

# Ceramic Manufacturer Improves Safety and Availability with Innovative Guided Wave Radar

## RESULTS

- Decreased safety risks
- Increased availability of silo
- Reduced operations costs



## APPLICATION

Ceramic Pellets Silo

## CUSTOMER

Ceramic Manufacturer in United States

## CHALLENGE

A ceramic manufacturing plant had difficulty monitoring the inventory of their ceramic pellet silos. These pellets, called proppants, are sold to oilfield service companies and injected into wells during hydraulic fracturing operations. The proppant holds the formation fractures open and thereby increases well productivity. After manufacturing the ceramic pellets, they are stored in tall (60-ft.) silos and eventually loaded into rail cars for distribution. Reliable level measurement is critical for silo inventory management in order to optimize the availability of silo space and schedule rail cars.

Previously this customer had tried a non-contacting radar transmitter, and later, a laser level device. Due to the low reflectivity of ceramic ( $DC = 1.7$ ), the non-contacting radar transmitter had trouble locking onto the level when the level was below 50%. The laser device proved unreliable, because the dust generated during product loading prevented the laser from identifying the level for at least an hour after the loading was complete. This customer wanted a level measurement to reliably monitor level throughout the entire silo.

Without a reliable level measurement, the plant incurred additional labor cost by having to regularly send maintenance technicians to the top of the silos during periods of drawdown. This was done to assure that there was adequate product available for rail car loading. The additional labor meant increased safety related risk in physically climbing the stairs to the top of the silos. Lastly, the lack of level control negatively impacted this customer by not allowing them to efficiently schedule rail cars.

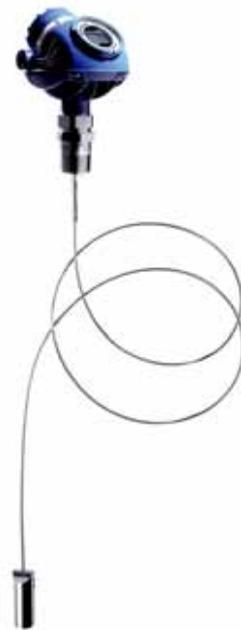


Figure 1. Rosemount 5300 with flexible lead probe.

## SOLUTION

To solve this customer's problem, Rosemount supplied a Rosemount 5303 Guided Wave Radar for a trial test on one of the ten silos. Immediately, it was evident that this was the best solution as the reported level closely followed the manually measured level. Most notable was that the Rosemount 5300 did not lose the level signal during periods of product loading into the silo. With the added functionality of the Rosemount 5300 Probe End Projection activated, this customer was able to accurately measure level of this very low dielectric product.

This customer experienced many positive business outcomes from the success of the Guided Wave Radar level measurement. Safety risks were minimized by eliminating maintenance trips to the top of silo. In addition, the reliable level measurement allowed for increased utilization of the silo capacity. The Rosemount 5300 also improved efficiency of rail car loading and reduced operations costs, because the customer always knew in advance when to switch to a different loading silo. This customer was so delighted with the solution that they decided to standardize on Rosemount Guided Wave Radars for other silo measurements.

## RESOURCES

### Rosemount 5300

<http://www.emersonprocess.com/rosemount/products/level/m5300b.html>

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