APPLICATION STORY

GE HygroPro Moisture Transmitter
Leading Olefins Manufacturers Rely on GE’s Moisture Transmitters for Producing One of their Key Products

Delivering competitive and sustainable olefins-based petrochemicals throughout the world, represents the primary mission for an olefins manufacturer. When the key focus area is the production and distribution of an industrial chemical, the best solutions are required to ensure the quality of the final product. Butadiene is used especially for manufacturing synthetic rubber and also thermoplastics, latex and various fibers. To keep up with global demand, the butadiene manufacturers need to produce over 10 million tons/year.

PROBLEM
Also known as 1, 3-butadiene (C4H6), butadiene is a colorless gas with a scent of gasoline and is usually produced in a large petrochemical plant (cracker), when petroleum products are burned. The process involves the separation of butadiene from a by-product of cracking, oil-based feedstocks using extractive distillation with a solvent that contains water. Since water can impact the quality of the final product (rubber) and also the probes used for producing it, the major challenge an olefins manufacturer encounters is to reduce, at the lowest level, the amount of humidity in butadiene.

A butadiene without any liquid water results in high quality rubber, and probe maintenance costs savings.

SOLUTION
In order to level the amount of humidity in butadiene and ensure that the dryers are working well, the most reliable moisture analyzers are needed. GE brings a solution that combines a technologically advanced aluminium oxide moisture sensor, with state-of-the-art software and electronics, for unequalled overall performance. The solution, GE’s HygroPro moisture transmitter, can be easily installed directly in the process stream or in a sample system and provides superior sensitivity, speed of response, calibration stability, and wide dynamic range.

PAYBACK
GE’s solution, designed specifically to meet the demands of rugged industrial applications, provides the highest standard of performance and value in industrial moisture measurement. GE HygroPro solves the issue of measuring moisture in butadiene easily:

- As a compact unit with great capability to measure moisture, temperature and pressure, GE HygroPro provides all measurement units in dew point, PPM, temperature and pressure that the customer needs in one place, while
meeting the installation requirements (hazardous area, climate etc.)

- With certified intrinsically safe electronics packaged in an IP67/Type 4X housing, the GE HygroPro is ideal for use in unstable settings, such as, pipeline natural gas and petrochemicals.
- The GE HygroPro’s replaceable probe (RTE) makes it easy for the customer to exchange because they don’t have to enter any calibration data; the meter does it all for them, thus, calibration data for the moisture and pressure sensors are stored locally in a non-volatile EEPROM in the RTE.
- GE’s moisture transmitter features an easy to use GUI, integrated backlit display and six-button keypad to provide viewing of up to three parameters simultaneously.
- The built-in multidrop capability allows multiple units to be connected on a single network.
- Real-time measurement is provided through a temperature thermistor and pressure transducer.
- All moisture probe calibrations are traceable to the NIST (National Institute of Standards and Technology).

**BENEFITS**

After installing GE’s moisture transmitters, an olefins manufacturer is able to ensure the quality of the butadiene produced and significantly improve the maintenance process.

- The rigor and quality that GE puts behind the moisture probes are valued by its customers – multiple calibrations to ensure superior, long term stability, and high standards on accuracy and repeatability.
- In the maintenance process, other vendors provide probes that were used for measuring moisture in different applications than the ones they received for recalibration. In opposition, GE’s Exchange Program for maintenance guarantees that each customer will receive a probe that was used in the same area as the one that needs to be recalibrated.
- GE’s impressing benefit, the moisture probe calibration service, a process where each aluminum oxide sensor is individually calibrated and all data is taken and stored by a dedicated computer system. In the meantime, calibrations are repeated numerous times, to determine the stability of each individual moisture probe. Only those probes that meet GE’s demanding specifications for accuracy and stability are then shipped back.
- GE has a rigorous approach to recalibration, which consists of cleaning contaminants from the probes, evaluating the data to assess stability in the application, storing data in the replaceable moisture probe (RTE) and then returning it to the customer with a new calibration data sheet.
- In addition to providing updated calibration data, GE reviews the calibration history of the moisture probe for unusual changes and contacts customers with feedback to ensure proper installation and to recommend adjustments in the calibration cycle.
- With the latest generation of GE HygroPros, an olefins manufacturer can measure all the levels they required using only one probe instead of six.

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