

AkzoNobel improves storage tank heating control and gas vent monitoring using Smart Wireless technology

RESULTS

- Ensured final product met customer requirements
- Lowered operating costs by significantly reducing steam consumption
- Improved operator efficiency by eliminating need for manual readings
- Saved approximately €180,000 related to cabling and DCS changes
- Reduced cost of implementing future measurement points



APPLICATION

Storage tank heating control, gas venting pipe monitoring

CUSTOMER

AkzoNobel – Ghlin (Mons), Belgium

CHALLENGE

Existing manual measurement and control methods were unsatisfactory for maintaining the temperature of fatty nitriles and amines in the 40 tanks where they were stored before shipment to customers. Too much steam was sometimes used to heat the materials, and a number of customers complained that delivered product was too hot.

In addition, corporate guidelines and new environmental legislation required monitoring and controlling all gas emissions. Existing procedures for detecting potential problems required an operator to make regular trips into the field to take ‘snap-shot’ readings from pressure gauges on the tank farm’s venting conduits. This was time-consuming and failed to provide continuous and immediate information.

Additional thermal measurements were required from within same the venting conduits to help prevent potential fires arising from high temperatures. An important issue was the short timeframe available to install new devices to obtain these additional measurements.

All three applications would benefit from automated measurement or control technology, but a lack of cable infrastructure, shortage of available I/O, and tight budget constraints made traditional wired solutions impractical.

“We were particularly impressed by the number and range of existing implementations of Smart Wireless around the world. Emerson’s experience was far in front of other vendors, and this experience gave us great confidence with our own application.”

Nicolas Delfosse
Process Engineer Surface Chemistry
AkzoNobel

SOLUTION

AkzoNobel met these challenges by installing Emerson's Smart Wireless technology, which is based on the IEC 62591 (*WirelessHART*[®]) standard. This solution removed the need to install new cable infrastructure. No modification of the existing control system was required. Wireless data is fed, via a gateway, directly into the DCS using Modbus communications - without consuming any I/O.

Four Emerson Rosemount[®] *WirelessHART* temperature transmitters were installed to control the temperature on a number of tanks. Measurement data is transmitted every minute to the DCS, which controls a simple On/Off steam valve. Temperature can now be maintained using this wireless closed-loop control. Operators simply insert the product type and quantity into the DCS and the appropriate heating and temperature levels are already preconfigured. Automating this process has allowed operators to focus on higher value tasks. Much tighter control has reduced steam consumption, lowering operating costs, while helping to ensure that customers receive product at the right temperature.

Within the gas venting application ten Rosemount *WirelessHART* pressure transmitters have replaced the manually read gauges. The resulting continuous pressure data has enabled AkzoNobel to meet corporate and government legislation. Blockages can be identified immediately and quickly solved by flushing the vents. Three Rosemount *WirelessHART* temperature transmitters provide the required thermal data and will raise an alert should levels rise above preset limits. Automating the measurements has further improved operator efficiency.

AkzoNobel estimate overall savings from adopting a wireless solution instead of installing cabling and making changes to the DCS to be approximately €180,000. The wireless network has also created an opportunity for installation savings every time a device is added in the future. AkzoNobel now intends to upgrade the temperature gauges on all 40 storage tanks. The company is also considering using the existing wireless network for tank overspill protection, monitoring condensate levels within a drain switch system and even monitoring valve position to ensure against tank filling errors.



“Wireless offered the opportunity to add new devices to the network quickly and at little cost compared to wired devices. Adding devices is so simple that I would describe the Emerson Smart Wireless solution as `plug and play.”

Nicolas Delfosse
Process Engineer Surface Chemistry
AkzoNobel

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