

Moisture Measurements on batch mixers

Moisture measurement system

Measuring principle:

- Capacitive moisture measurement
- Dielectric survey as a function of moisture
- Permittivity of solids = 2-4
- Permittivity of water = 80

Installation:

- preferable in the hopper scale above the mixer



ADVANTAGES:

The "Sensor Control" moisture measurement system is independent of the type of muller/mixer used as there are no sensors located in the mixing chamber.

The "Sensor Control" System avoids high turbulence in the mixer chamber which can result in inaccurate measurement control problems for any type of sensing system.

The "Sensor Control" System uses only static, stable measurements obtained during the filling of the batch weigh hopper providing accurate control measurements. The "Sensor Control" probes are Teflon® coated to prevent any sand build-up or false readings. The "Sensor Control" probe design and manufacture make them a low wear item. Life expectancy of the probes is dependent on the size and filling method of the weigh hopper. Probe lengths up to 1000 mm is at least 10 years, custom probe lengths of more than 2000 mm is approx. 3 years.

The "Sensor Control" probes when mounted vertically can also be used as level indicators. "Sensor Control" Probes

are able to measure the density of the molding sand since the sand density depends on the moisture content of the molding sand which in turn is based on the expansion of the active bentonite present. This claim is valid only when gravimetric weighing systems are used. (See "Sandmaster" brochure available on request). The moisture probes are easily mounted in pairs in the batch/weigh hopper with each probe forming a measuring capacitor with the wall of the hopper. During filling of the batch hopper, the entire volume of sand will be equally penetrated by the electric field and the average moisture of the entire batch volume determined. 100% of the calculated amount of water can be added at the start of the muller/mixing cycle, shortening the mixing cycle and increasing the throughput of the muller/mixer.

When metering the initial and residual water later, the residual water, which is often added just before the end of the mixing cycle, has little effect on the expansion of the bentonite, causing the mixing time to be increased.

In the most cases, the hopper is easy accessible. Therefore the maintenance is done quick reasonable.