



APPLICATION NOTE

Water & Wastewater

Controlling foam removal in a sewage treatment plant

- Fully automated foam detection and activation of foam removal
- Measuring the reflection factor of the water surface using a level meter
- No risk of foaming over

1. Background

A manufacturer of natural products made from brewer's yeast operates a small facility to treat its own wastewater. The wastewater is sprayed into the middle of a settling tank measuring approx. 6 m / 20 ft in diameter. Due to the yeast residue in the water, foam forms on the surface of the water. The eddy forces the foam to the edge of the tank and then comes together towards the centre. If the foam is not removed, there is a risk of overfoaming.

2. Measurement requirements

The operator was looking for a reliable way to detect foam build-up so that the existing scraper with the foam extractor was only used when necessary. To this end, a measuring point near the centre of the tank was specified: when the foam reaches this point, the scraper comes into operation.

3. KROHNE solution

This measuring task can be tackled using a measuring device capable of identifying the composition of the product surface. Here, a contactless OPTIWAVE 7300 radar level measuring device with a DN 80 / 3" Drop antenna was used as a test device. The measuring device was placed on a radial track above the tank, positioned above the measuring point described before. The reflectivity value and/or the strength of the reflected signal was assigned to the signal output and the OPTIWAVE was connected to the existing SPS that controls the scraper.

4. Customer benefits

This unusual solution allows the operator to use the foam removal mechanism completely automatically when needed. The OPTIWAVE 7300 radar level measuring device was designed for liquid applications and features integrated measurement of the reflection factor of the product surface. The surface of the water is highly reflective but foam reduces the reflection. This enables the device to reliably detect the presence of water or foam. The completely enclosed drop-shaped polypropylene antenna resists deposits and does not corrode; both the antenna and the measuring device are maintenance-free.



The OPTIWAVE 7300 measures the reflectivity of the product surface



When foam builds up under the measuring device, the foam removal mechanism is activated

5. Product used

OPTIWAVE 7300 C

- Radar Level Meter for liquid applications
- 2-wire FMCW 24...26 GHz radar
- Continuous non-contact level measurement
- Integrated reflectivity measurement of the product surface
- Also available with stainless steel horn antenna



Contact

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