Making a clean job of it at Emmi

Efficient SBR wastewater treatment with Oxymax COS61D

Rolf Reichlin,
Emmi Dagmersellen

Sustainable wastewater treatment at Emmi's milk processing plant in Switzerland

Dagmersellen, west of Zurich, is the site of one of the Emmi group's plants. Emmi is the largest milk processor in Switzerland. Its plant in Dagmersellen produces milk powder and mozzarella. In line with the premium dairy's concept of sustainability, Emmi also applies energy-efficient thinking to its wastewater treatment process.

"The Oxymax is low-maintenance, robust and reliable – it's a top-class sensor."

Rolf Reichlin
Operator of industrial wastewater treatment plant
Emmi, Dagmersellen
Switzerland

Short and sweet

Thanks to optimum regulation of the aeration system in the SBR (Sequencing Batch Reactor), milk processor Emmi is making energy savings of 40-50% in the wastewater preclarification process.

The challenge

The company is committed to minimizing the burden its production activities place on the environment.

The objectives were therefore:

- sustainable wastewater clarification with a reduction of over 95% in chemical oxygen demand (COD)
- along with considerable energy savings.

This meant reducing the high COD load of 5,000 mg/l to approx. 300 mg/l in the ICR (Internal Circulation Reactor) located upstream, and subsequently reducing it to approx. 15mg/l in the SBR.

Our solution

At Emmi, Endress+Hauser systems guarantee an efficient cleaning process in the SBR:

- The digital and optical Oxymax COS61D sensor ensures rapid, continuous measurement of oxygen levels in the wastewater.
- The multichannel Liquiline CM44 transmitter transfers the values to the control room.

The result is that the cleaning process is supported in a reliable way, and the cost-intensive supply of oxygen is limited to a short period of time. Parallel pH monitoring by Orbisint CPS11D sensors prevents fermentation from occurring in the wastewater. This would reduce the level of carbon dioxide production.

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At Emmi, Liquiline CM44 transmitters ensure that all values are transmitted to the control room.

Oxygen in the biological cleaning process

There must be at least 2 mg of oxygen in one liter of wastewater to allow the biology in the sludge to function at an optimum level.

Too much air will result in foam generation, which is not desirable.

Oxygen levels should ideally range from 2 to 3.5 mg/l.

Customer benefits

- 40–50% energy savings in the wastewater treatment process thanks to precise regulation of the oxygen pumps
- Cost savings across the entire process
- Emmi's concept of sustainability is backed up by long service intervals and the systems' high degree of stability.
- Simultaneous monitoring of multiple measuring points and parameters using multichannel transmitters
- The energy-rich sludge can eventually be used in the production of biogas.

The Memosens sensors Oxymax COS61D and Orbisint CPS11D monitor oxygen or pH values directly in the SBR (center: a Ceraphant T PTC31 pressure switch)

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