir souring prediction and mitigation, microbial growth media, biocide and chemical testing and offshore water and legionella management to microbiological surveys, research and development and training, Intertek experts present clear, concise explanations of microbiological activity in the oilfield.

Microorganisms are ubiquitous on the earth's surface and in the earth's crust. The impact of microbial activity on the global oil and gas industry is significant and wide-reaching, and presents the industry with both challenges and opportunities.

Applications:

- Field sampling
- Water Injection systems evaluations
- Reservoir souring studies
- Corrosion monitoring programmes - Biocide evaluation and efficacy
- Biofilm studies
- MIC studies
- Hydrotesting, wet lay-up and mothballing
- Analysis of pipeline pigging returns
- Molecular microbiology
- Treatment regimes
- Specialised training in oilfield microbiology
- Products:
 - Growth Media for Quantification of Corrosion-Associated Microbes
 - Sidestream® Biofilm Monitors



Agilent 8890 Gas Chromatograph



Applications :

Blending Stocks, LNG & Engine Fuels

- Detailed Hydrocarbon Analysis.
- PIONA analysis.
- Benzene, toluene, xylenes.
- Sulfurs, nitriles.
- Low level permanent gases - nitrogen, oxygen, carbon dioxide, methane and others.
- Oxygenates - alcohols, ethers, aldehydes and ketones.

Refinery Gas

- C1-20 hydrocarbon speciation.
- PIONA analysis.
- Ammonia.

Natural Gas Liquids

- Detailed C5+ hydrocarbons.
- Oxygenates - alcohols, ethers, aldehydes and ketones.
- Sulfur compounds - H₂S, SO₂, COS, thiols and other sulfur species.
- Nitriles.
- Low level permanent gases - nitrogen, oxygen, carbon dioxide, methane and others.

Agilent 8890 :

as Chromatography is an essential part of any modern laboratory. It is a powerful tool that utilizes fluid's properties in order to get detailed reports on the basic compounds that constitute the sample.

The applications vary from water, pesticides, gases, to hydrocarbons and energy. Agilent's 8890 GC system, combined with Wasson-ECE application, gets the laboratory analyst a first-class accuracy. The system and the applications form a turn-key solution to the customer with unmatched accuracy.

When it comes to LPG, Natural Gas, or Fuel analyses, The 8890 GC system with Wasson-ECE application produce the most accurate results possible. The complete system is designed, built, tested, and results will be approved by the customer's side prior to shipping the system.

In addition to the installation and training of lab staff, with our partner, Wasson-ECE, we guarantee the best after-sales service for all supplied systems.

Key advantages:

1. Minimum sample preparation time
2. Minimum analysis time
3. Durability and stability
4. Accurate and repeatable results with standards
5. On-call service



LPG Pressurization Station



LPG Pressurization Station :

The Wasson-ECE LPG Pressurization Station is a stand-alone unit that prevents premature evaporation of liquefied petroleum gas (LPG) samples such as C3 and C4 hydrocarbon mixtures. The system is designed with a user adjustable pressure regulator, a back-pressure restrictor, and a sample relief valve to maintain sample integrity for reproducible LPG injections.

Key advantages:

1. One 3-way hand valve
2. One 0-500 psi (35 bar) pressure regulator
3. One back pressure restrictor valve
4. 1/4" NPT fitting for quick connect interface
5. Specially passivated sample-wetted surfaces



Mobile gas analysis



Key advantages:

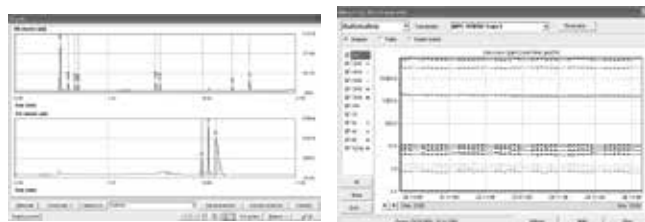
- 1- Integrated carrier and fuel gas supply for one week (40 operating hours).
- 2- One or two commercially available capillary columns (packed or micro-packed separation columns).
- 3- Detectors (FID, TCD) with high detection sensitivity and digital data acquisition.
- 4- Comfortable software with various measuring methods for device control.
- 5- Hardware adaptation to different sample types.
- 6- Fully automatic measurement processes and simple calibration procedure.
- 7- Special gas-in-oil analysis with vacuum/partial vacuum degassing.

