



# Tightening Control of Highly Oscillatory Processes

## Watering Down Production for Increased Profits

Tightening control around Set Point will improve the performance and profitability of most every production process. This is especially true of drying processes applied by ethanol manufacturers to control moisture content. With reduced variability, ethanol producers are capable of improving quality and reducing energy consumption. More importantly, increased levels of water in the finished product can have a sizeable impact on output.

Controlling dynamic dryer processes has been simplified with the application of state-of-the-art modeling capabilities. Control Station's LOOP-PRO™ Product Suite utilizes patent-pending technology to accurately model non-steady state and otherwise oscillatory processes. Due to their inherent variability, dryer processes present an excellent application for LOOP-PRO™. The software's process models and associated tuning parameters have increased production profits by an estimated \$xxx,000.

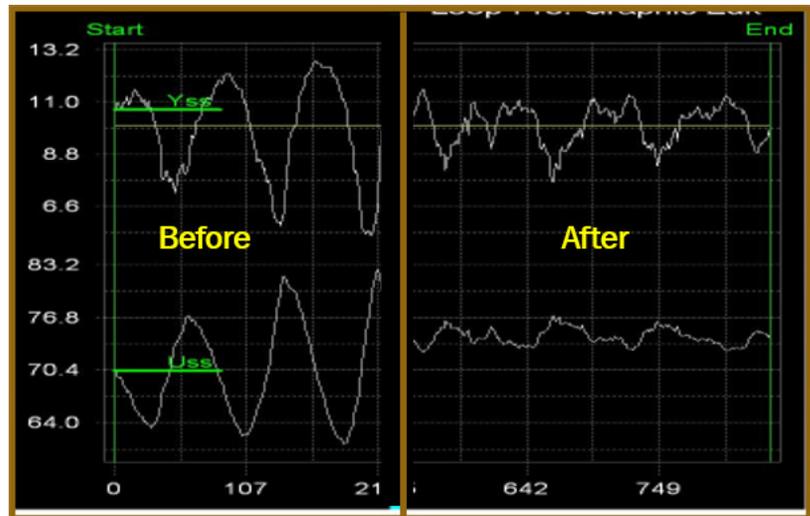


*“Tangible benefits from an improved moisture control system are: (1) increased production (sell more water), (2) reduced thermal energy consumption, and (3) improved quality by eliminating over and under-dried product.”*

**John Robinson - Owner, Drying Technology, Inc.**

## When a Picture Tells a Thousand Words

Oscillations in the dryer process are symptomatic of “loose” control and prevent operation close to the production constraint. In terms of moisture content, the inability to maintain control close to the production constraint results in a final product that exceeds the required ethanol content. In the end, the lower moisture content means that profits are surrendered unnecessarily.



A large Canadian ethanol producer experienced these excessive oscillations at one of their production facilities. Fluctuations in differential temperature variance ranged 4.4% above and below the desired Set Point – nearly a 9% swing. The affect on production was viewed as a significant impediment to the plant’s profitability.

Control Station’s patent-pending technologies were used to analyze data from the dryer process. Within a matter of minutes, the data was accurately modeled in spite of its oscillatory and non-steady state characteristics. The process model provided the basis for tuning parameters which were easily tailored for improved Set Point tracking. When implemented, the new tuning parameters reduced differential temperature variance by over 50% and tightened control around the production constraint.

By increasing the moisture content, ethanol producers can achieve a material increase in production profits. Controlling production closer to constraints and “selling more water” can be a profitable business, especially in the ethanol industry.

**Finally – tune your facility’s most complex PID control loops for optimal performance.**

Learn why LOOP-PRO™ is the only product that accurately models oscillatory, noisy process data. Contact us today at +1 (860) 872-2920 or [sales@controlstation.com](mailto:sales@controlstation.com).

