

Guided Wave Radar Automates Level Measurement of Lime Silo

RESULTS

- Minimized maintenance of instrumentation
- Continuous and reliable on-line level readings
- Increase in safety of personnel
- Enabled efficient inventory management

APPLICATION

Quicklime (Calcium Oxide) storage silos.

APPLICATION CHARACTERISTIC

White, fine powder with a low dielectric (2.0); Silo height of 10 m (33 ft.); Dusty application that can build up on the silo walls and is an irritant to skin and eyes.

CUSTOMER

AarhusKarlshamn, Sweden AB.

CHALLENGE

AarhusKarlshamn produces value-added fats from an environmentally-friendly base of vegetable oils. These are used in products such as food, cosmetic, pharmaceutical ingredients, Binol, fatty acids, glycerin, and animal feed. Quicklime purifies the water used in production and if the lime supply runs out, the water cannot be adequately cleaned and production must stop. If AarhusKarlshamn can plan lime purchases, the company can have better control of the process flow.

To determine when to refill the two silos, an electromechanical level measurement device was used. As dust build-up increased, the device would become unreliable and require frequent maintenance, exposing personnel to hazardous lime dust. The customer wanted to automate the measurement for personnel safety as well as time and cost savings.

SOLUTION

The Rosemount 5300, a high-performance Guided Wave Radar product, replaced the electromechanical device in the spring of 2007. The Rosemount 5300, with a flexible single probe, is designed especially for solids.



The Rosemount 5300 provides reliable measurement of quicklime, while minimizing personnel exposure to the product.



The Quicklime silos, pictured in the front on the right, are used in the process of purifying the water used in production.

ROSEMOUNT

For more information:
www.rosemount.com


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SOLUTION (CONTINUED)

This was a challenging measurement for many level devices because of the dust and clumping nature of the quicklime, combined with the low dielectric constant and silo height. Guided Wave Radar works well in dusty environments, but the combination of low dielectric and silo height limits the range. The Rosemount 5300 uses direct switch technology (DST) that provides a much stronger signal over longer distances than standard Guided Wave Radar units. It also has a probe end projection (PEP) function, which uses the probe end reflection and the dielectric constant of the media to calculate surface position of the echo, if it is not available or is indistinguishable from noise echoes.

The customer had been using Rosemount Radar Master (RRM) software with other Rosemount radar products and was pleased to see that the 5300 used the same software tool. The Rosemount Radar Master setup software provides easy configuration through user friendly interface wizards, echo curve with movie features, and logging capabilities.

By using the Rosemount 5300, AarhusKarlshamn knows exactly how much inventory is available for production, with a level measurement that eliminates maintenance, so personnel are no longer exposed to irritating quicklime.

RESOURCES

Rosemount 5300:

<http://www.emersonprocess.com/rosemount/products/level/m5300.html>

Rosemount Technical Note - Guided Wave Radar in Solid Level Applications, Document Number 00840-2300-4811



The Rosemount 5300 was easily installed into the existing opening, and set up with the user-friendly Rosemount Radar Master.



The Rosemount 5300, with its advanced Guided Wave Radar features, reliably measures the lime levels, and is maintenance free even in the dusty environment of the lime silos.

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