

Guided Wave Radar Successfully Measures Level of Dusty Powder

RESULTS

- Reduced maintenance costs by eliminating periodic cleaning
- Increased efficiency in filling
- Increased availability due to fewer false readings
- Increased safety to employees and environment by avoiding overflows



APPLICATION

Level of Urea Powder

Application Characteristics: Very dusty powder, steep angle of repose, dielectric of 2.9 to 3.5, silo height 6.6 ft (2 meters)

CUSTOMER

Fertilizer Company, India

CHALLENGE

One of India's pioneers in the fertilizer industry was experiencing difficulty in measuring the level of urea powder in 6.6 ft (2 m) silos. The urea powder is continuously bagged in 110 lb (50 kg) units. The bagging rate is extremely fast and the feed rate has to be carefully controlled so that the Urea silo does not overflow.

In this application, there are 6 silos. All of them have to be operated simultaneously and require high efficiency to meet customer demands. Any downtime due to faulty equipment results in lost revenue and late customer shipments

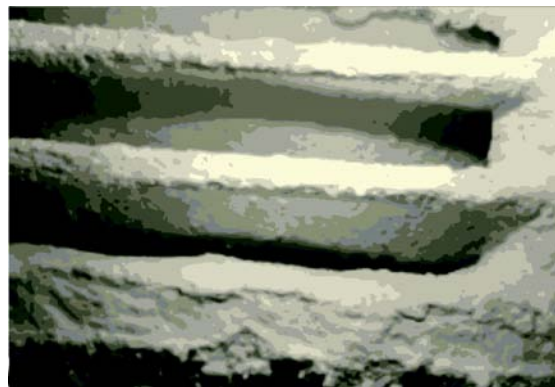
It is also important to avoid overflowing the silos. The result would expose employees to the dust and the smell of ammonia. The customer requires a solution that is highly reliable in this application to protect the safety of the employees and environment.

The customer initially tried a non-contacting radar with a PTFE dust cover to try to avoid having the urea powder cling to the antenna. However, PTFE protective cover was no match for the urea powder. The result were false echoes and a weak signal from the steep surface.

SOLUTION

The Rosemount 3301 Guided Wave Radar for level with a single flexible lead was subsequently chosen for this application. The low frequency microwave pulses were able to successfully measure the level through the dust in the silos.

By choosing the Rosemount 3301 Guided Wave Radar, this customer experienced increased bagging efficiency, reduced maintenance costs, and improved safety for the environment and employees.



The application is very dusty and tends to have powder deposits everywhere.

ROSEMOUNT

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www.rosemount.com


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The flexible lead, being only 0.16” (4 mm) in diameter, was chosen because it is resistant to coating. The weight at the bottom of the cable ensures it will remain suspended and will not contact the silo walls.

The false echoes reflected from the urea surface were reduced by choosing the guided wave radar technology. A tank plot from the Radar Configuration Tool (RCT) clearly shows the very distinct, strong level signal. By choosing the Rosemount 3301 Guided Wave Radar, this customer experienced increased bagging efficiency, reduced maintenance costs, and improved safety for the environment and employees.

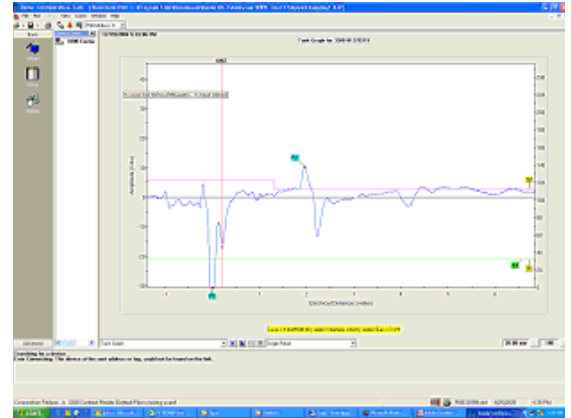
RESOURCES

Rosemount 3300

<http://www.emersonprocess.com/rosemount/products/level/m3300.html>

Rosemount Technical Note - Guided Wave Radar in Solid Level Applications

Document Number: 00840-2300-4811



The RCT Tank plot shows the very distinct, strong level signal.

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