MobilGC 2:

The MobilGC 2 is an easy-to-use gas chromatograph. The device is suitable for on-site measurements, online process analysis and use in the laboratory. A special feature is the integrated gas supply, which allows on-site use.

The gas chromatograph is equipped with two detectors (FID, WLD), so that the system can be used for different analytical problems. Commercially available capillary columns as well as packed and micro-packed separation columns can be used. The columns are heated individually, different temperature programmes can be set separately for each column. The sample can be introduced manually or via an automatic suction pump into a sample loop.

With the comfortable control and integration software fast and precise analyses can be carried out and be evaluated in a variety of ways. Automatic online measurements are possible.



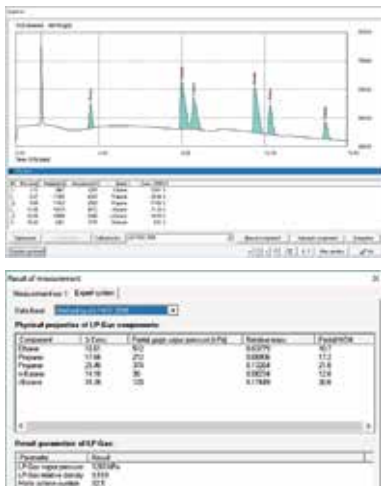


MobilGC



Key advantages:

- 1- Simple sample preparation with Sampling Box.
- 2- Sample loop with 5 ml volume (also other sizes applicable).
- 3- MobilGC with internal carrier gas supply for on-site analysis.
- 4- With up to 80 operating hours.
- 5- Easy refilling of gas supply.
- 6- Measurement sensitivity 0.1 to 100 %.
- 7- Result as concentration, as total MON number or as MON value for each component.



MobilGC:

The MobilGC is a gas-phase chromatograph and easy to use. Measurement of gas composition according to ASTM standards D 2163 (LPG analysis) and D 2598 (evaluation method) is possible with combination of the Sampling Box.

The rugged case and the internal gas supply allow the LPG analysis on-site at the measurement points. The measurement sensitivity fulfills the requirements of the ASTM standards: 0.1 to 100 % of clean gas components.

For sample preparation the Sampling Box has to be connected with the gas bottle or sampling line of the liquefied gas and with a sampling bag. 5 ml liquefied gas is taken and transferred to the sampling bag for expansion. In this way you can also make gas mixtures by addition of further components, e. g. for calibration.

For analysis the sampling bag has to be connected with the MobilGC. A heated column separates the gas sample. With the comfortable software of MobilGC an easy chromatogram evaluation according to standards is possible. The integrated expert evaluation system shows the result as concentration and additionally as total MON number or as MON value separately for each component.

Applications:

- 1- Determination of LPG composition
- 2- Measurement of Motor octane number (MON)
- 3- Check purity of LPG (content of pentane)
- 4- Analysis of refrigerants
- 5- Production and measurement of calibration mixtures



Water Determination In Gases And LPG



Key advantages:

- 1- Sulfur removal cartridge eliminating all side reactions.
- 2- No interference calculation required.
- 3- Totally automated process, no operator input required for the test.
- 4- 250 measurements can be performed in 48 hours.
- 5- No balance is required.
- 6- Suitable to test all gas types without any calibration or adjustments.
- 7- No separate rinsing gas is required or as MON value for each component.
- 8- Rinsing process is fully automated.
- 9- High sample throughput and long reagent life.
- 10- Compact device.

MobilGC:

The Aquamax KF PRO LPG is designed for an easy and accurate determination of water in liquefied and gaseous samples such as LPG and LNG.

The device combines coulometric Karl Fischer method with a unique gas evaporation and dosing procedure.

