

CONSISTENCY/CONCENTRATION MEASUREMENT MICROWAVES

Water is inherent material in many processes. Due to the fact that microwaves are extremely sensitive to water, META gauge MMW-9 provides a continuous on line measurement of dry content in pastes, suspensions and solutions as they are met in food, diary, paper, mineral, wood and other branches.

The concentration is defined as

$$C_n[\%] = (\text{Dry Mass of Sample} / \text{Total Mass of Sample}) * 100$$

Two microwave antennas are installed externally on the flow pipe and used as transmitter/receiver devices. They sense the flow as it causes a strong attenuation and velocity change in the microwaves propagation. This attenuation/dampening and velocity change has its source in the dielectric properties of water in the flow. Even small quantities (<0.5%) of water deliver a very good measurable effect. The MMW-9 gauge provides a stable signal in concentration units. Thanks to electronically applied phase lock control the sensor has an excellent long life stability and is maintenance free.

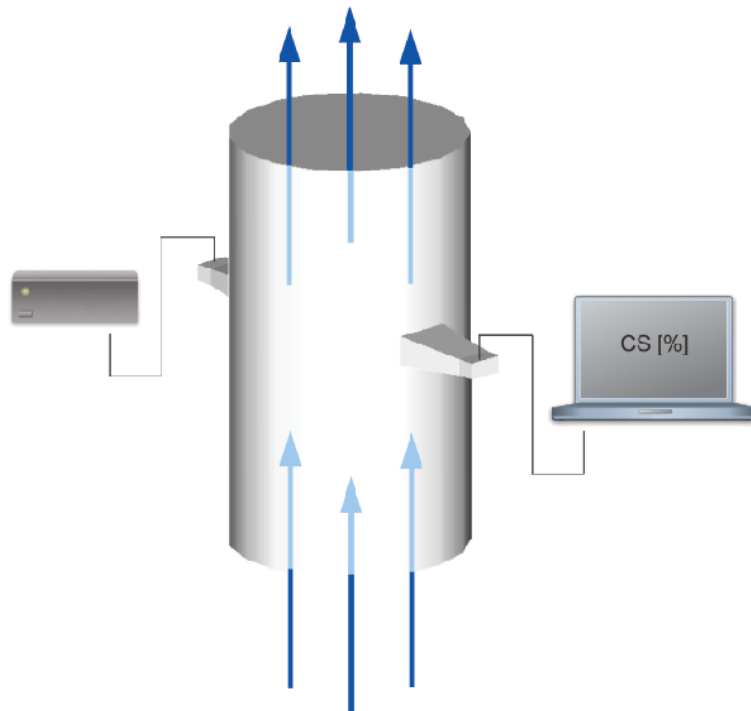


Fig. 1: Consistency / Concentration Measurement using Microwaves Technique