

Odor-Tech Improves Tank Inventory Management at Gas Blending Facility

RESULTS

- 17.5% improvement in tank inventory control
- Improved profitability
- Real-time inventory information in corporate accounting offices



APPLICATION

Wireless tank inventory management

CUSTOMER

Odor-Tech LLC, a division of Paris-based Arkema, is the largest mercaptan blended storage facility in North America, serving the U.S., Canada, and Mexico

CHALLENGE

Odor-Tech in Pineville, LA makes odorants for natural gas. These odorants are a safety precaution, as they give gas an unpleasant “rotten egg” smell to indicate its presence. Their customers may include a pipeline company or a gas company selling it to a homestead for the stove top or furnace. These odorants are known as mercaptan blends, and each blend is specific to the region in North America and Mexico, where it is being sold, to accommodate the slightly different compositions of natural gas.

The plant site, built nearly 13 years ago, is compact and contains 16 bullet tanks close together, ranging in size from 6500 to 30,000 gallons. Five tanks hold the five products that Odor-Tech blends, and the remaining eleven hold raw materials. Raw materials are delivered by truck to the plant site, and upon arrival are carefully metered with a Micro Motion® mass flow meter with Smart Wireless THUM Adapter into the bullet tanks.

Blending is carefully executed, on a mass basis, directly into the product tanks using another Micro Motion mass flow meter to ensure high product quality. A gas chromatograph checks the final product composition before it is loaded into the trucks and sent to the customer. All six trucks also have a Micro Motion mass flow meter for custody transfer. “We have been blending by mass with the Micro Motion units for 10 years,” said Jody O’Neal, Operations and Logistics Manager at Odor-Tech. “Only one blend was proven to be off-spec by the gas chromatograph, and that was because the raw material was discovered to be off-spec.”

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Jody O’Neal

Operations and Logistics Manager
Odor-Tech



Rosemount 5300 Guided Wave Radar transmitters provide high performance level and volume measurements that are not impacted by changes in density. Smart Wireless THUM adapters seamlessly communicate to a PC in the plant, as well as in corporate offices in Philadelphia and Paris, France.

Although blending control and custody transfer has been mastered, a major challenge for the plant was inventory control. Magnetic float gauges were purchased ten years ago to indicate level in both the product and raw material tanks. Manual level readings were taken once a week, manually converted to volume using a strapping table, and then converted to mass using a constant value for density. The inventory, on a mass basis, was then phoned to a corporate location in Philadelphia. Each month the corporate SAP system that recorded the raw material purchased and the product sold (as measured by the Micro Motion flow meters) would calculate the inventory that should be remaining. This was compared to the inventory readings inferred weekly from the float gauge level measurements.

Unfortunately, the mechanical float gauge measurements were affected by temperature-induced density changes, and in some cases the mass calculations for inventory would be off by as much as 20%. The plant was required to write-off the difference as a loss when inventory calculations fell short (but no similar advantage when it would swing the other way), which directly impacted the bottom line for that site. Odor-Tech wanted to improve tank level measurements to minimize errors in inventory bookkeeping and optimize the bottom line.

SOLUTION

The customer purchased 14 Rosemount 5300 guided wave radar level transmitters connected to Smart Wireless THUM adapters for high performance (+/- 3 mm) wireless level and volume measurements to improve inventory control and accounting. The radar gauges have built-in strapping tables that automatically calculate volume and provide wireless input for mass calculations. Unlike float gauges, radar devices are completely immune to fluid density changes. Seasonal temperature fluctuations no longer impact the raw material and finished product level and inventory measurements.

At the same time, the Micro Motion units in the plant (not on the trucks) were also fitted with the Smart Wireless THUM adapters. The 16 THUM adapters form a wireless mesh network that communicates to a Smart Wireless gateway, which is wired to the plant network. The gateway communicates via OPC to an Access program running in a PC. "We installed, wired, powered, and engineered the system without any help," said O'Neal. "We cut out a lot of man hours and equipment. Wireless THUM adapters made installation of our radar transmitters a lot faster and easier."

Now Odor-Tech has better inventory control of the 16 bullet tanks that house raw materials and blended mercaptan products. "We are down from 20% to a 2.5% swing in inventory as compared to the SAP system," said O'Neal, "and this is mostly due to temperature variance, as the liquids expand in the heat and contract in the cold. The 17.5% performance improvement has directly improved profitability." "This has completely automated our inventory tracking," added O'Neal. "Before we would read the tanks manually and call them into the office. There is nothing subjective now; our corporate offices are much happier."



A corporate SAP system calculates inventory levels based on Micro Motion mass flow custody transfer measurements for incoming raw materials and out-going products.

RESOURCES

Rosemount 5300 Series

<http://www2.emersonprocess.com/en-US/brands/rosemount/Level/Guided-Wave-Radar/5300-Series/Pages/index.aspx>

Emerson's Smart Wireless

www.emersonprocess.com/smartwireless

Micro Motion Coriolis Flow

<http://www.micromotion.com/chemical>

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Emerson Process Management
Rosemount Incorporated **Micro Motion Incorporated**
8200 Market Boulevard 7070 Winchester Circle,
Chanhassen, MN 55317 USA Boulder, CO 80301
www.rosemount.com www.micromotion.com
Tel (USA) +1 800 522 6277
Tel (International) +1 (303) 527 5200
Fax +1 (303) 530 8459