Sartorius LMA200PM
Speed meets analytical precision



If the sample contains a high moisture content, microwave drying is the fastest and most effective thermogravimetric method (loss-on-drying principle) for moisture analysis. Developed for measuring moisture content ranging from approx. 8% to 100%, the LMA200PM performs moisture analysis in a fraction of the time it takes for other thermogravimetric methods. It delivers results between approx. 40–120 seconds on average. With a cylindrical design, a focused emission of microwave energy is channeled vertically through dual apertures at the bottom of the chamber. This concentrates the microwave energy specifically to the sample. During the test, a carousel spins the sample, permitting an even distribution of microwave energy. This prevents hot and cold spots from occurring, a familiar problem with conventional microwave analyzers.

Built-in analytical balance
The moist and dry weight of the sample required for calculating the loss of moisture is measured by a built-in analytical weighing system featuring 0.1 mg resolution. Thanks to its monolithic design (the cell is robotically etched from a single block), this system is particularly suitable for use in a moisture analyzer, because it considerably reduces zero point drift during heat exposure when compared with classic weighing systems.

Intelligent endpoint determination
A moisture sensor integrated in the exhaust system of the sample chamber monitors the progress of drying. When the measurement begins, the moisture of the air inside the sample chamber continuously increases as water evaporates from the sample. Once the sample has dried and no longer releases water, the air moisture content drops back to its original level—a clear indication of the end point. At the same time, the built-in weighing system monitors the weight progression and confirms when the sample reaches a constant weight. This dual monitoring system ensures optimal moisture analysis results.

High speed
Two factors play a major role for ultra-fast measurements. First, the sample must absorb microwave energy within the shortest time possible and transform it into heat energy. For this purpose, the LMA200PM has a cylindrically shaped sample chamber that focuses the microwave radiation on the sample optimally. Second, the resulting water vapor must be transported away from the sample as fast as possible to obtain rapid analysis results. To accomplish this, a sample is applied to a glass fiber pad that allows water vapor to evaporate not only from the top of the pad and upward through the sample, but also from the bottom of the pad. An exhaust system draws water vapor out of the sample chamber, thus preventing the effects of condensation.

