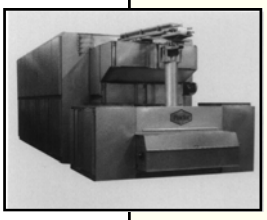
Delta T Moisture/Water Activity Control Technology for the Food Industry

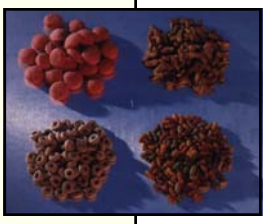
Proven, Unique, *Inside-the-dryer* Moisture Sensing and Control Technology

Eliminate Over- & Under-drying
Increase Production
Reduce Energy Use
Safely Maximize MC
Prevent Mold Growth



Advantages

Patented moisture control technology
Inside-the-dryer moisture sensor
Automatically adjusts for water load changes
Safely maximizes amount of water left in product
Cruise-control startup



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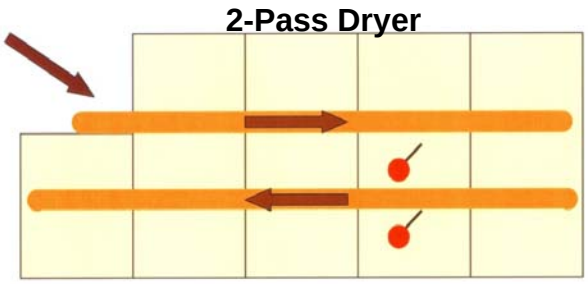
How does the Delta T work?

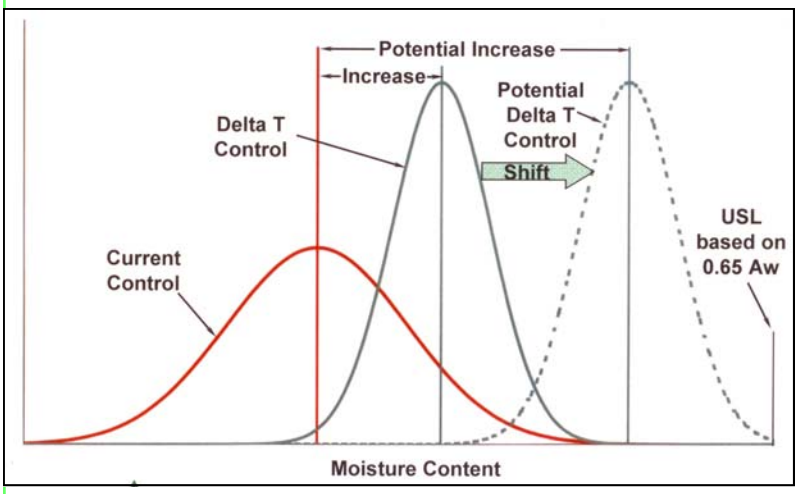
Sensing product moisture content (MC) "inside-the-dryer" enables detection and correction of water load changes entering with the feed to be made before the product exits the dryer. This usually results in a minimum 30—45% reduction in moisture variation which allows an increase in the average product MC if applicable.



Unique Inside-the-dryer moisture sensor:

By inserting the temperature drop of hot air after contact with the wet product into the (ΔT) term in the model, $MC = K_1(\Delta T)^p - K_2/S^q$, an output signal is generated proportional to the product MC. This signal is used to adjust the heat input to the dryer. Target MC content is maintained much tighter in spite of water load changes entering with the feed.

Sell more water & Prevent Mold Growth:



The advantage of an "inside-the-dryer" moisture sensor enables early detection and correction of moisture changes entering with the feed, thus enabling the mean MC to be shifted upward until the + 3 sigma limits of the current and Delta T curves coincide. The difference in mean MCs of the two curves represent the economic gain in energy saved and water sold. When the water activity (aw) control option was applied, the maximum water safely left in the product is shown by the potential savings curve.

Continuous optimization:

The current (old) control method produces product with a wider moisture variation (left side of chart). Under Delta t control, the MC variation is reduced from 30 to 45% which allows the mean MC to be significantly increased without exceeding the upper specification limit. Standard deviation calculations of the exiting product MC are continually made and used as the basis for forcing the mean MC (illustrated by shifting the dashed line upward) to within three standard deviations of the upper specification limit