APPLICATION REPORT

Minerals & Mining

Level measurement of glass granulate in silos

- Preventing discharge during batch filling
- Stable measuring signal thanks to measurement technology with guided radar TDR

1. Background

Glass beads and microglass beads are used as reflective beads in road marking systems (e. g. for the white asphalt markings) or as blasting agents for dental laboratories. In an upstream process step, Vestische Strahl- und Reflexglas GmbH (SWARCO-Vestglas) manufactures glass granulate in a variety of grain sizes where the finest of the grains is practically dust. The granulate is collected in several silos. Depending on the customer and application, a batch is generally made up of different grain sizes.

2. Measurement requirements

If a silo suddenly runs empty during filling, the batch cannot be sold and must be disposed of as waste. For this reason, the silos must be continuously monitored. Based on experience with level meters of other providers, the operators attaches great importance to the stable and repeatable measurement of glass granulate (grain sizes between 600 and 1500 micron) without "jumps" in measured values.

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3. KROHNE solution

A total of 8 OPTIFLEX 1300 level meters were installed. The devices function according to the TDR principle of guided radar. The cable probes were attached at the lower end of the silo to prevent them from "floating up" to the product. The measured values are transferred via 4...20mA HART to the control system.

Prior to deciding in favour of TDR, non-contact FMCW radar level meters were tested. However, due to the properties that the product takes on during the formation of material cones (density, almost smooth surface of the material cone), and the associated reflection scattering, they could not provide a stable signal.

Level measurement of glass granulate using the OPTIFLEX 1300

4. Customer benefits

The measuring requirements were met using the OPTIFLEX 1300. The customer was impressed by the measurement stability and repeatability. The device measures the level perfectly for all granulate sizes. Continuous measurement informs about product supply in the silos at any time, thus preventing incomplete batches.

Glass granulate silos at Vestglas

5. Product used

OPTIFLEX 1300 C TDR guided radar level meter

- Universal level meter for liquids, pastes, slurry, powder and granulates
- Easy installation and commissioning
- Maintenance-free
- Specific factory calibration for high accuracy and repeatability

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