

TALYS ASP400

Simple cost-effective FT-NIR analyzer system for refinery HF alkylation unit

The TALYS ASP400 series suited to the monitoring of HF acid catalyst purity in a refinery HF alkylation unit.

Measurement made easy

A flexible solution for real-time process control

The TALYS ASP400 series is a single-point fibre optics based industrial FT-NIR analyzer designed for in-line monitoring and control of continuous processes. Its seamless installation enables real-time process monitoring, determination of stream qualities, process characterization and early troubleshooting.

This new generation of analyzer captures over 30 years of expertise in process spectroscopy implementation by ABB in close partnership with chemical customers. TALYS was designed around the following key concepts:

- Ease of implementation
- Ease of use
- State-of-the-art analytical performance
- Industrial robustness



The TALYS single-point FT-NIR analyzer is ideally suited to the monitoring of HF acid catalyst purity in a refinery HF alkylation unit. The analyzer is required in this case to be located in a remote, safe area location outside of the protected HF acid area. TALYS is easy to install, requiring very limited space and utilities. An Ex-certified version is also available if required.

TALYS is designed to operate a fully-configured run-time version of ABB's robust process FT-NIR software (FTSW) but the innovation with TALYS is that this is achieved with an on-board embedded controller complete with HMI display. This significantly reduces packaging, space, power and other utility requirements. The TALYS system can be accessed remotely by PC over Ethernet for full diagnostics.

TALYS single-point FT-NIR analyzer



Fig. 1: HF Alkylation unit



Fig. 2: TALYS ASP400 touchscreen

TALYS uses all of the new FT-NIR analyzer features introduced with ABB's latest series of products, including the VECSL solid-state laser, 24bit ADC conversion, active power-management of the NIR source, all leading to a service interval of > 5 years or more.

To partner the new TALYS single-point analyzer in this application, the field-proven ABB acid-area sample flow cell system, for interfacing to the HF acid catalyst sample, has been used as before, ensuring that the performance, reliability and low-cost of ownership of the entire system is maintained.

TALYS operates in direct communication with the Plant DCS using modern TCP-IP or OPC communications (ModBUS RTU with optional Converter).



Fig 3: Advanced solution for the refining and petrochemical industries

FT-NIR pre-calibrated process analyzer for optimization of the HF Alkylation Unit suitable for monitoring HF catalyst quality

Includes:

- TALYS single-channel FT-NIR for Near (ZnSe Optics) for General Purpose Area electrical classification.
- One room temperature InGaAs detector with 2.6 micron cutoff.
- Embedded analyzer Controller with HMI for display of analyzer status and stream qualities
- External I/O's for alarm and concentration values
- FTSW100: Windows based analyzer software, including run time, and standard application.
- Application configuration and embedded pre-calibrations for HF%, ASO% and Water%
- HF Acid sampling system (one-stream),
- Temperature controlled insulated cabinet for sample cell.
- Cell temperature controlled at 30°C ±1.7°C.

- Sample system designed for field mount ambient -0°C to +45°C (requires protection from direct sunlight and precipitation + the recommended instrument air pressure).
- Cabinet-mounted welded sub-assembly process fast loop with Swirlclean filter (60micro meter filter element), requires 1-2 gal/m (3.8 - 7.6 l/m) fast loop flow, bypass sampling loop set at 30-50cc/m, via metering valves adjustment and flow meter.
- Zellweger 4-wire HF Safety Sensor c/w 4-20mA output and beacon light (requires 24VDC supply)
- Recommended Pressure differential required for fast loop 25-35 PSIG.
- Sample has to be delivered to the sample system (sample cell) in a liquid phase (without bubbles)
- Maximal inlet pressure is 21 Bar (305 PSI).
- Sample system isolation valve remotely actuated via customer ESS (emergencies shut down system).
- Sample shut-off valve, remotely actuated via I/O in Analyzer.

Notes: A freeze protection heater may be ordered as option when lower ambient temperature installation is required (down to -20°C).

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