



APPLICATION NOTE Chemical

Level measurement of anhydrous chlorine

- Non-contact level measurement in VCM production
- Dual seal
- Measurement redundancy

1. Background

A chemical company produces chlorine from salt and stores it horizontally in several cylindrical reservoirs for the production of VCM (vinyl chloride monomer), used in the composition of PVC (polyvinyl chloride). This intermediate product is extremely dangerous and requires special attention when storing.

2. Measurement requirements

A French site uses a KROHNE BM 12 special (float) and a chlorine type BM 100 (TDR guided wave) to measure the level of chlorine. One BM 12 with dual casing, featuring a pressure release plug in the dual casing, and one BM 100, also equipped with a pressure release plug between the dual seal, allow for simultaneous chlorine measurement and detect leaks in the first safety enclosure. The chemist can thus plan to empty this reservoir and repair the safety enclosure without worrying about a chlorine leak.



Old generation KROHNE BM 12 level meters

3. KROHNE solution

KROHNE's proposal to replace the BM 12 and BM 100 with a non-contact solution impressed the chemist. A special dual seal design featuring metaglass and a pressure release plug between the two seals guarantees the same functionality as the dual casing of the BM 12 and the dual seal of the BM 100. The OPTIWAVE 7300 C (chlorine type) was thus proposed, tested and validated by this chemist.



The OPTIWAVE 7300 C measures the chlorine level without contact

4. Customer benefits

By combining the signal dynamics with the FMCW radar technology, the customer obtains accurate and reliable measurements. Because it measures the distance to the surface of the product and not the density of the product, this radar device is immune to variations in density, unlike pressure sensors. The antenna, and all wetted parts are made of Hastelloy C22 in order to prevent any risk of corrosion due to the presence of humidity. The radar is easy to set up and use, thanks to the installation wizard.

5. Product used

OPTIWAVE 7300 C

- Non-contact radar (FMCW) for liquids
- 2-wire loop powered
- Maintenance-free
- Reliability and measuring accuracy (± 3 mm – up to 10 m) of products with weak dielectric constant
- Dielectric constant (ϵ_r value) ≥ 1.5
- FMCW technology: optimised cost/performance ratio
- Installation wizard
- PACTware and DTM software for routine checks and commissioning



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