Effective pH monitoring pays off in the chemical industry

William Blythe makes efficiency and cost savings with Memosens

Lewis Gregson

Convenient offline calibration is possible with Memosens

William Blythe delivers speciality chemical solutions to customers in markets as diverse as life sciences, performance coatings, polymers, electronics, catalysts and renewable energy. Founded in 1845 in Accrington, Lancashire, William Blythe pioneered the development and application of inorganic chemistry for demanding applications and is one of the longest surviving chemical businesses in the UK. Backed by its parent company, Synthomer plc, and a network of external institutions, William Blythe supplies chemicals and advanced materials to companies around the world.

"Advice from Endress+Hauser allowed us to cut down on spending drastically."
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Electrical Engineer
William Blythe

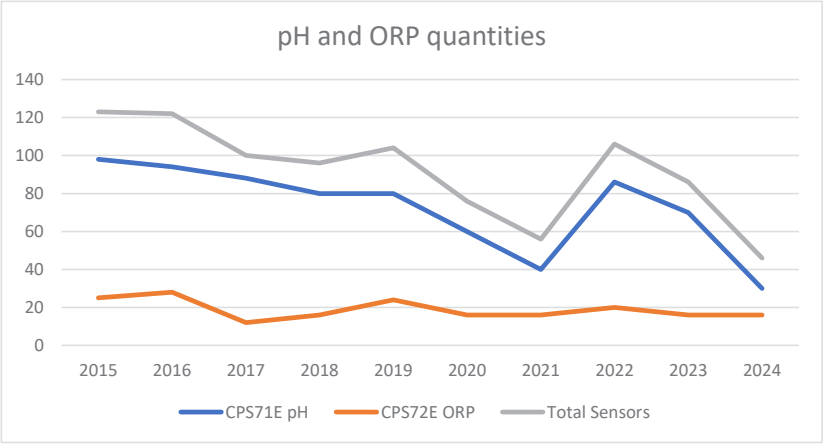
The challenge William Blythe's portfolio features tin, copper and iodine compounds that are used in a wide range of markets. One major growth area is in the polymer additives market, with the company offering flame-retardant synergist products under the brand Flamtard. The key systems that this can be applied to are PVC-based compounds, where tin and zinc interact with the halide in both condensed and vapour phases to prevent fire and lower smoke. Careful monitoring of the pH values in the process is required to achieve the performance required by William Blythe's customers, but the pH sensors being used were failing more frequently than in other applications.

"We noticed that we were getting through a lot of probes," explains Electrical Engineer Lewis Gregson. "The other plants seemed very stable but the Flamtard process, which is a corrosive atmosphere, was causing problems. Because it's a quality issue, we need the pH measurement to be right."

The solution In 2022/23, advice was sought from Endress+Hauser and the type of probe was changed to the digital pH sensor Memosens CPS71E. The sensor measures reliably even in extreme pH ranges or hazardous areas. The completely sealed inductive connection prevents moisture ingress and Memosens 2.0 digital technology enables best-practice offline calibration as the data is stored in the sensor. This increases process safety, simplifies operation and minimises downtime.

The engineers at William Blythe were also given advice about sensor maintenance. "We use mild hydrochloric acid to clean the probes but the application specialist at Endress+Hauser told us to then leave them in potassium chloride solution to regenerate overnight before using them again. We found that started working with a lot less probes failing and coming back," says Lewis Gregson.

The pre-calibrated sensors are then simply replaced in the process as



The number of pH sensors used has been cut by almost two thirds


Memosens sensors in the process

required, without the need for awkward maintenance activities in the production area.

Endress+Hauser also supplied a spreadsheet template to monitor the results of calibration and other sensor history to help William Blythe develop a proactive maintenance plan. That means sensors can be swapped before they fail while in use.

The benefits Changing the sensors and improving the maintenance routine has resulted in efficiency gains and cost savings for William Blythe. "We were spending a lot of money, having to reorder sensors every three months or so," confirms Lewis. "Advice from Endress+Hauser allowed us to cut down on spending drastically." Monitoring shows that the number of pH sensors used has dropped from 86 in 2022 to just 30 in 2024.

The company also appreciates the expert advice and service from Endress+Hauser. As Lewis says, "As soon as we have any problems, we can just send an email or call and they'll come in. You deal with the same person every time, so they understand the process and the current situation. They're always coming up with suggestions about how to make improvements, so it's an ideal relationship."

Memosens CPS71E sensor

- IIoT ready: Memosens 2.0 offers extended storage of calibration and process data, enabling better trend identification and providing a basis for predictive maintenance.
- Low operating costs: Offline calibration and quick sensor exchange in the process result in minimised process downtime and longer sensor lifetime.
- Robust, low maintenance electrode: Resistant to strong acids and bases.
- Inductive cable connection and non-contact digital signal transmission: Eliminates problems due to moisture or corrosion and increases process integrity.

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