



Application Notes

Moisture in Crackers

Control of moisture in crackers is necessary in order to optimize the quality of the product and the production process.

Too high a moisture content will adversely affect the texture and taste, and also shorten shelf-life. Too low a moisture content, results in crackers that damage easily, leading to wastage both before and after packaging. Additionally low moistures cause crackers to “burn” to a greater extent when they pass through the ovens, leading to an undesirable flavor.

Moisture measurements can be made on or off-line. Online measurements greatly improve efficiency; they eliminate the need for routine laboratory moisture testing and provide an instantaneous measurement so that necessary process changes can be implemented sooner.

Off-line moisture measurements are simple, sample a greater product area, and are quicker to effect than using Infrared balances or oven tests.

Cracker Manufacturing Process

Mixed dough is fed into a laminator, the “sheet” of dough passes under gauge rolls and into a rotary cutter, scraps and re-workable material is fed back into the laminator. The crackers continue through the oven and cooler, onto a transfer conveyor, which transports them to the packaging area.

Gauge Installation

The sensor is usually located several feet down line from the oven exit, whilst it might be useful to locate it closer to the exit from the point of automatic control of the ovens/ inlet belt speed, it is not recommended, owing to the fact that NIR measurements are essentially surface measurements and **a degree of equilibration** needs to **occur** in order to obtain a stable and meaningful measurement.

The Food Grade MCT 300 is designed to meet the strict hygiene and safety requirements of a food manufacturing plant. It is electro less nickel coated and houses a Kel F or sapphire window. The MCT 300 is fitted with a sensor window air purge diffuser to provide a positive pressure; this minimizes fouling of the window, but does not eliminate the need for a routine cleaning procedure. If ambient temperature is greater than 50 °C, air or water cooling of the sensor is recommended.

Measurement Performance

Measurement	Location	Range %	Typical Accuracy %
Moisture	Down line of oven exit	0-8%	0.2%