

Moisture in Potato Dehydration



WORLD LEADER IN ADVANCED NIR PROCESS MOISTURE MEASUREMENT

Application Briefs - Human Food Products

Ideally potatoes chosen for processing should have a high specific gravity/ percent solids as this will minimize the volume of water that needs evaporating, but the reality is that these potatoes are frequently selected for the production of chips and French fries leaving a mixed feed stock for the dried potato manufacturers to work with. Dryers are typically set up to ensure that the wettest of product is dried sufficiently for shipment, but this results in over drying the bulk of the product costing the processor twice; in terms of unnecessary energy usage and in lost sales volume.

Dehydrating Process

Potatoes are cleaned, skinned, sliced, blanched, cooled, washed and steam cooked for 15 minutes to an hour depending on the % solids, prior to drum drying(dehydration).

Measurement Location & Gauge Installation

The MCT NIR gauge is typically located above the collection conveyor for the potato flakes that peel off the drum. NIR is a surface biased measurement. In order to obtain representative gauge readings, the gauge should be viewing a minimum bed depth of 0.5" of well mixed product."

Measurement Performance

Measurement	Location	Target	Typical Accuracy %
Moisture	Exit of drum dryer	5.5%	+/- 0.3%

Measurement Justification

Owing to the large variance in the % solids of the incoming potatoes, a moisture swing of +/- 3% in product exiting the dryers is not uncommon if the dryers aren't automated. With Process Sensors NIR meters, moisture can be continually measured and the information used in a feedback loop to control the drum speed of the dryer. The uncontrolled +/- 3% swing can be reduced to +/- 0.5% . With moisture variation minimized, the moisture set point can be raised resulting in increased production volume and reduced energy costs.



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