

Asphalt Plant Reduces Safety Risk and Eliminates Waste with Guided Wave Radar

RESULTS

- Reduced safety and health risks
- Eliminated product waste
- Reduced operations cost



APPLICATION

Jacketed mixing tank blending hot asphalt and rubberized pellets

Application Characteristics

High temperature and heavy vapor (toxic) content

CUSTOMER

Asphalt plant in Iowa, USA

CHALLENGE

This plant is manufacturing poly modified asphalt product used for different road surfaces. A jacketed mixing tank is used to blend hot asphalt and rubberized pellets using a rotary impeller. The correct ratio of asphalt and rubberized pellets is needed to obtain the desired properties of each final product. The manufacturer needed better control of the ratio of asphalt to rubber to avoid producing off-spec product.

The quantity of each material loaded is controlled by measuring the level in the tank as it is charged. The level was manually measured through an access port at the top of the tank. There was no process penetration below the vessel for hydrostatic measurement and most top down technologies are susceptible to failure due to mechanical clogging from the process materials, or errors caused by the presence of heavy vapors.

These issues led to several negative business results. Safety and health of personnel were at risk due to exposure to splashing and heavy toxic vapors when manually checking the tank level during tank charging. Inaccurate level measurement during charging led to off-spec product that needed to be disposed of as waste. Personnel productivity decreased as time was used to check tank levels, potentially delaying work on other tasks.

Rosemount 5301 improves personnel safety by reducing exposure to process materials.



Figure 1: Installed Rosemount 5301

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SOLUTION

Rosemount's 5301 Guided Wave Radar with a single rigid probe was tested on a consignment basis. This top down direct measurement technology is unaffected by vapor and turbulence. There is close to zero maintenance as residue does not continually build up on the probe. This eliminated the need to clean the probe and recalibrate the device. Radar Master Software simplified setup, even allowing a second tank to be fitted and configured over the phone in a minimum amount of time.

Installation of Rosemount 5301 Guided Wave Radar has significantly reduced safety risks as personnel are no longer exposed to splashing materials and toxic vapors. The accuracy of the level measurement also eliminated off-spec product. This reduced waste and disposal costs. Finally, operation cost was reduced by eliminating the need for manual level measurement and probe maintenance so personnel were freed up to do more productive tasks.

RESOURCES

Emerson Process Management Chemical Industry

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

Rosemount 5300 Series Guided Wave Radar

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

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