

ROSEMOUNT[®] Analytical

News of UK and Ireland analytical products and applications.

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Extended pH sensor life in plant effluent.

Emerson and engineers from the Corus steelworks at Port Talbot have collaborated in the development of a novel installation approach for standard pH electrodes.


This extends the service life of the site standard pH sensor, the Rosemount Analytical 396P, when monitoring the steelworks effluent tanks, where previously the metal and sulphide ions had very quickly caused electrode poisoning. The approach enables Corus to avoid the need for special electrode designs for this duty, and standardise on the single 396P sensor model across the whole site, reducing cost and spares inventory.



Steelworks effluent tanks have a particularly high loading of metal and sulphide ions, which are notorious for poisoning the reference electrodes used within a pH sensor, resulting in premature sensor failure. Since the poisoning ions reach the primary reference element by a diffusion process through the cell, Emerson and Corus engineers decided to apply a positive pressure on the electrolyte externally, from the "dry" side of the sensor. By filling the dip pipe supporting the pH sensor with electrolyte to above the level of the tank surface, the hydrostatic pressure generated provides the necessary positive pressure conditions to oppose the diffusion of the poisoning ions.

The systems have now been operating for nearly a year and Corus engineers report that the standard pH electrode life has been extended from as low as a few days in certain conditions to typically 5 months. They do not have to top up the reference reservoir during operation, because the volume of electrolyte held in the dip pipe is large.

Sanitary Conductivity Sensor



The latest Rosemount Analytical conductivity sensor is designed for use in processes where conventional contacting sensors are unacceptable or would become fouled by the measured solution.

It is ideal for pharmaceutical and biotech applications, plus also food and beverage processing. The Model 245 Flow-Through Toroidal conductivity sensor has no electrodes making contact with the liquid. Toroidal transformers isolated from the process induce and then measure small currents in the flowing liquid, to deduce the conductivity.

The Model 245 sensor is easy to install, and does not restrict the process flow in any way. Typically clamped into process piping between TriClamp flanges, a Pt100 temperature sensor can be installed in-line if required. The sensor is compatible with the various panel or field mounted transmitter models available from Rosemount Analytical, such as the 54eC, 1055, 5081T and recently introduced Xmt. The Model 245 sensor body is available in 0.5", 1", 1.5" and 2" Tri-clamp sizes, with FDA compliant and GRAS list specified wetted materials of unfilled PEEK, EP and 316L stainless steel, with EP seals. It is unaffected by all CIP and SIP cleaning processes.