The Aquamax KF PRO LPG includes all features required for ppm level water in LPG and Gas, including the sulphur removal cartridge eliminating all side reactions and our sample loop principle allowing you to fully automate the measurements, up to 125 per day!

The unique ECH sample loop allows you to use the instrument in your laboratory with full automation, as a portable/field use analyzer or can be integrated in to your process as an on-line system

Features and Results:

- 1- Determination of moisture in liquefied and gaseous samples.
- 2- Determination of pressure in the sample loop.
- 3- Inlet pressure up to 200 bar/2900 psi Automatic pressure regulation.
- 4- Transfer line with direct injection.
- 5- Automatic rinsing bypass and steps for rinsing.
- 6- Measuring cell without diaphragm (only one electrolyte required).
- 7- Setting of application-specific methods.
- 8- Avoiding of side reactions by Sulphur trap
- 9- Type of result: μg , ppm (gas volume), Vppm, Mppm, Mol ppm by using the formula generator



IMR 2800P SERIES



IMR 2800P:

Designed to measure flue gases on Boilers Burners Engines Developed to meet the customers need High quality combustion gas analyzer using the latest sensor technology Easy to use and measures all the important parameters to adjust and optimize the combustion process Integrated Printer: each printout includes all information on the display Applications: Boilers, Burners, Engines, Turbines, Cars, Trucks, Plants, Chemical Industries, Steel Plants, Refineries, etc.

Features and Results:

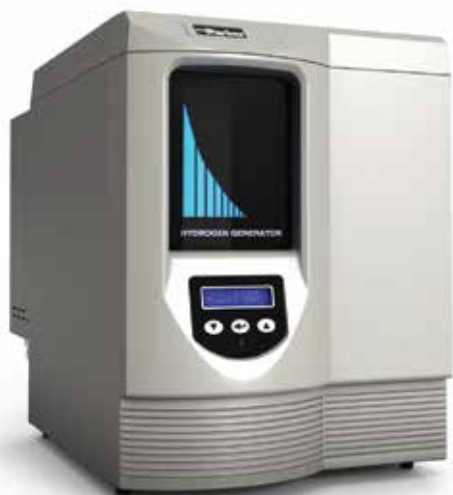
- 1- Gas sampling probes with different lengths
- 2- High temperature probe usable in temperatures up to 2912°F / 1600°C
- 3- Soot measurement
- 4- Draft measurement Optional: Differential draft & Velocity measured in m/s HCl, N₂O, CL₂, H₂, NH₃, or H₂S measurement
- 5- CO₂ measured (NDIR sensor)

Key advantages:

- 1- Portable and very compact combustion gas analyzer housed in a rugged aluminum case Simultaneous measurement.
- 2- O₂ Oxygen.
- 3- CO Carbon Monoxide.
- 4- NO Nitric Oxide.
- 5- SO₂ Sulfur Dioxide.
- 6- NO₂ Nitrogen Dioxide.
- 7- HC/CH₄ Hydrocarbon.
- 8- TG Flue-gas temperature.
- 9- TA Ambient temperature.
- 10- Calculation of following parameters according.
- 11- ASME-equations.
- 12- Losses/qA.
- 13- Excess Air/Lambda.
- 14- CO₂ Carbon Dioxide.
- 15- NO_x Nitrogen Oxides.
- 16- 23 Fuels are programmed – 4 fuels are programmable.
- 17- USB & RS232 interface for real-time uploading of measurements to PC.
- 18- Memory for measurements.
- 19- Automatic zero calibration.
- 20- Integrated self-check program.



Hydrogen Generators for Fuel and Carrier Gas



Key advantages:

- Eliminates dangerous and expensive hydrogen gas cylinders from the laboratory.
- Exceeds OSHA 1910.103 and NFPA 50A safety guidelines.
- Safe, produces only as much gas as you need.
- Produces a continuous supply of 99.99999+% pure hydrogen gas without snap on downstream purifiers.
- Compact and reliable, only one square foot of bench space required, and designed to run continuously 24 hours/day.
- Unique (NM) no maintenance palladium membrane prevents baseline drift unlike auto-drying technologies.
- Certified for laboratory use by CSA, UL, IEC 1010, and CE Mark

Parker Hydrogen Generator:

A Parker Hydrogen Generator is an excellent source of ultra-pure, dry hydrogen for a wide range of laboratory uses. These generators are used extensively with gas chromatographs to provide a fuel gas for Flame Ionization Detectors (FID), a reaction gas for hall detectors, and a carrier gas to ensure absolute repeatability of retention times. High sensitivity trace hydrocarbon analyzers and air pollution monitors also use hydrogen to ensure the lowest possible background noise.

