

Chemical Supplier Improves Measurement Reliability with Radar Level Transmitter

RESULTS

- Increased reliability and process availability
- Repeatable and accurate measurement
- Minimal time required for upgrade



APPLICATION

Adhesive Cooling Tank

Application Characteristics: 19.8 ft. (6 m) high tank; viscous, sticky fluid with vapors that leave a sticky coating

CUSTOMER

Casco Adhesives, Kristinehamn, Sweden

CHALLENGE

Casco Adhesives is a chemical processing facility that manufactures different kinds of resins for various applications, including wood beams, floors, furniture and paper bags. Resin is a formaldehyde-based, viscous and sticky product that tends to coat and solidify on any surface it contacts.

The process involves many steps, including batch reactors, cooling tanks and buffer tanks, where the resin is produced by mixing different solvents prior to shipping. This application refers to the cooling tank. This tank is filled from the top which creates turbulence and splashing. During the continuous cooling process, both condensation and vapor are present.

Unfortunately, due to turbulence created when filling the tank, the fluid characteristics, and the presence of vapors and condensation generated through heating and cooling the tanks, it was difficult to obtain a reliable measurement. These process characteristics resulted in lost signals and erroneous readings with the existing ultrasonic devices.

SOLUTION

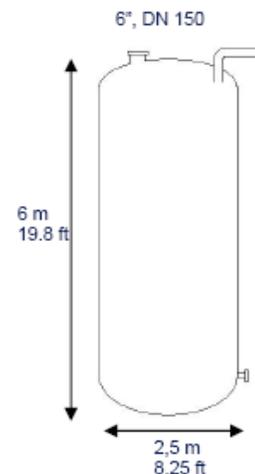
The Rosemount 5402 Radar Level Transmitter with a four inch cone antenna was installed at the top of the reactor tank. As a two-wire device, the Rosemount 5402 was the only radar level transmitter to provide Dual Port technology for transmitting and receiving signals. This unique feature provided a stronger signal, and thus, a more reliable level measurement and increased process availability. The Dual Port technology also enabled

Details

Height: 6 m (19.8 ft.)

Temperature: Starts at 50°C (122°F) and cools to 20°C (68°F)

Pressure: Ambient



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greater safety margins during changing measurement conditions such as calm to turbulent surface conditions. In addition, the unique design of the antenna minimized the impact of condensation build up caused by vapors in the process which can adversely affect other radar designs, especially those with a high frequency signal.

The non-contacting technology of the Rosemount 5402 was easy to install and configure for the application using the wizard feature of the Radar Master Software. This made the upgrade from ultrasonic to radar both easy and fast. Since its installation, the Rosemount 5402 has performed perfectly during filling, emptying and cooling of the product. With a reliable level measurement, the lost signal and erroneous readings with the previous technology were eliminated, resulting in increased process availability and repeatable measurements.

RESOURCES

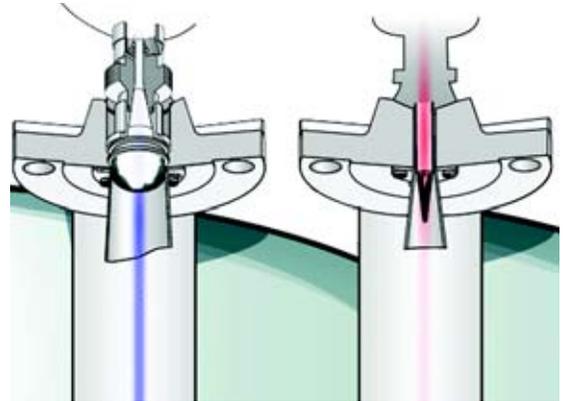
Rosemount 5400 Series

<http://www.emersonprocess.com/rosemount/products/level/m5400.html>

Emerson Process Management's Chemical Solutions Web Page

<http://www.emersonprocess.com/solutions/chemical/>

The problem was solved by installing a 5400 with four inch cone antenna with a 4-20 mA HART output.



The cone antenna design of the 5400 (left) is more resistant to condensation build-up. Combining the low frequency microwave signal with dual port technology and the condensation resistance delivers a reliable measurement.

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