



Boiling Point Distribution Analysis of Crude Oil

Introduction

Boiling point distribution and cut point intervals of crude oil are key indicators of the composition, quality, and the ultimate value of a batch or stream of crude. The Verax™ NIR analyzer offers access to real-time field analysis of these important attributes to producers, transporters, and refiners. The Verax system can provide analyses based on the most commonly used crude oil distillation and simulated distillation assay methodologies including: D86, D2892, D5236, D1160, D2887, D7169 and others.

API Gravity is Not Enough

Historically, limited information such as API Gravity and standard crude oil benchmark assays have been used to evaluate crude quality and to predict refined yields. Analysis has shown, however, that the actual refined value of a 100,000 barrel batch of API 42 crude can vary by as much as \$750,000. This can result from natural compositional shifts generated at the well, or through crude blending and mixing along the supply chain. The expertise and cost required to maintain conventional technologies render them unusable for many applications. Long cycle-times to complete measurements allow fluctuations and changes in product quality to be easily missed between measurements. As a result, the industry is moving away from API Gravity measurements and toward new technologies that better represent the value of crude batches.

Designed for Speed and Reliability

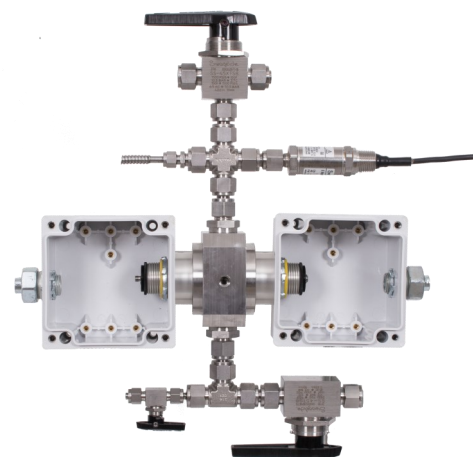
The highly reliable Verax CTX analyzer provides analysis for up to four crude streams in less than fifteen seconds per stream. Utilizing a highly stable laser optical source, and packaged to operate in harsh environments with no shelter, the Verax operates in-line at process pressure and temperature. The VeraSight™ flowcells are mounted at the process points of measurement with fiber optic cable connections back to the control unit. This means no sample conditioning or transport systems are required, thus improving response time and safety.

Remote visibility

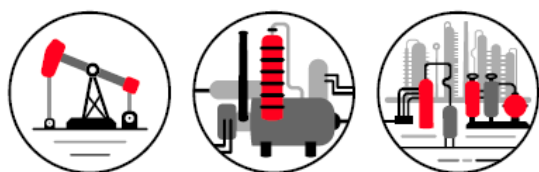
In addition to delivering real-time measurement outputs to your SCADA system, the Verax data can be monitored remotely and securely through the JP3 Viper Insight web-based visualization and analytics package. Simply log in to your system from any location and your data is readily available.



