

Koppers Enhances Safety and Improves Reliability Using Emerson's Wireless Solutions for Pollution Control

RESULTS

- Installation achieved in a timely manner
- Solved specific mechanical engineering challenges
- New tank vent lifting detection installed



APPLICATION

Pressure and vent lift monitoring of 50 storage tanks containing hydrocarbon products with some at high temperatures.

CUSTOMER

Koppers Carbon Materials and Chemicals is a worldwide supplier of carbon pitch and coal tar distillates. Koppers continually works to improve the performance of its Newcastle plant by implementing pollution reduction programs in consultation with the Environment Protection Authority (EPA).

CHALLENGE

As part of its pollution reduction program Koppers added tank vent lifting detection, including sensitivity in the tens of milliseconds. A similar solution was found but did not meet the high speed and minute movement detection requirements.

SOLUTION

Emerson's *WirelessHART*® infrastructure and *GO*™ Switch sensors:

- Rosemount™ 702 Wireless Discrete Transmitter (digital input, option code 32, detects momentary inputs from a dry contact switch), Rosemount 2051 Pressure Transmitters, Emerson 1410 *WirelessHART* Gateways, training and commissioning
- Items for four tanks supplied urgently as an initial trial
- Koppers developed a unique mechanical amplification system to detect the micro movement coupled with TopWorx's *GO* Switch

Ease of installation helped Koppers meet deadline for Tank pressure and high speed vent lift detection.



Rosemount 2051 Wireless Pressure Transmitter and Rosemount 702 Wireless Discrete Dual Input Transmitter

CHEMICAL

When the tank vent lifts, a mechanical arm amplifies the movement across its pivot point to where a dry contact GO Switch operates. The contact state change is detected by the Rosemount wireless device where it is stored and then transmitted to the receiver. From there, the information is sent to the site control system for operator action and data storage.

Due to the criticality of the application, Koppers installed redundant gateways and dedicated UPS. They also added Rosemount 2051 WirelessHART Pressure Transmitters that may offer pre-warning of any potential lift or as a validation that the lift was possible. These pressure transmitters were installed via a unique assembly that enables rodding of the sample line and allows process condensate to drain back into the process.



An in-house designed mechanical movement amplifier that enables minute vent lifts to be detected by the Emerson GO Switch and Rosemount 702 Wireless Discrete Transmitter.

RESULTS

The initial delivery of the products and easy installation/configuration enabled Koppers to commission the first four tanks quickly. The remainder of the units were installed consistent with project timelines.

RESOURCES

Emerson Automation Solutions Industries

[Emerson.com/Chemical](https://emerson.com/Chemical)





Rosemount 2051 Wireless In-Line Pressure Transmitter

[Emerson.com/Rosemount-2051-Wireless-Inline](https://emerson.com/Rosemount-2051-Wireless-Inline)

Rosemount 702 Wireless Discrete Dual Input Transmitter

[Emerson.com/Rosemount-702-Wireless](https://emerson.com/Rosemount-702-Wireless)

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