



APPLICATION NOTE Water & Wastewater

Level measurement of flocculants in IBC tanks

- Reliable and safe inventory monitoring of flocculants in containers
- 80 GHz radar level measurement through closed plastic tanks
- No need to decommission or reinstall the level transmitter when tanks are replaced

1. Background

A global supplier of water, waste and energy services also operates wastewater treatment plants on behalf of public authorities. One of these plants is located in Southern France.

2. Measurement requirements

The company adheres to state-of-the-art treatment methods and well-controlled processes. One of the most important aspects of safe wastewater treatment is effective flocculation for subsequent sedimentation. Various chemicals, such as water-soluble polymer flocculants, are stored in concentrated form on-site using IBC tanks. When needed, they are then pumped from the IBCs to the mixing unit, diluted into solution, and added to the sedimentation tank. Safety in water treatment can only be ensured if the availability of chemicals is continuously maintained. Shortages must be prevented, and replenishment organised in good time. This requires seamless inventory monitoring.

Previously, the customer used pressure sensors to monitor the level in the IBCs. The sensors had to be mounted into the fill cap of the tank's access lid, requiring manual intervention each time a container was moved or replaced. This posed occupational safety risks for service personnel as removing and installing the pressure sensors often led to spillage and contact with the medium.



Pressure level sensor previously installed in the IBC tanks

To eliminate these risks, the company opted for continuous level measurement without opening the tanks from above. Given that the IBCs are stored outdoors, the new level instrumentation needed to be robust enough to withstand changing environmental conditions and remain unaffected by wind or temperature fluctuations.

3. KROHNE solution

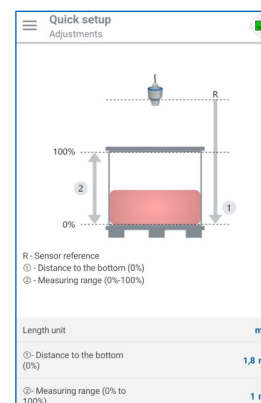
KROHNE supplied the OPTIWAVE 1540 radar level transmitter for measuring the level in the IBCs. Unlike the previous pressure level transmitter, this compact and cost-effective 80 GHz radar can measure directly through the plastic roof of the tanks, with no need for the antenna to protrude into the containers.

The level transmitter was delivered as a standard version with cover. This version is IP67-rated and suitable for outdoor use. It is well protected against moisture and occasional rainfall, making it fully adequate for the application. However, an even more water-resistant IP68 version of the radar could have been provided upon customer request.

The OPTIWAVE 1540 was installed with a small DN40 Lens antenna and mounted approximately 10 cm / 4 inch above the tank roof, using a long bracket that KROHNE can supply from a single source. As the customer requested a local display at an easily accessible location, KROHNE also provided the cost-effective SD 200 indicator, allowing convenient on-site monitoring of the IBCs.

Commissioning was carried out via Bluetooth® using the OPTICHECK Level Mobile app, which offers a wide range of templates – including for IBCs – to simplify device set-up. Only a few parameters, such as the distance to the top and bottom of the IBCs and the measuring range, need to be entered into the mobile installation wizard.

In addition to the SD 200 indicator, level readings and device status information can be monitored in the DCS via 4...20/HART® output. Alternatively, IBC levels and device health can be checked via the mobile app, which also enables on-site device verification at the push of a button without opening the housing or requiring any manual intervention.



Quick set-up of the OPTIWAVE 1540 80 GHz radar via the OPTICHECK Level Mobile app



SD 200 for on-site indication of readings

4. Customer benefits

The 80 GHz radar provides the utility company with reliable and safe stock management of flocculants. The tanks can be moved freely and there is no need to dismount or reinstall the radar when an IBC is replaced or refilled. This contributes to improved occupational safety. By measuring through the closed tank roof, the radar prevents service personnel from coming into contact with the chemical or being exposed to spillage. The OPTIWAVE 1540 is also unaffected by wind and fluctuating temperatures and does not require maintenance or recalibration. With "OPTICHECK technology built-in" diagnostics, the radar enables on-site verification via the OPTICHECK Level Mobile app, offering fast access to diagnostics and reporting features. These can be quickly shared for analysis in the event of unusual measurements or used for routine performance and status monitoring.



Level measurement through the IBC plastic roof top

5. Products used

OPTIWAVE 1540

- Compact 80 GHz radar level transmitter for simple liquid applications
- Continuous, non-contact level measurement of IBCs and other tanks

SD 200

- Loop-powered multiparameter indicator



Contact

Would you like further information about these or other applications?
Do you require technical advice for your application?
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