

# Improve Process Uptime with Reliable pH Measurement

Robust digital pH sensors offer longer operation time span in challenging process environments

## Benefits at a Glance

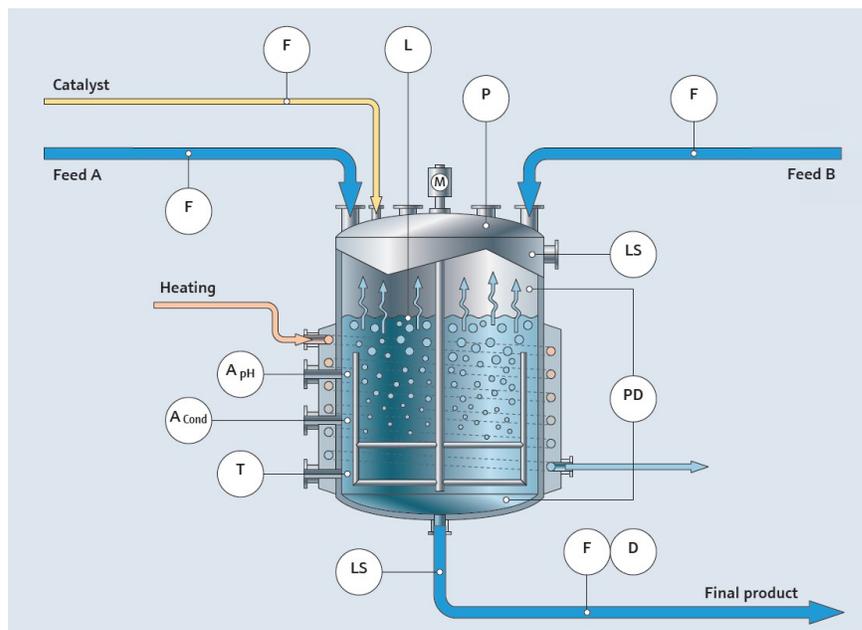
- Sensor resists strong acids, bases and high organic loads
- Open aperture for application in heavily soiled media
- Enables predictive maintenance due to storage of sensor and process specific data
- Reduces operating costs thanks to minimized process downtime and extended sensor lifetime

**Summary:** In the catalyst synthesis process, it is crucial to obtain accurate pH measurements. The reaction mixture composition, pH, and operating temperature are all critical to ensure the process is successful. Since the catalyst forms within a narrow pH range, even a slight pH difference can alter the final product quality. This can be very costly and time consuming to fix.

Endress+Hauser recently helped a catalyst manufacturer replace its pH

measurement instrumentation when the short life span became a risk and a drain on resources. The current pH probes were being replaced every batch, which was expensive, a strain on productivity and an increased safety risk.

Endress+Hauser recommended a Memosens pH sensor. Memosens sensors are designed to operate in heavily soiled media and can withstand fluctuating process conditions. The catalyst manufacturer has reduced



cost and extended the number of batch cycles since installing and implementing the Memosens sensor.

**Challenge:** The previous manufacturer's conventional sensors were not sustaining accuracy in the alkaline process environment for more than one batch. At that point, the measurement began deviating from the specified tolerance and required either sensor calibration or replacement. The team opted to replace the sensors as needed, but that was still very costly and time consuming. It was also an increased risk to personnel who had to remove the sensor and risk being exposed to the chemical process during each replacement.

**Our Solution:** Knowing the company needed sensors with a longer service life, a simpler maintenance process, and the ability to function in heavily soiled media, Endress+Hauser suggested a Memosens pH sensor.

Designed to resist strong acids and bases, the Memosens sensor produced results that were not affected by the strong process conditions.

This was possible because unlike conventional probes, Memosens sends the pH measurements inductively to the transmitter as a digital signal. Pins and sockets in the connectors are used in most other sensors and when they are exposed to moisture or corrosion the pH readings become inaccurate. The inductive coupling in Memosens



Memosens sensor technology

sensors eliminate this issue. And in case of transmission error, a signal alarm is sent immediately. This provided safer data transfer for the customer and reduced exposure for their personnel.

The digital Memosens sensor also provided the catalyst manufacturer with predictive maintenance capabilities. A microprocessor in the sensor head stores calibration data, extreme conditions of operation, hours of usage and other useful information that helps prevent problems and increase process efficiency.

Components:

- CPS91D-7BO21 pH sensor
- CM442 pH transmitter

**Results:** The catalyst manufacturer implemented the Memosens pH sensor and saw the service life extended from one batch to ten batches. With extra batches of service, they were able to increase production uptime, lower maintenance cost, maintain the product quality and increase overall process safety.



CM442 transmitter



Digital pH sensor CPS91D

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