

# Measuring PVC Powder Levels at Anglian Windows

Case Study • 2001



# chemical

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## Challenge

Anglian Windows, headquartered in Norwich, is the UK's number one home improvements business. With more than 30 years in business, Anglian has established a leading market position and earned a reputation for top quality, energy-efficient windows, doors and conservatories.

To ensure smooth production, Anglian wanted an effective way to measure the level of PVC powder, one of its main production ingredients. PVC is stored in three 12.5 metre high aluminum silos, each holding up to 60 tonnes of material. Ingredients from the silos are supplied to the hot mix process to produce the final product for extrusion.

The powder is similar in consistency to talcum powder and is notoriously difficult to monitor. The company needed an effective measurement technology for this application to prevent material shortages that could affect production.

## Solution

Anglian found an answer in Milltronics® Mercap®\* level measurement instruments. Mercap uses a unique frequency-based approach to capacitance technology that outperforms conventional devices. Its patented Active-Shield technology isolates the active shield portion of the probe from an active measurement section (the sensor). The measured signal is connected to the

active shield portion of the probe, effectively eliminating the electrical potential difference between the shield and the measurement section. As a result, the probe is not affected by changes in vapor concentration, material build-up, dust or condensation. This means reliable, accurate level detection, even in demanding conditions.

For this application, Mercap units with 10.5 metre cable-style probes were mounted horizontally in the lower part of each silo to monitor the level of PVC powder. The cables are attached to the probe and secured vertically inside the silos monitoring levels to the top. The powder forms a dielectric between the silo wall and the probe, and the resulting capacitance value is converted by the Mercap unit to a signal which is proportional to the level of the silo contents.

The electronic transmitter, housed in an explosion proof enclosure, converts the change in capacitance resulting from the change in product level into a standard 4-20 mA or HART process signal. Output from the Mercap units feeds directly into the plant's SCADA system, providing operators with easy access to continuous monitoring data. The system automatically reorders materials when levels reach a setpoint.

On an adjoining silo containing calcium – another production ingredient – the problem of rat holing made continuous level measurement impossible. To address this weighing challenge, they use four

Milltronics Applied Weighing Safe Mount load cells to weigh the silo, which has a capacity of 40 tonnes.

## Benefits

"The Mercap system achieved accurate results from the moment it was installed and has gone on to prove the system's reliability," says Mark Dobson, Continuous Improvement Engineer at Anglian Windows. "Our suppliers are updated every half an hour via a fax modem to ensure timely deliveries to our site for the replenishment of stock."



*Milltronics Mercap measures dusty PVC powder levels to ensure maximum production efficiency at Anglian Windows.*

\*SITRANS LC 500 has replaced Milltronics Mercap.