

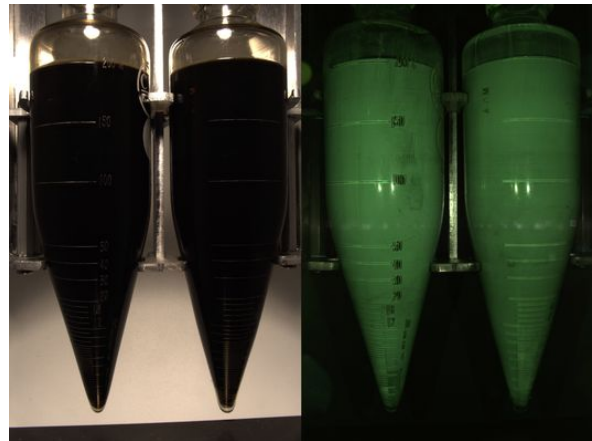
Centrifuge Tube Reader (CTR)

Validere's centrifuge tube reader (CTR) provides accurate BS&W measurements, avoiding the human bias involved in reading the meniscus during centrifuge tests. Operation follows the approved ASTM D4007 method, and replaces the visual tube-reading component with a computer vision interpretation of centrifuge tube images. The CTR then uploads BS&W results, high-quality tube images, and other pertinent test information to the Validere 360 platform to retain a full audit trail. The CTR uses a high-resolution camera to capture images, fluorescence imaging under UV light to identify hidden emulsions, and cloud connectivity to upload results.

Hardware



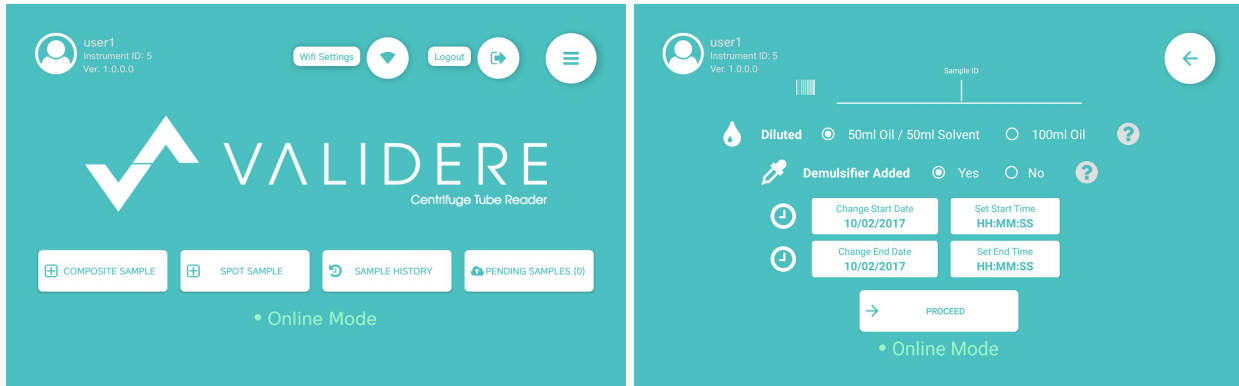
High res and / UV photo output



Key Features

- **Consistently unbiased:** avoids human error in meniscus reading to ensure consistency
- **No transcription:** water content and sediment data is automatically pushed to Validere 360, eliminating paperwork and data entry errors
- **Full Audit trail:** historical BS&W samples are reported with all pertinent information, including images
- **Tracking of solids and interface layers:** images and readings allow for monitoring of interface and sediment layers
- **Fluorescence imaging:** identifies hidden emulsions in the crude layer
- **Approved method:** Follows an approved ASTM method (ASTM D4007)
- **Access results from anywhere:** Results are uploaded instantly into Validere 360 and can be accessed from anywhere. Downloadable PDF reports are available to present to third parties. Validere 360 also enables the analysis of historical trends and cross-correlation of field and lab test results.


Intuitive User Interface



Step-by-step instructions and automatic results - the CTR's intuitive user interface walks the operator through each step of the procedure and then reports the result. There is no need to write down water content or enter results manually.

Validere 360 Interface

Olje Resources 20-22 TT CRD Report



Test Details

Stream:	Olje Resources 20-22 TT CRD
Tested By:	Other
Test Date:	2018-10-11 12:03:00 EDT
Method Used:	
Water (% vol.):	0.41 % vol.
Water & Sediment (% vol.):	0.44 % vol.
Water & Sediment & Interface (% vol.):	1.04 % vol.
Diluted:	Yes
Demulsifier Added:	Yes

Sample Details

Sample Type:	spot
Sampled By:	Other
Sample Start Date:	2018-10-03 11:25:00 EDT
Sample End Date:	2018-10-03 11:25:47 EDT
Downloads:	Regular Image UV Image PDF

Previous Next

Comparison Sheet

	Centrifuge Tube Reader with Validere 360 (ASTM D4007/API MPMS Ch. 10.3)	Manual Centrifuge Measurement (ASTM D4007/API MPMS Ch. 10.3)	On-line analyzer (Drexelbrook, Invalco, Phase Dynamics)
Accuracy	Moderate. Reproducibility range for complete method: 0%-0.28%. Reproducibility for readout: 0.005% (S&W < 0.5%)	Moderate. Reproducibility range for complete method: 0%-0.28%. Reproducibility for readout: 0.06% (S&W < 0.5%)	Moderate. Different on-line analyzers have different accuracy levels. Best analyzers reproducible to 0.05%-0.1% with consistent feedstock. Calibration of most water-cut meters highly sensitive to crude properties, even if density compensated in real time. Systematic errors (up to 1% for water cut < 5%) are common.
Time to run	15-30 minutes	15-30 minutes	real time
Sediment and interface identification	High. Interface layers recognized from images, recorded in reports and tracked for trending. Fluorescence image reveals hidden emulsions.	Low. Difficult for human eye to differentiate in white light.	Low. Does not differentiate between crude, sediment, wax, asphaltenes, etc.
Audit trail & data analysis	Extensive. High resolution image + fluorescence image. Readout of water, sediment and interface. Human error detection. Historical trending and alerts.	None. Operator notes final result. No evidence of result origin.	Some. Data recorded digitally and saved on local SCADA system. No error detection. Manual calibration records.
Workflow management	Automated. Workflows are automated and tracked with Validere 360. Validere's AI suggests modifications to user-defined schedules. Time and location of sampling is tagged for each sample.	Semi-automated with Validere 360. Workflows are automated and tracked with Validere 360. Validere's AI suggests modifications to user-defined schedules. Time and location of sampling is tagged for each sample. Results are entered manually into web application.	Automated. Sampling is run autonomously on a predefined schedule. With Validere 360: Calibration and maintenance schedules are automated and tracked in Validere 360. Validere's AI suggests modifications to user-defined schedules. Time and location of sampling is tagged for each sample, enabling appropriate comparison to on-line analyzer results.