

Application Note: Verax™ Crude Distillation



Real-Time Control for CDUs and Crude Splitters

Traditional Online Measurement of Crudes: High-cost and Low-reliability

Measurement of crude oil in real time is frequently one of the most difficult online measurements in the oil & gas transport and refining industries. By their natures, crudes tend to be viscous, particulate-laden, corrosive, opaque fluids with extremely complex chemistries. These qualities each provide serious challenges to automated online analysis; many crude processing units still rely on manual grab samples and laboratory analysis to inform their moves. If a traditional online analyzer is installed, many users have ongoing maintenance problems and excessive downtime. An analyzer that is not functional is worse than no analyzer at all!

Crude distillation units (CDUs) and crude splitters have an outsized effect on the efficiency and profitability of the overall refining process, which underscores the importance of identifying an accurate, reliable and low-maintenance online analyzer for crudes.

JP3 Verax: Accurate Online Analysis with No Sample Conditioning System

With the JP3 Verax NIR analyzer system, operators of crude units now have a powerful tool to provide crude property and composition measurements in real time. Accurate results correlated with ASTM methods, including D86, D6377, and D4052, are measured and updated within 15 seconds per read point. The fiber-optic coupled Near Infrared (NIR) flow cell does not require a sample conditioning system - eliminating a major headache of typical online analyzers and minimizing sample lag times.

With manual sampling and lab analysis, a D86 method can take hours to trend multiple data points. In an upset condition, these hours can translate into thousands of barrels in lost production. With the real-time response of JP3 Verax systems, users can make better decisions quickly - leading to more efficient operation and saving energy.

Advanced Optical Technology for Crude Processing

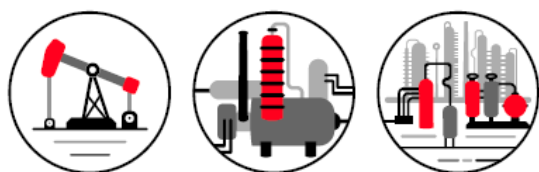
The Verax system uses a near-infrared laser light source that is powerful enough to measure even the heaviest crudes. While crude is opaque to visible light, it is transparent to the infrared light produced by the laser. The particulates, asphaltenes, and resins that would cause all kinds of issues with a sample conditioning system poses no problem for the Verax system. No sample conditioning is required for measurement through the Class I Div. 1-rated VeraSight optical flow cell, which also means that lag times are virtually zero. With no mechanical moving parts, no consumables, and no regular calibration requirement, maintenance on the Verax system is minimal. Installation in the harshest environments is straightforward and low-cost, since the analyzer is rated for Class I Div. 2 areas and can operate in ambient temperatures up to 122°F with no purge, cooling system, or analyzer shelter.



Atmospheric Crude Tower



Verax NIR Online Analyzer



Critical Data. Real Time.

