



Measuring Moisture & Oil in Potato Chips

The continuous measurement of moisture prior to packaging is a key consideration in the production of potato chips. The proper moisture level of finished chips helps guarantee taste, texture and shelf life.

The use of NIR (Near Infrared Reflection) moisture gauges in snack food manufacturing environments has become an accepted technology for monitoring and control. The on-line measurements are instantaneous and non-contact. Any change in moisture level can be immediately recognized by the use of a Process Recorder, eliminating the potential for customer quality complaints or waste.

NIR can also be used to measure oil content, along with moisture. The oil measurement is most often done at-line as a quality indication prior to packaging.

Chip Manufacturing Process

Potatoes are peeled, sliced and de-starched prior to Frying and Seasoning. Measurements of oil and moisture are typically made shortly after the exit of the Fryer. Moisture measurement at the exit of the Fryer can be used to optimize moisture %, this results in greater product consistency, longer shelf-life and less waste material.

Transmitter Installation

PSC moisture transmitters should be located after the fryer outlet, over the vibrating conveyor. The transmitter should be mounted 10" from the surface of the potato chips. Heat at the fryer outlet can create very high temperatures. If the transmitter must be located close to the outlet of the fryer, it is important to consider cooling.

The MCT330SF moisture transmitter is designed to measure moisture, oil and product temperature in a food processing environment. The transmitter is housed in a stainless steel enclosure and employs a food grade optical window. The MCT is optimized with filter combinations to measure moisture and oil at the same time. The viewing window in the sensor is a food grade polymer. The stainless steel housing is sealed so that the NIR sensor can tolerate a wash-down environment.

The MCT-330SF is fitted with an air purge assembly to prevent oil or moisture from depositing on the sensor's lens. The Stainless Steel Enclosure can also be fitted with a Vortex cooler in the event of a very elevated temperature environment.

Measurement Performance

Moisture measurement in potato chips is a very well understood and documented application. NIR wavelengths, algorithms, and sensor optical parameters are pre-set at the PSC factory.

A calibration is entered into the MCT-330SF at the PSC factory. There is no calibration required after installation on the processing line.

It is important to locate the MCT so that there is always product beneath the NIR sensor. The measurement works by detecting reflected light. The light must be reflected off of the product, not the vibrating conveyor!