Other applications include using hydrogen for hydrogenation reactions and for FID's used in the analysis of engine gas emissions in the automobile industry. In all applications the Parker Hydrogen Generator sets the standard for safety, operational performance, and dependability. Parker Hydrogen Generators eliminate the need for expensive, dangerous, high pressure cylinders of hydrogen in the laboratory. It is no longer necessary to interrupt important analysis to change cylinders.

Generator flow capacities of up to 300 cc/min. of ultra-high purity hydrogen are available. Parker Hydrogen Generators are compact benchtop units designed for use in the laboratory or in the field. Hydrogen gas is produced by electrolytic dissociation of water. The resultant hydrogen stream then passes through a palladium membrane to assure carrier grade purity.

Only hydrogen and its isotopes can penetrate the palladium membrane; therefore, the purity of the output gas is guaranteed to be 99.99999+% consistently. This technology produces hydrogen at a guaranteed purity two orders of magnitude greater than desiccant or silica gel technologies. Parker Hydrogen Generators offer many special features to ensure safe and convenient operation. These features include smart-display technology system status at a glance and automatic water fill for endless operation.



Density of LPG and of Light Hydrocarbons



IP 235 - ISO 3993 - Density or Relative Density of LPG and of Light Hydrocarbons by Pressure Hydrometer

The prescribed apparatus shall not be used for materials having gauge vapour pressures higher than 1,4 MPa (absolute vapour pressure 1,5 MPa) at the test temperature.

ASTM D1657 - Density or Relative Density of Light Hydrocarbons by Pressure Hydrometer

This test method covers the determination of the density or relative density of light hydrocarbons including liquefied petroleum gases (LPG) having Reid vapor pressures exceeding 101.325 kPa (14.696 psi)

Hydrometer Apparatus ASTM D1657:

- Tubular chamber made in acrylic resins, external diameter 50, internal diameter 36 mm, length 440 mm.
- Metallic headers coupled with six stainless steel tie rods.
- Neoprene gaskets.
- Three ¼" pin cocks.
- Mesh safety guard.
- Tested to 15 bar hydraulic pressure.
- Double scale manometer 0-2500 kPa, 0-350 Psi.
- Thermohydrometer ASTM 310H range 0.500-0.650, thermometer range -10..+35°C.



Hydrogen Sulfide in LPG



ASTM D2420 Hydrogen Sulfide in Liquefied LPG (Lead Acetate Method).

This test method covers the detection of hydrogen sulfide in liquefied petroleum (LP) gases. The sensitivity of the test is about 4 mg/m^3 (0.15 to 0.2 grain of hydrogen sulfide per 100 ft^3) of gas.

Hydrogen Sulfide in LPG:

- Stainless steel cylinder 500 ml with internal coating and valve.
- Stainless steel tubing with needle valve.
- Water bath 18 liters capacity with stainless steel internal bath.
- Glass cylinder with rubber stopper.
- Watch glass, glass rod and glass tube.
- Lead acetate test paper, pack of 100 pcs.
- Gas flow indicator, rota-meter type with range 25 - 250 normalized liters per hour (nL/h)



Copper Corrosion by LPG



ASTM D1838
IP 411
ISO 6251
Copper Strip Corrosion by Liquefied Petroleum (LP) Gases.

This test method detects the presence of components in liquefied petroleum gases which may be corrosive to copper.

LPG Corrosion Vessel
ASTM D1838

- Stainless steel vessel with two needle valves in stainless steel
- Screw top closure and o-ring sealing gasket.
- Tested at 70 bar.





