

# ORB

instruments, inc.



## PETROLEUM PHYSICAL PROPERTY ANALYZERS



**accurate • reliable • modular**  
built to meet your standards



## P-500 FLASH POINT ANALYZER

On-line Flash Point Analyzer for the continuous measurement of flash point in petroleum products

- ▶ Correlates to ASTM D56 (TAG) and D93 (Pensky Martens Closed Cup)
- ▶ Operating range 25°C to 125°C
- ▶ Rapid analysis cycle of 5 minutes or less
- ▶ Repeatability less than 2°F (1.0°C)
- ▶ Microprocessor controlled
- ▶ External programming
- ▶ Color graphics screen
- ▶ Independent sample and flash chamber temperature control



## P-600 SALT IN CRUDE ANALYZER

On-line Salt In Crude Analyzer for continuous measurement of the concentration of salt in crude oil

- ▶ Variable measurement ranges of up to 0-400 PTB (0-1000 mg/lit.)
- ▶ Rapid analysis cycle of 6 minutes or less
- ▶ Superior repeatability of 2% of scale
- ▶ Reliability better than 99% uptime
- ▶ Micro sample analysis reduces solvent consumption
- ▶ Precise bidirectional temperature control
- ▶ Incorporated rinse/flush system
- ▶ Optional validation sample system



## P-700 RVP ANALYZER

On-line Reid Vapor Pressure Analyzer for continuous measurement of hydrocarbon vapor pressures

- ▶ Measurement range of 0-35psi (0-2500 mbar)
- ▶ Superior repeatability of 0.05 psi (3.5 mbar)
- ▶ Elevated sample temperatures of up to 75°C
- ▶ Rapid analysis cycle of 5 minutes or less
- ▶ Optional validation sample system
- ▶ Suitable for crude oil applications



## P-780 RVP/VL20 ANALYZER

On-line RVP or VL20 Analyzer for the continuous measurement of vapor pressure in petroleum products

- ▶ Correlates to ASTM D5191 evacuated cell method
- ▶ Reports multiple ASTM method correlations
- ▶ Can be operated in RVP, VL20 or dual mode (alternating RVP & VL20)
- ▶ Operating range  
RVP: 0-35 psi  
VL20: 25°C to 65°C
- ▶ Rapid analysis cycle of 5 minutes or less
- ▶ Superior repeatability  
RVP: less than 0.05 psi  
VL20: less than 1°F (0.5°C)
- ▶ Increased reliability with operating uptime greater than 99%



## P-800/800LT FREEZE POINT ANALYZER

On-line Freeze Point Analyzer for the continuous measurement of freeze point temperatures in petroleum products

- ▶ Operating range -150°F to +77°F (-100°C to +25°C)
- ▶ Straight path absorbance & 90° back-scatter detection
- ▶ Rapid analysis cycle of 10 minutes or less
- ▶ Superior repeatability of less than 0.5°F (0.25°C)
- ▶ P-800LT has an internal Cryo chiller cools to -125°C without external cooling system
- ▶ P-800 without external close loop chiller system
- ▶ High pressure sample detection cell eliminates the need for atmospheric recovery



P-800



P-800LT



XPROOF  
ATEX/CE



XPROOF  
ULCSA/CSA



PURGED  
ATEX/CE



PURGED  
ULCSA/CSA



GENERAL  
PURPOSE



## P-820/820LT CLOUD POINT ANALYZER

On-line Cloud Point Analyzer for continuous measurement of cloud point temperatures in hydrocarbons

- ▶ Operating range -  
820: 76°F to 77°F (-60°C to 25°C)  
820LT: 150°F to 77°F (-100°C to 25°C)
- ▶ Rapid analysis cycles of  
820: 5 minutes or less  
820LT: 8 minutes or less
- ▶ Superior repeatability of less than 0.5°F (0.25°C)
- ▶ P-820LT has an internal Cryo chiller and cools to -125°C without external cooling system
- ▶ P-820 without external close loop chiller system
- ▶ High pressure sample detection cell eliminates the need for atmospheric recovery



P-820



P-820LT



## P-840/840LT POUR POINT ANALYZER

On-line Pour Point Analyzer for continuous measurement of pour point temperatures in hydrocarbons

- ▶ Operating range -76°F to 77°F (-60°C to 25°C)
- ▶ Analysis cycles of 10 to 45 minutes
- ▶ Superior repeatability of less than 0.5°F (0.25°C)
- ▶ Increased reliability with operating uptime better than 99%
- ▶ P-840LT has an internal Cryo chiller and cools to -125°C without external cooling system
- ▶ P-840 without external close loop chiller system
- ▶ High pressure sample detection cell eliminates the need for atmospheric recovery



P-840



P-840LT



XPROOF  
ATEX/CE



PURGED  
ATEX/CE



PURGED  
ATEX/CE



PURGED  
ULCSA/CSA



GENERAL  
PURPOSE



## P-900 VISCOSITY ANALYZER

On-line Viscosity Analyzer for continuous measurement of absolute viscosity of Newtonian fluids.

