



SiCon Solution – Digitizing Drilling Fluids

R&D – Technology Validation

2017

2018

2019

2020



Flow Loop Testing

Static mud tests: +/- 100 oil-based mud samples and compare results to retort data

First iteration of deriving algorithms for “calibration factors”. Enhance control panel functionality for calibration procedure. Firmware upgrade launch was rolled out as a part of our continuous improvement plan before field trials.



North Dakota

Two wells, water influx detection and real time trending of % oil/water changes as validated by retorts every 6 hrs

Second iteration at applying improved calibration coefficients. Applied filtering and linearization algorithms to smooth out the data. Discover improved method to measure density (Quality Assurance)



Texas Permian

8 months ~ dozen wells. Both Direct Emulsion & Invert Emulsion mud systems. Trended well against retort.

Third iteration of the firmware works well for % oil & % water. Remote access allowed for easy commissioning and remote support. Revealed an improved method to infer % solids. (Patent Pending)



North Sea, Norway

First offshore Installation. Integrated into inline Rheology unit. Extensive simulation testing for various drilling events

Forth iteration of the firmware finalized, within 2% error on all three constituents. AI/Machine Learning capabilities has made this sensor very user friendly, ideal for many drilling applications. (Paradigm Shift)

Technical Maturity:

Sensor has a proven track record with multiple field deployments using several different applications, including inline, in-tank & centrifuge applications. Firmware has been enhanced allowing for further filtering and curation of data. Remote configuration, auto-calibration, commissioning & linearization is now standard Windows UI offering.

Absmart USA

13610 Cypress North Houston Rd. Suite 8301

Cypress, TX 77429

www.absmartusa.com

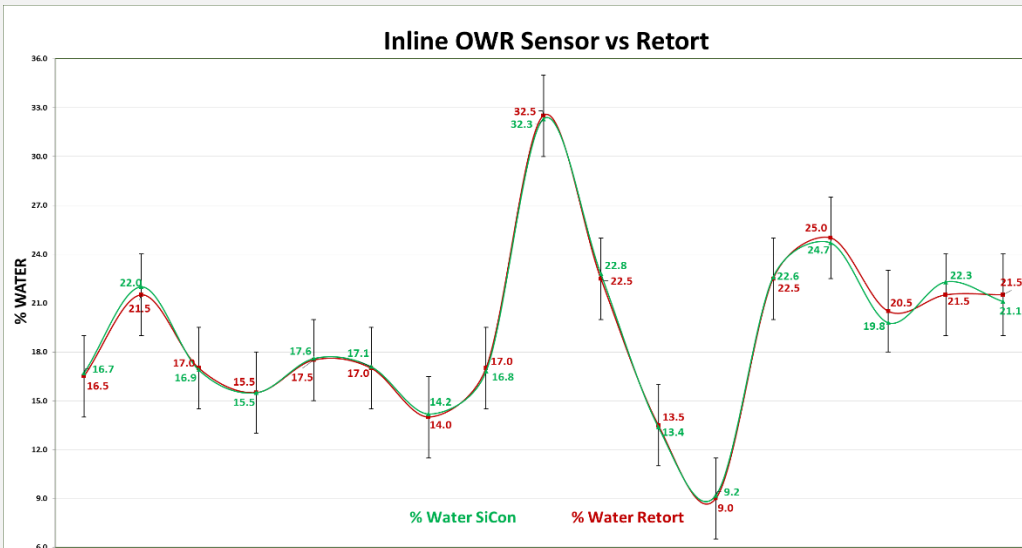
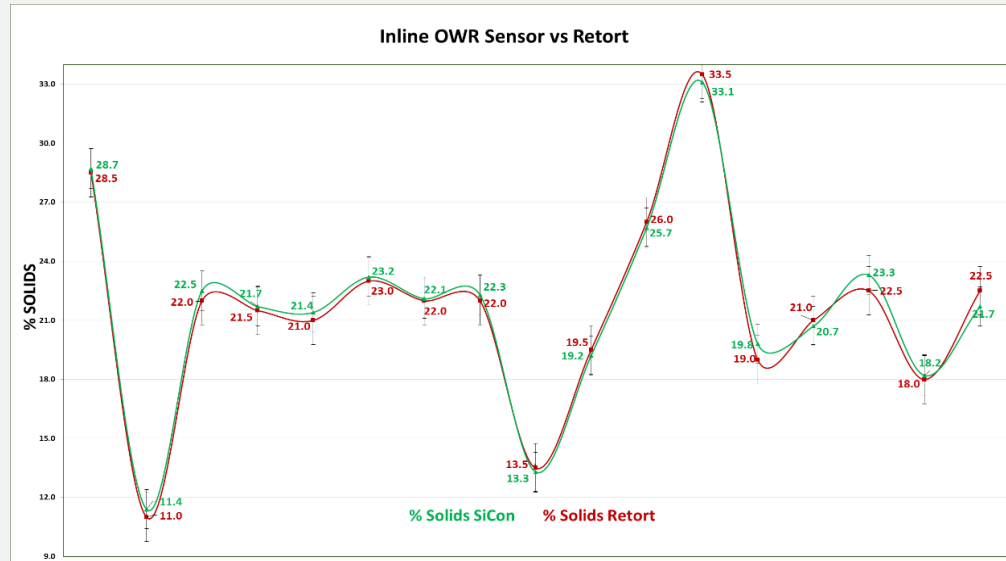
713-397-0677