Sampling and Gauging Tanks + Valves



ASTM D1265

GPA 2140

Practice for Sampling
Liquefied Petroleum Gases
(Manual Method).

Sampling Cylinder - ASTM D1265:

- Completely made in stainless steel AISI 304
- ½ gas tapered connection and ¼ gas charge - capacity available: 50,100, 250, 300, 500,1000 ml
- Fitted with 2 stainless steel AISI 316 valves and a 20% outage tube
- Certificate for pressure of 100 bar

Connection Filter

- Useful to connect to the cylinders
- Body in brass
- Filtering Perlon mass with ¼" connections

Line Trasferring Block

- Consisting of two cocks with joint.

Stainless Steel Valve:

- AISI 316 stainless steel body and pin
- ¼ cylindrical gas charge and ½ tapered
- Right angle gas connection
- Stuffing box
- Safety stop system on the opening
- Certificate for pressure of 200 bar.

LPG Sample Cylinder 500 ml Capacity LPG Sample Cylinder 1000 ml Capacity

Ss Double-ended Dot-compliant Sample Cylinder, 1/4 In. Fnpt, 1800 Psig (124 Bar)

- Body Material: 304L stainless Steel
- Connection 1 Size: ¼ in
- Connection 1 Type: FNPT
- Connection 2 Size: ¼ in
- Connection 2 Type: FNPT

SS Integral Bonnet Needle Valve, 0.73 Cv, 1/4 in. MNPT x 1/4 in. FNPT, Regulating Stem

- Flow Pattern: Straight (2-way)
- Valve Material: Stainless Steel
- End Connection 1 Size: 1/4 in
- End Connection 1 Type: MNPT
- End Connection 2 Size: 1/4 in
- End Connection 2 Type: FNPT
- Handle Color: Black
- Handle Style: Phenolic Knob
- Cleaning: Standard cleaning SC-10
- Lubricant: Perf. Polyether/Tung. Disulfide (WL7)
- Stem Material: 316 Stainless Steel
- Stem Plating Material: Chrome-plated 316
- Stainless Steel
- Stem Type: Regulating
- Stem Tip Material: 316 Stainless Steel
- Max Temperature with Pressure Rating: 232°C @ 236 BAR
- Orifice: 250 in
- Room Temperature
- Pressure Rating: 344 BAR @ 37°C

SS High-Pressure Proportional Relief Valve, 1/4 in. MNPT x 1/4 in. FNPT, Buna N Seal

- Service Class High Pressure
- Size 1/8in
- Valve Material 316 Stainless Steel
- End Connection 1 Size 1/4 in
- End Connection 1 Type Male NPT
- End Connection 2 Size 1/4 in
- End Connection 2 Type Female NPT
- Max Temperature Pressure Rating 250°F @ 4910 PSIG /121°C @ 338 BAR
- Room Temperature Pressure Rating 6000 PSIG @ 100°F /413 @ BAR



Ash Determination



Muffle furnace for Ash Determination:

- Insulation heat made in ceramics fiber in order to get a speed heating with a limited energetic consumption.
- Heating muffle unthreaded from the back, in an only cast of refractory Cordillera material to provide for thermal jolts.
- Resistors in Kanthal screened.
- Lateral opening door with pressure wedge and with a stop device for electric feeding when it opens, allowing the worker, during the loading and unloading of the muffle, to act with the utmost safety avoiding the contact with the hottest part.
- Natural drought posterior exhaust of the smokes.
- Control panel is positioned on the Furnace bottom containing a digital Visualized thermo-regulator with overheating protection and safety switch for system protection.

Applications:

ASTM D482 - IP 4 - ISO 6245 Ash from Petroleum Products.

This test method covers the determination of ash in the range 0.001- 0.180 mass %, from distillate and residual fuels, gas turbine fuels, crude oils, lubricating oils, waxes, and other petroleum products, in which any ash-forming materials present are normally considered to be undesirable impurities or contaminants.

ASTM D1119 Standard Test Method for Percent Ash Content of Engine Coolants.

This test method covers the determination of ash content after ignition of commercial engine coolants and antirusts, as packaged or after use.