- ▶ Customizable 2-4000 cP Sample Range (Available Optional Kinematic Output Package)
- ▶ Continuous Sample Viscosity Output
- ▶ Does not require atmospheric recovery system
- ▶ Superior repeatability Exceeding ASTM D-445
- ▶ Increased reliability with operating uptime better than 99%



## P-950 VISCOSITY INDEX ANALYZER

On-line Dual-bath Viscosity Index Analyzer for continuous measurement of absolute or dynamic viscosity and viscosity index of Newtonian fluids

- ▶ Customizable 2-4000 cP Sample Range (optional kinematic output in cSt)
- ▶ Continuous Sample Viscosity and Viscosity Index output
- ▶ Does not require atmospheric recovery system
- ▶ Superior repeatability exceeding ASTM D-445 and D-2270



## W-800 OIL IN WATER ANALYZER

On-line UV Fluorescence Oil in Water Analyzer for the continuous measurement of oils in water process streams

- ▶ Operating range 0-100 ppm (mg/L)
- ▶ Excellent repeatability to 0.5ppm (mg/L) or less
- ▶ Rapid analysis cycle of 15 seconds or less
- ▶ Full color display with continuous running chart
- ▶ Separate enclosures for electronics and analytics
- ▶ No sample conditioning necessary
- ▶ No supporting reagents/chemicals needed



## SAMPLING SYSTEMS

The ORB Instruments Sampling Systems are designed to provide uninterrupted operation and consistent sample handling to and from the physical properties analyzer. Transferring a homogenous and representative sample to the analyzer is as critical as the measurement thereof.

Built to the customer's specifications, its construction withstands the harsh environment as found in a refinery or in a distribution port and ensures reliable analysis performance. A series of products are available to address your local need and requirements:

- ▶ Sample Conditioning System – required when stream/line characteristics fall outside the operating parameters of the instrument, includes pressure and temperature regulation and indication, particulate removal, flow regulation and indication, water removal/coalescing.
- ▶ Sample Recovery System – required for measurements taken near atmospheric conditions in order to return analyzed samples to pressurized process streams, eliminating atmospheric drains and waste handling.



## **WORLDWIDE ON-LINE PHYSICAL PROPERTY ANALYZER SERVICES**

With over twenty years of industry experience, extensive technical expertise and a comprehensive understanding of On-line Physical Property Analyzers we provide the process analyzer solutions you demand. With the introduction of ORB Instruments' on-line analyzers, we now deliver the latest in on-line physical property analyzers and on-site service to enhance your refining process control systems.

**FAT** — A Factory Acceptance Test (FAT) will provide you with a quality control milestone during your equipment installation and integration process. Contact ORB Instruments to schedule a factory site visit.

**START-UP** — Our worldwide factory trained service technicians and engineers ensure proper operation and commissioning of your on-line analyzers. We service new installations, product changeovers and re-commissions of existing equipment.

**TRAINING** — Be sure to ask about training. We can ensure your personnel understand the proper operation and care of your on-line analyzers. We are happy to share our knowledge to instruct key personnel on maintenance, operation, system monitoring, diagnostics and basic repair to keep your on-line analyzers operating smoothly.

**MAINTENANCE CONTRACTS** — For peace of mind and to avoid added cost eliminate the inconvenience of an emergency situation by scheduling a special service call or an annual or semiannual maintenance visit. Discount packages are available for multiple units.

**TECHNICAL SUPPORT** — We offer technical support for ORB Instruments and other on-line physical property analyzers. Call ORB to schedule on-site service or for free technical support via telephone.

**EMERGENCY SERVICES** — When you have an emergency that needs immediate attention ORB Instruments technicians are there to get your on-line analyzers up and running smoothly. Our service technicians can get on site fast (typically 24 to 48 hours) reducing down time.

**PARTS & SPARES** — Be prepared with spares to quickly handle any maintenance or replacement part issues. Increase your up time, facilitate regular maintenance, and help prevent major problems. For your entire on-line analyzer part needs call ORB Instruments. We have an extensive inventory of replacement and hard to find parts.

**UPGRADES & REBUILDS** — Improve the performance of your existing on-line analyzers with an upgrade (when available) or re-build. Depending on the installation this may be completed on-site or at our factory. Call us for a case-by-case evaluation.



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ORB Instruments, Inc. designs, manufactures and sells on-line physical property analyzers for the petrochemical industry. As a subsidiary of Orb Enterprises, we leverage 20+ years of design, manufacturing and analyzer service experience. We design state-of-the-art on-line analyzers and follow it up with superior customer service to fulfill all your process monitoring solutions.

Over the past two decades consolidation in the instrumentation market has limited the innovation of on-line analyzer design. Concurrently, there was a demand for better products and improved technical support that remained under served. ORB Instruments' vision and customer focus delivers compact, robust analyzers to meet these needs. Our analyzers are delivered with shorter lead times, are easy to install, operate and maintain, while meeting or exceeding critical application requirements.

ORB Instruments simply delivers a greater value to the end user by maintaining an aggressive investment in R&D, new designs and technologies and by employing a superior technical customer support team.

**For more information about our products, visit our website at**

**[www.orbinstruments.com](http://www.orbinstruments.com)**

