

# MOISTURE MEASUREMENT OF GYPSUM

For precise analysis and control  
of product composition



**BERTHOLD**



# ONLINE MOISTURE MEASUREMENT OF GYPSUM

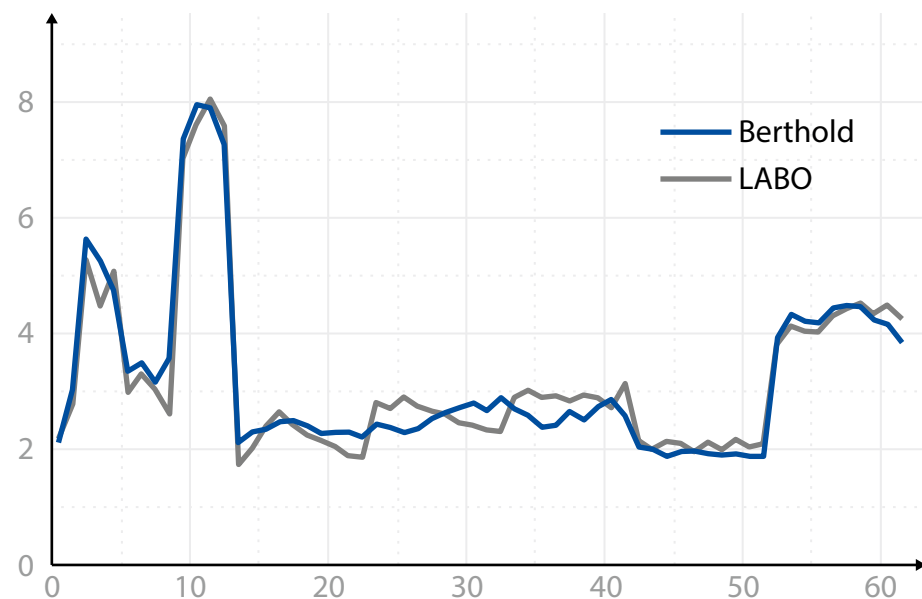
Continuous moisture measurement of gypsum from quarries allows product distribution in the storage silo to be optimized according to moisture content. Monitoring of moisture content after the storage silo and before firing allows improved control of kiln operation as a means to improve the quality of the finished product.

## Microwave technology

The Micro-Polar moisture meter provides online measurement of the moisture content of gypsum transported by a conveyor belt to the intermediary storage before the kiln. Using microwave transmission technology, a non-contact moisture measurement is made through the entire product depth. This allows a representative online measurement even if the product on the belt comes from a mixture of different storage areas with different humidity levels.

## Online measurement for quality improvement

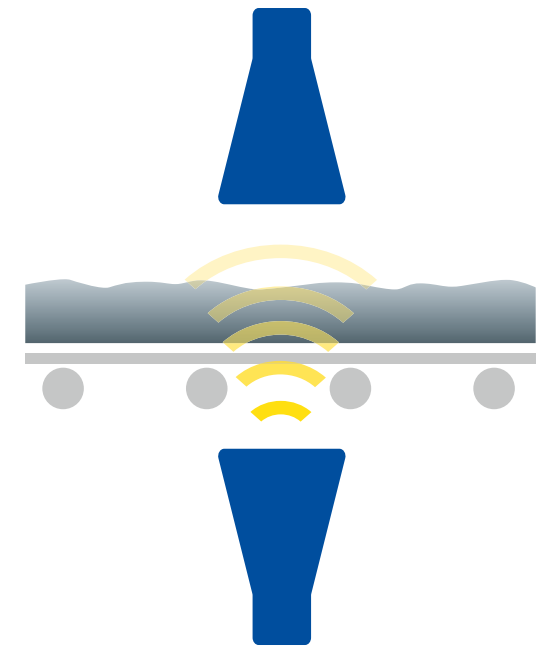
Microwave measurement is non-contacting; no sensor comes into contact with the product to be measured, which limits maintenance and avoids special cleaning. The measurement is not influenced by the colour or inhomogeneity of the measured product. Furthermore, the measurement is carried out on the entire product profile while traditional measurements only measure the surface of the material profile. In addition, the multi-frequency technique and the reference line enhance the stability and representativeness of the resulting measurement. Berthold's Micro-Polar system is very easy to install. The transmitter has a large display and a user-friendly interface. Automatic calibration can also be performed on site.



Correlation between laboratory and Berthold measuring system

## Measuring principle

Microwaves pass through the product to be measured, causing rotation of the free water molecules, which have excellent dielectric properties. This rotation causes a deceleration (phase shift) and a drop in magnitude (attenuation) of the microwaves, resulting in a very accurate measurement of the water content. Thanks to the multi-frequency technique used by Berthold, the measurements are highly reliable and stable and are not affected by reflectance or resonance. The integrated reference line provides excellent compensation for potential environmental effects. The integrated reference line provides excellent compensation for potential environmental conditions. As the instrument generates very low microwave power (around 0.1 mW), the measured product does not undergo any temperature rise or modification. The radio licenses of the system have been approved by the FCC, IC and ETSI.



Typical arrangement of a online moisture measurement system with horn antennas

## Customer Benefits

- Improved thermal control of blast furnace operation
- Known moisture content when offering/loading bulk solid material
- Wear-resistant and maintenance-free as measurement is non-contacting

## Features

- Transmission measurement provides representative measurement
- Easy to install or retrofit on existing conveyers
- No need for frequent recalibration
- Non-contact measurement and no disturbance in the flow
- Highly reliable, long-term solution
- High accuracy with very good reproducibility





## THE EXPERTS IN MEASUREMENT TECHNOLOGY

Berthold Technologies stands for excellent know-how, high quality and reliability. The customer is always the focus of our solution. We know our business!

Using our varied product portfolio, our enormous specialized knowledge and extensive experience, we develop suitable solutions together with our customers for new, individual measurement tasks in a wide variety of industries and applications. Berthold Technologies is specialised in radiometric process measurements for over 70 years. This is our core competence with state-of-the-art and cutting edge products and solutions covering a vast range of industries and applications.

### **We are here for you – worldwide!**

The engineers and service technicians from Berthold Technologies are wherever you need them. Our global network assures you fast and above all competent and skilled assistance in case when needed. No matter where you are, our highly qualified experts and specialists are ready and waiting and will be with you in no time at all with the ideal solution for even the most difficult measurement task.

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