ASTM D3174 Standard Test Method for Ash in the Analysis Sample of Coal and Coke from Coal.

This test method covers the determination of the inorganic residue as ash in the analysis sample of coal or coke as prepared in accordance with Practice D2013 or Practice D346.

ASTM D4422 Ash in Analysis of Petroleum Coke.

This test method covers the determination of the ash content of petroleum coke.



Universal oven



Universal oven:

The universally applicable lab oven U is Memmert's classic appliance for temperature control in science, research and material tests in industry. The technologically perfected masterpiece made of high-quality, hygienic, easy-to-clean stainless steel leaves nothing to be desired in terms of ventilation and control technology, over-temperature protection and precisely tuned heating technology.

Key advantages:

- 1- Precise drying
- 2- Heating
- 3- Ageing
- 4- Burn-in
- 5- Hardening in research science.
- 6- Industry and quality assurance.



OHAUS Explorer® Series



OHAUS Explorer® Series:

The OHAUS Explorer® Series has risen to the next level of ingenuity – expanding on its modern features and design to offer unmatched functionality in a line of high-performance balances unlike any other on the market

Standard Features Include:

- **Intelligent PERFORMANCE** – All Explorers have newly optimized linearity and repeatability specifications and enhanced vibration filtering for better balance stability. All models also come standard with AutoCal™ automatic internal calibration. 3×3 Filtering setup ensures fast and stable weighing results. The Explorer EX.../E models offer traditional external calibration.

These combined enhancements improve accuracy, efficiency, and throughput.

- **Intuitive OPERATION** – A large color touch-screen display, icon-driven application software that features 14 Unique application modes*, and a 3 level adjustable angle display make Explorer the easiest to use, most advanced balance in its class today.

- **Ingenious DESIGN** – The base and display separate for maximum flexibility in any work area. Draft shield models isolate the weighing chamber to enhance stability and speed results while offering maximum accessibility to the weighing chamber through top-mounted side doors or through the versatile top door that flips or slides open. Hands-free entry is available with automated side doors on selected models.

- **Practical Features** – Explorer has up to four user-programmable touch-less sensors to minimize cross contamination and wear and tear normally associated with repeated touching of the balance.

The OHAUS Explorer EX...M series of balances meet or exceed the Class I or II accuracy requirements in accordance with EC directives and EN45501



OIL SAMPLING BOX



OIL SAMPLING BOX:

The OIL SAMPLING BOX realizes an air contamination free sampling. During the sampling process the user can check the oil temperature because of an implemented temperature sensor. After connecting, the user can transfer the liquid sample directly into a glass syringe for further analysis. There is space in the housing cover for transporting up to 4 syringes of different sizes (10 ml, 50 ml or 100 ml). By using the OIL SAMPLING BOX, you reduce the number of manual steps from sampling to the measurement result and thus reduce the error rate by the user to a minimum.

Key advantages:

- 1- Easy to handle.
- 2- No contamination with air.
- 3- Portable with battery.

Applications:

- 1- Power transformers.
- 2- Electrical devices.
- 3- Biological oils
- 4- Oil-filled containers.
- 5- Pressure pipes

Calibration and Verifications Standards According to ASTMs



Glass wares

We provide all type of glass wares

For more information please contact us.



TECHNICAL SERVICES

From the starting point of our company, we have committed to offering continuous technical services for our clients. Our services are performed by the specialized staff of engineers and technicians, which include the following:

Installation and Training:

One of the main parts of our supply process is the installation of the requested equipment, as well as making sure that the staff of our client is well-trained to obtain optimum performance from their installed system.

Maintenance:

A necessary part of our relationship with our customers is the process of maintaining the operational condition of the equipment, as well as repairing them, should an issue arise. Our staff is trained by the suppliers of the equipment to conduct periodic maintenance, depending on the equipment and the nature of the application. Furthermore, we understand that timing is fundamental in this process; hence, we are committed to keeping our fast services on-time, once needed.

Calibration and verification:

An essential part of today's lab procedures is to ensure correct and accurate measurement reading. Our well-trained staff follows the international standards in calibration and verification of any equipment, which ensures high confidence in the measurements for our customers and their customers alike.