SiCon System – % Oil, % Water, % Solids & Density

The **SiCon System** is a unique (patent pending) solution combining several key technology elements.

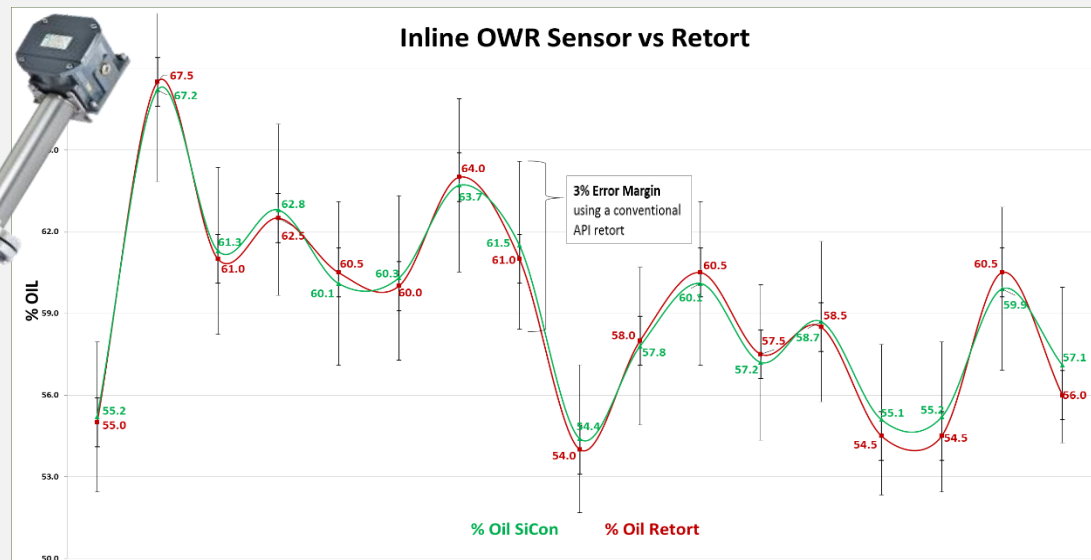
High frequency stray field capacitance **OWR Sensor** to differentiate with high repeatability and accuracy the water dipole molecules from oil content.

Density Sensor with highly tunable filtering and linearization to achieve drilling fluid tracking performance.



The **SiCon System** utilizes sophisticated machine-learning algorithms with AI that will automatically sort, optimize, and identify potential outliers from manually entered retort values.

These retort values are used as the backbone for the prediction of % Oil, % Water, % Solids and the API13b calculations for OWR, % LGS & % HGS in real time.



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