Verax CTX NIR Analyzer

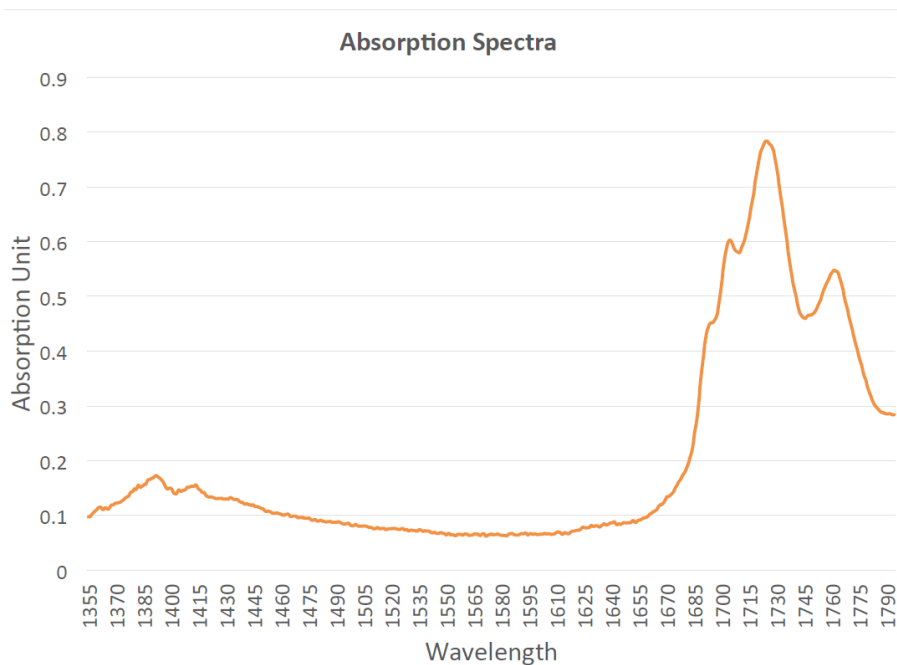


VeraSight Flowcell Assembly



Critical Data. Real Time.

Application Note: Verax™ Analyzer



Parameter	Output
VPCR [psi]	10.85
IBP [degF]	88.17
5% [degF]	142.19
10% [degF]	187.73
20% [degF]	279.59
30% [degF]	355.54
40% [degF]	439.52
50% [degF]	524.99
60% [degF]	615.18
70% [degF]	714.76
80% [degF]	831.21
90% [degF]	986.7
95% [degF]	1117.96
FBP [degF]	1293.7

Figure 1. Real-time spectra and boiling point cut outputs for typical crude simulated distillation application

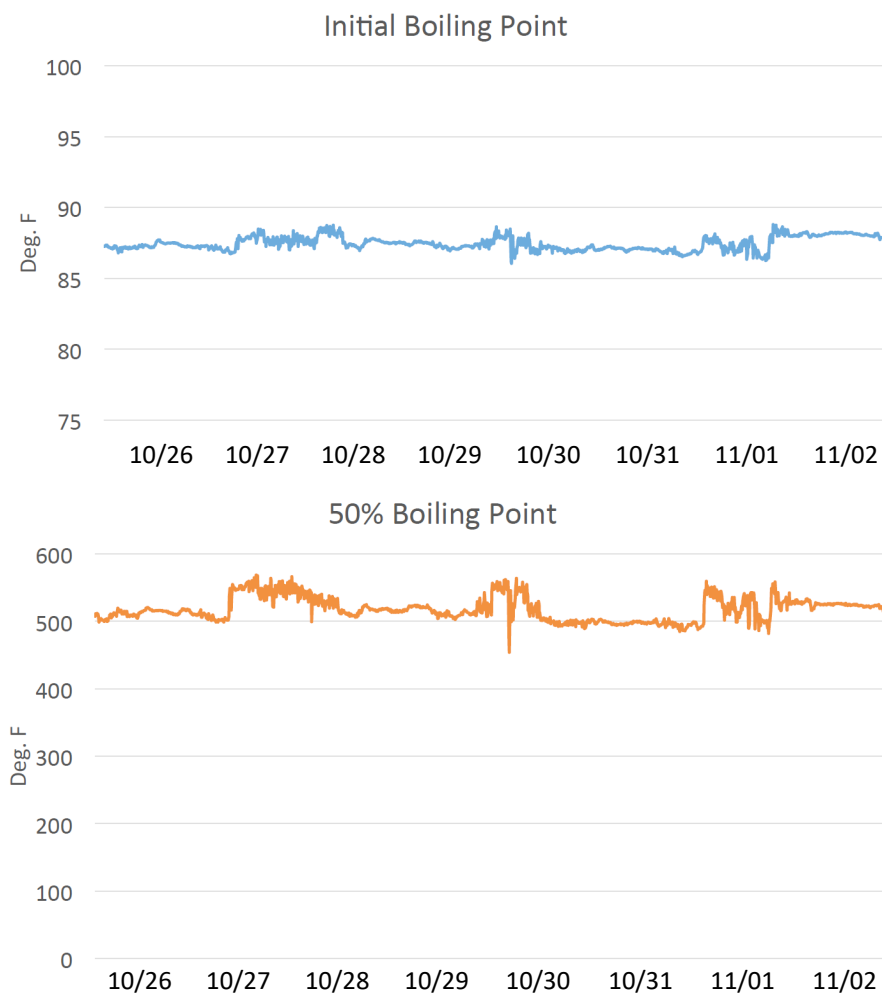


Figure 2. Seven day trend of initial boiling point for crude inlet

Figure 3. Seven day trend of 50% boiling point for crude inlet



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