

Unipac Brazil Improves Level and Volume Measurement in Plastic Pellet Silos using Rosemount Guided Wave Radar

RESULTS

- Increased production uptime due to local display and continuously reliable level measurement even with low dielectric solid
- Increased control of production orders due to accurate inventory management
- Labor savings due to continuously reliable level measurement



APPLICATION

Plastic Pellet Silos

APPLICATION CHARACTERISTICS

Low dielectric constant, varying surface characteristics and static charges

CUSTOMER

Unipac Brazil

CHALLENGE

Unipac has five 10 meter (32 ft. 10 in.) tall silos for storing plastic pellets. They were facing problems with their existing ultrasonic level transmitter. Unipac was getting false alarms during filling or discharging a silo which would interrupt their process. Additionally, they were getting incorrect readings which caused significant drifts between reported and actual level measurement on the order of 3% or 810 kg (1800 lbs) per silo. This measurement drift made for unreliable inventory and Unipac was experiencing production holds due the lack of raw material. Their backup measurement method was sight glasses located in three spots on the silo, which was also not very accurate. Because of the unreliable level measurements, Unipac was doing daily inventory checks on the pellets.

Unipac also needed user friendly local indication which would let them know the volume of pellets available in the five different silos and could give high and low level alarms.

The Rosemount 3490 controller provided local indication for the Rosemount 5300 Guided Wave Radars and also enabled audible high level alarms to prevent over-filling of the silos.



Truck filling the silos

ROSEMOUNT

For more information:
www.rosemount.com

SOLUTION

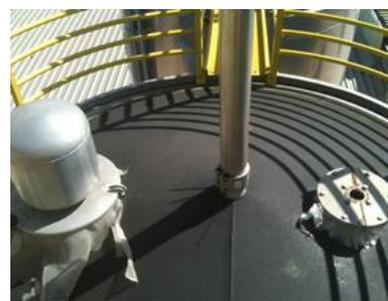
When Unipac started looking for a solution, they were concerned with using a contacting level measurement because of the potential for static build-up from the plastic pellets. Because Emerson had experience with applications like this, Unipac was able to follow the recommended installation best practices and minimize the effects of static discharge while using a contacting level measurement.

The Rosemount 5303 Guided Wave Radar for Solid Measurement and the Rosemount 3490 Programmer were able to handle the application needs for Unipac.

The Rosemount 5303 includes a feature called Probe End Projection. It allows for continuous measurement in the full tank range, even when there is low or no reflection from the surface of the material due to a very low dielectric constant of that material. Probe end projection uses the known distance of the end of the guided wave radar probe and the electrical shift of that location to calculate the actual product level.

Due to the reliability of guided wave radar measurements the operator now has a better control of the production orders, reducing drifts in the inventory to less than 1% or 270 kg (600 lbs) per production order. Unipac has 5 silos with capacity of 27,000 kg (60,000 lbs) each and the loading happens once a week. Unipac eliminates the inventory drifts by approximately 2700 kg (6000 lbs) per week and, with a reliable measurement, daily manual checks of the tank measurements are no longer needed.

The Rosemount 3490 controller has allowed Unipac to have a local display of the volume for the five storage tanks and also enabled local audible alarms they can use when filling or emptying the tanks, additionally protecting Unipac from product losses or interruptions in their production.



Top of the silo (fill tube in center)



Rosemount 3490 controller used for local display and alarms

RESOURCES

Emerson Process Management Chemical Industries

<http://www2.emersonprocess.com/en-US/industries/Chemical/Pages/index.aspx>

Rosemount 5300 Series - Superior Performance Guided Wave Radar

<http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00840-2700-4811.pdf>

Rosemount 3490 4-20 mA and HART® Compatible Control Units

<http://www2.emersonprocess.com/en-US/brands/rosemount/Level/Ultrasonic-Transmitters/3490-Universal-Control-Unit/Pages/index.aspx>

Installing GWR in high static environments:

<http://www2.emersonprocess.com/siteadmincenter/PM%20Rosemount%20Documents/00840-2700-4811.pdf>

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