

Chemical Plant Successfully Measures Caustic Application with Non-Contacting Radar

RESULTS

- Eliminated maintenance of measurement device
- Improved accuracy and reliability of tank level readings
- Minimized startup time



APPLICATION

Caustic Soda, 30% in water

Application Characteristics: 9.2 ft. (2.8 m) high buffer tank; corrosive, condensing vapors; continuously mixing

CUSTOMER

Chemical plant in France

CHALLENGE

A chemical plant sought a reliable solution to replace a capacitance probe on caustic soda; the capacitance probe had caused problems due to an erratic output. The probe required frequent recalibrations, resulting in high maintenance costs.

The capacitance probe was installed on a continuously mixed buffer tank. Temperature changes cause condensation on the top of the tank. The available process connection is a DN80 flange, at 8-in. (200mm) from the wall.

The user needed a reliable measurement in all conditions to avoid causing issues with the rest of the process.

SOLUTION

A Rosemount 5400 Radar Level transmitter was installed on top of the tank. The 5400 was chosen because its high frequency allowed a 3 inch cone antenna to be used. The 3 inch cone antenna was necessary due to the tank's small connection size. Designed for rugged industrial environments, the 5400 Series met all quality requirements from the plant with its standard die cast aluminum head and stainless steel for all other parts.

Within 30 seconds after power up the 5400 was measuring the distance to the product.

Delivered with the transmitter is the configuration software tool, Rosemount Radar Master. Without any previous training, the maintenance engineer was able to set up the Rosemount 5400 within 5 minutes. Radar



Master provides a comprehensive wizard to guide the user through the full setup in 5 easy steps.

Two features contributing to the success of the Rosemount 5400 in this application are its condensation resistant antenna and echo-tracking capabilities. The high echo tracking capacities of the 5400 allows it to track the signal in all situations of the process including mixing and within a close distance from the gauge. Usually, condensation on a 26GHz Radar will quickly block signal transmission. With its unique condensation resistant antenna, the 5400 can still measure during wintertime when condensation is most likely to occur.

Reliability, no maintenance, quality product, and easy configuration: all these points were decisive in providing the right solution to meet the customer's needs.

RESOURCES

Rosemount 5400

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

Emerson Process Management's Chemical Industry Page

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



The condensation resistant antenna can tolerate more condensed vapors than standard 26 GHz radar gauges.

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