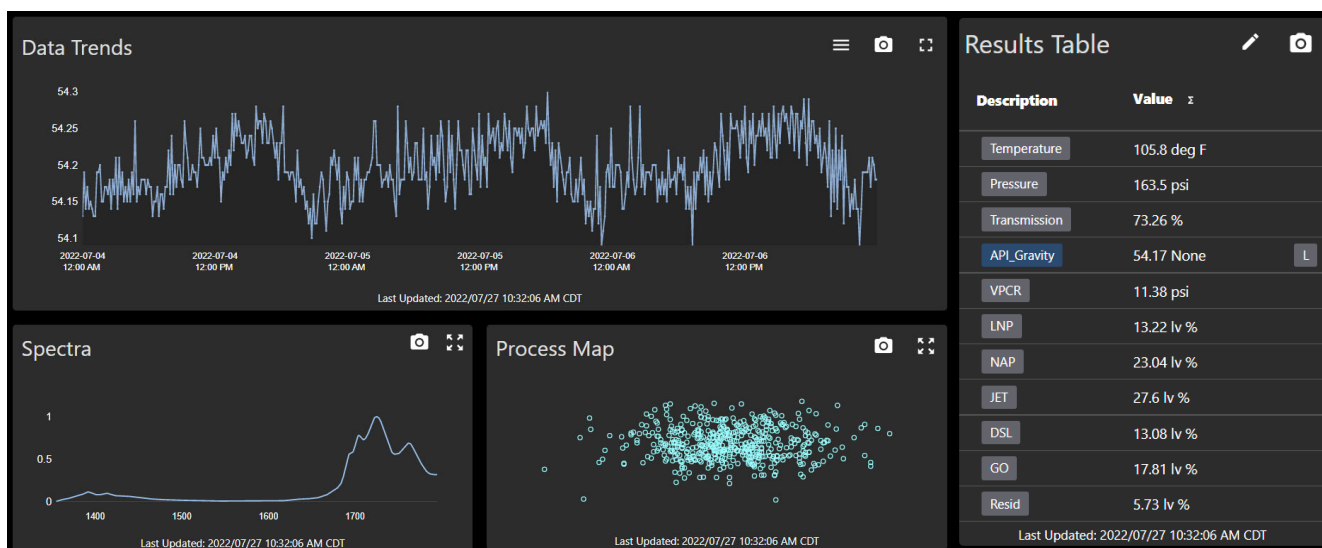
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Expert Service and Support, Tailored to Your Needs

Almost all optical-based systems will require chemometric models, which are developed by chemometricians using process samples. Most other optical analyzer manufacturers rely on the end user to create, develop and maintain these calibration models. JP3's in-house team of project managers and Ph.D. chemometricians offer a full range of support options: from hardware-only sales to full-service model development and support.

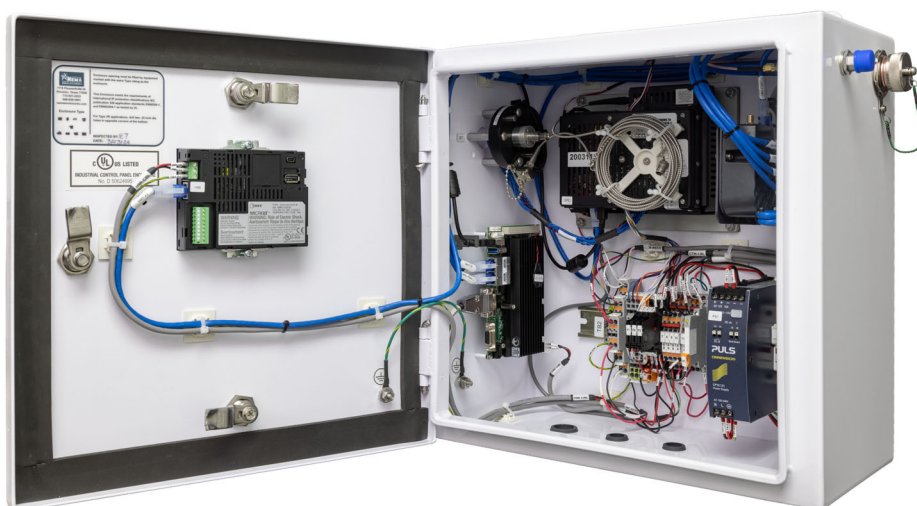
Designed for Speed and Reliability

The highly reliable Verax analyzer provides analysis for up to eight process streams in less than fifteen seconds per stream. Utilizing a highly stable and repeatable laser optical source, and packaged to operate in harsh environments with no shelter, the Verax operates in-line at process pressure and temperature. The VeraSight™ flow cells are mounted at the process points of measurement with fiber optic cable connections back to the control unit. All material is returned to the pipe, resulting in emissions-free operation. This means sample conditioning and transport systems are minimal and simple, which improves response time and safety.



Viper Insight Process Monitoring Software

JP3 Verax Analyzer Product Info Links: [Verax SSX](#), [Verax CTX/CTXe](#), [Verax ISX/IMX](#)



Verax SSL Class 1 Div 2 NIR Spectrometer



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