

The breakthrough in crude oil on-line analysis enables refineries to reach higher efficiency and profitability

Modcon Systems Ltd. announced the launch of the recently redesigned All-in-One MOD-4100 process analyzer for real-time assessment of crude oil quality

LONDON, LONDON, UNITED KINGDOM, January 5, 2021 /EINPresswire.com/ -- Today's strategy in the refinery industry forces refineries to change their feedstocks towards those crude oils that can give [maximum profit](#) from distillates and refinery products with the minimum cost being paid. Alongside that, refineries also have to take into consideration ever-changing crude oil prices and instabilities in oil producing countries and may be forced to change their crude oil sources at any time. This results in the need for flexibility by refineries to respond to the conditions that are required for processing different crude oils.

Crude oils and crude oil blends have different physical and chemical properties, which depend on their place of origin. Even if originated from the same location, fluctuations in the physical properties are a common phenomenon. Several quality properties have an impact on the crude price and cost of processing a crude oil in blending stations and refineries. Furthermore, crude quality control becomes today more important due to high market demand for eco-friendly fuels as a result of increasing public concern on health, environment and stricter emission regulations.

The recently redesigned by Modcon Systems Ltd. All-in-One [MOD-4100](#) crude analyzer represents a breakthrough in crude oil on-line analysis. It is a single system, that performs on-line a variety of different critical crude quality measurements to provide real time analytical data, which is highly important for optimized operation processing of crude oils..

This unique analyzer based on laser-enhanced spectrometry for accurately measuring major critical crude oil parameters, by one single analyzer system. The analyzer comes installed in outdoor stainless steel enclosure and equipped with an integral sample conditioning system. It is



inspected and tested by the factory, and ready for immediate installation on-site.

The following crude oil critical parameters can be measured on-line and correlated to ASTM:

- * Salt Concentration (D3230)
- * Distillation (D2892, D86)
- * SARA (IP-143 and D893-69)
- * Emulsion stability (F3045, D4007 and D3707)
- * Hydrogen Sulfide content (D5705)
- * RVP (D6377 and D323)
- * Viscosity (D445 and D2501)
- * Water Content (D4928 and D4006)
- * Sulfur content (D2622 and D4294)
- * Density (D4928 and D1250)



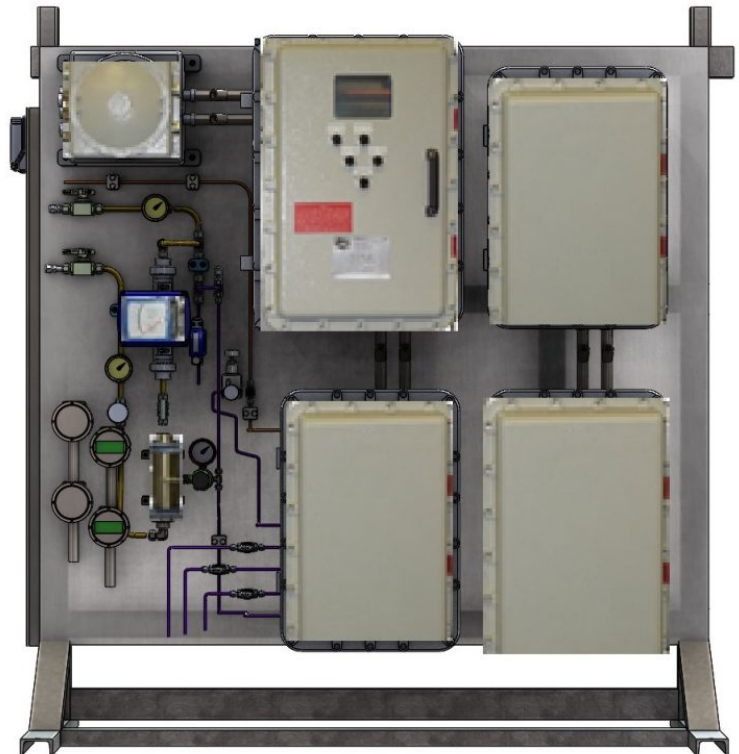
The analyzer is applicable in any location in the crude oil supply chain from the oil well during transportation, storage, desalting and blending until the crude distillation unit. On-line and rapid analysis allows real time detecting of unacceptable levels of quality parameters to take immediate corrective actions. On-line monitoring of the crude oil qualities also plays a critical role in a variety of different crude oil process optimizations.

Crude oil blending:

- * Optimization of the ratio between crude oil being blended to provide a blend of required physical properties.
- * Reduction of blend cost by maximum incorporation of low cost crudes in the blend.

Crude Oil Distillation:

- * On-line monitoring of the crude oil properties before, between and after the desalters enables



efficient operation of the desalter, at minimum cost of energy and process chemicals.

- * On-line monitoring of the physical properties such as the SALT, H₂S and TAN of the crude oils entering the CDU is also of high importance for evaluating the potential of corrosion and fouling that affect the equipment and the pipelines.

- * Indicates the transition period between two sequential crude oils feeds.

- * Continuous verification of the entire batch complying with its specification.

System Configuration

- * The new MOD 4100 On-line Analytical System is a complete equipment set.

- * MOD-4100 allows real time analysis of critical crude oil properties under field conditions.

- * Continuous crude oil sampling from pipelines, tanks or process vessels, its filtration and separation from solid particles.

- * The analyzer is equipped with an integrated sampling handling and sample condition system, to bring the samples to physical condition that is required by the analyzer.

- * Integrated Analyzer control system.

- * Transfer of analysis results to customer's control room DCS.

- * No analyzer shelter is required.

- * The analyzer comes installed in outdoor stainless steel enclosure.

Incorporation of the MOD-4100 the in [crude blending](#), crude oil desalting, and crude distillation allows the CDU to produce at maximum efficiency and at lowest cost. The importance of measuring on-line crude oil parameters is not only restricted to the refinery operations, but is also essential from a commercial point of view. It enables to check the crude quality on-line, during the transportation and storage chain from well-head to until the end user.

The MOD-4100 is also an effective tool in crude blending. It allows on-line changing of the ratio between different crude qualities to form a crude blend of lowest cost, and by maximization of low cost heavy and opportunity crude in the blends, without losing expected physical properties. On-line measuring the distillation curve during the blending process enable the formation of blend with properties as such that enables increasing of the production capacity of most requested distillates.

About Modcon Systems Ltd.

Founded in 1972, Modcon Systems Ltd. is a multidisciplinary engineering company with its own innovative technologies of process analysis and digitalization. The technical team is composed of instrumentation engineers, chemists, data analysts and physicians who specialize in all areas of research, development and projects management. As a multinational company, Modcon pursues its business objectives in line with 'sustainable development', legal regulations and requirements.

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