OUR SELECTED CUSTOMERS



OUR SELECTED PARTNERS




WASSON·ECE
INSTRUMENTATION

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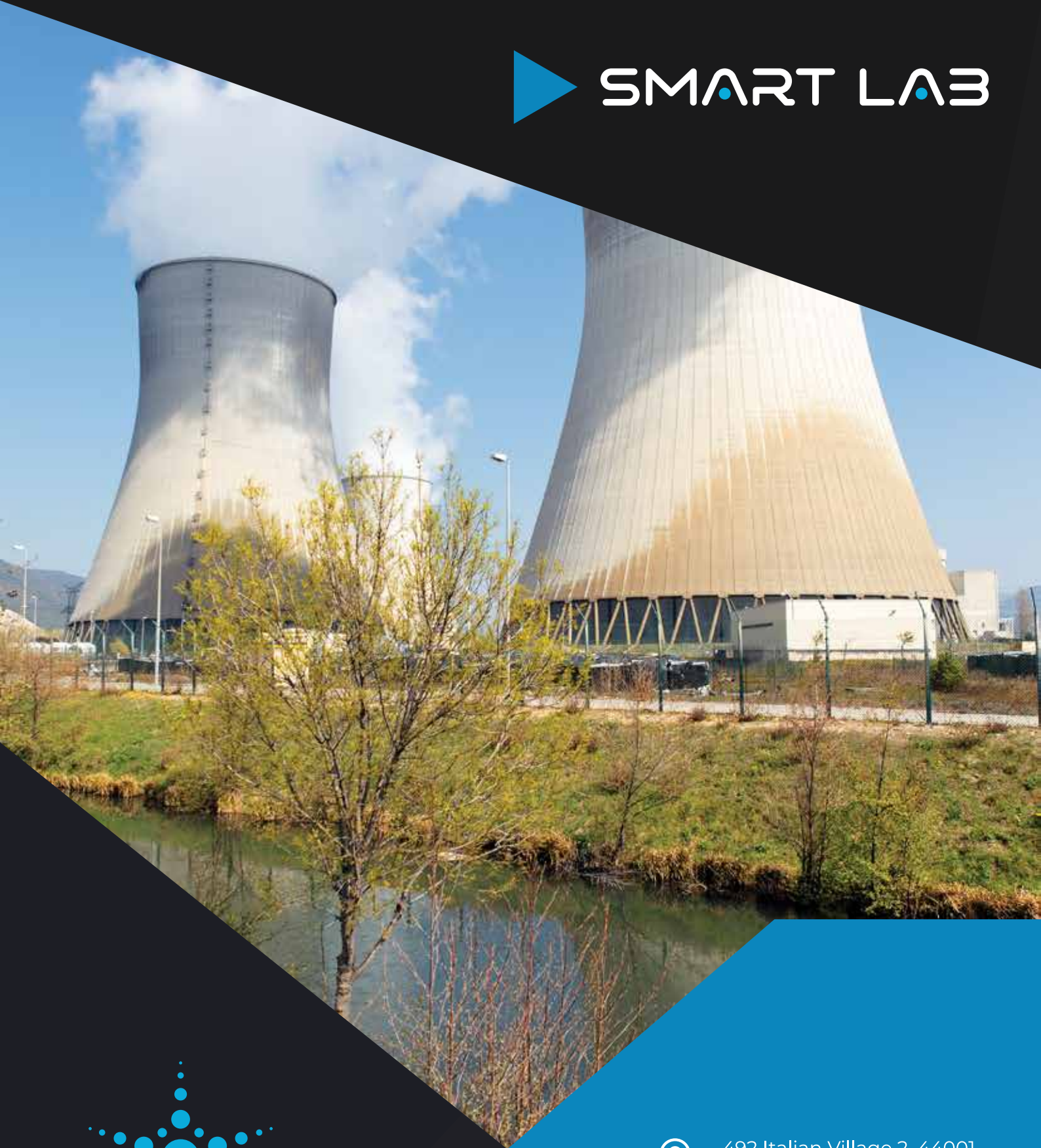
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