ACSI's Gob Temperature Control Strategy with Model Predictive Control

Conventional methods of controlling gob temperature do not include direct gob temperature measurements. The operator monitors the equalizing thermocouple measurements as a reference and adjusts individual forehearth zones in an attempt to maintain a stable glass temperature before it enters the forming process. The actual gob temperature can only be assumed or measured with a conventional optical pyrometer which is often unreliable and incapable of being used for closed-loop control.

To eliminate the uncertainty of the actual gob temperature, ACSI and BASF have developed a solution that accurately measures and controls the gob temperature. The system utilizes direct measurement of each gob through the use of the Exactus® advanced Gob Temperature Sensor (GTS) produced by BASF.

By combining the measurement from the GTS with ACSI's advanced Model Predictive Control (MPC), exceptional gob temperature stability and control is achieved at the point of entry to the forming process. This solution has provided significant benefits for Container Glass Customers, including reduced variation in the production process and reduced gob temperature recovery time after a job change.

FEATURES

- Direct control of gob temperature
- Feedback and feed forward MPC
- MPC understands dead time
- Feed forward control

BENEFITS

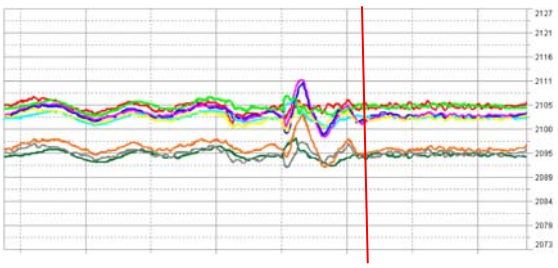
- Reduced variability of gob temperature
- Improved temperature stability
- Faster compliance to setpoint changes
- Faster recovery from disturbances

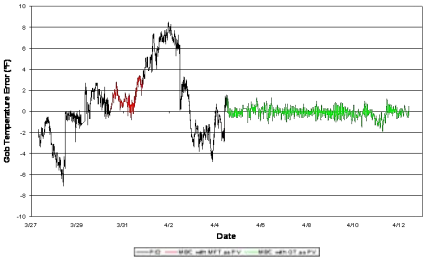
ACTUAL CUSTOMER RESULTS

300% reduction in gob temperature variation
2% improvement in pack
Reduced job change time 7hrs to 2-3 hrs
50% less time to achieve stability

By combining the advanced technologies of MPC and Exactus, ACSI is able to offer container manufacturers a solution that tightly controls the glass temperature at the point of entry into the forming process. This new type of control allows the plant to minimize container defects, improve production efficiency, and significantly reduce the gob temperature recovery time after a job change.

The graph on the left displays forehearth temperature stability before and after implementing MPC. The graph on the right displays the gob temperature error during a 16-day period. PID control is black, Model Predictive Control with the mass flow temperature as the process variable is red, and MPC with the gob temperature as the process variable is green.





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ACSI Training Series: Basics of HMI Application

ACSI is now offering a 3 day training course on the basics of HMI applications at our Sylvania, Ohio location.

This training class is intended for Plant Engineers, Maintenance Technicians, and Electricians who need to maintain, troubleshoot, backup or make modifications to an existing Wonderware® InTouch application. Trainees may bring a copy of an existing InTouch application from their facility to use during class labs. (For daily training agenda, please email katiemarconi@acsitoledo.com.)

Dates: Flexible
Cost: $1,500.00 per person

Lunch will be provided daily by ACSI

To register or request additional information
please contact: Katie Marconi
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Quarterly Newsletter Company Survey Question

If money wasn't obstacle what kind of car would you buy?

I would buy a Ferrari, certainly red, convertible ~Steve Nixon

A Porsche 911 Carrera, yellow with tan interior, because that's my husband's dream car ~Dolores Wille

I would have to go with a Saleen S7 Twin Turbo. Considered the 3rd fastest car in the world as of July at 248 mph, and cost a mere $555,000.00. ~Scott Tibai

I would drive this of course! ~Dean Cable

Top of the list a Ferrari 599, or a Morgan Aerosport, or an Ariel Atom ~Brad Bowe

1936 Duesenberg SSJ Speedster. The ultimate muscle car. Only 2 produced. This one was originally built for Clark Gable and currently resides near Cleveland, OH but is not for sale. ~Karen Walder

BMW M1 ~Daniel Jimenez

Koenigsegg CCXR ~Josh Storrer

Tesla electric car ~Rich Baechle

The Zap Alias, a three-wheeled electric vehicle that was first developed in Toledo a few years ago as a prototype for the Zap car company of California. ~Jon Nash

An Aston Martin DBS V12 ~Katie Marconi

2011 and 2012 Events

October 18-19, 2011
The Glass Problems Conference
The Fawcett Center
Columbus, Ohio

October 2012
Glassstec
The Dusseldorf Fairgrounds
Dusseldorf, Germany
www.glasstec-online.com

We look forward to seeing you at the upcoming shows!

Packaging Control

ACSI is helping a number of industries with packaging and material handling control. By utilizing the newest technology available to automate control systems for packaging, sorting, routing and rejection control, customers are seeing improved reporting, less waste, reduced downtime, improved efficiency, and material savings.

ACSI control systems can integrate the following types of equipment and systems:

- Conveyor Systems
- Accumulation Systems
- Diverters & Rejection Systems
- Sorting, Routing, & Barcode Systems
- Quality/Open Flap Reject Systems
- Merging & Combining Systems
- Servo Systems-Positioning, Batching & Pitching
- Collating & Closing Systems
- Robotic Systems

Meet ACSI's Josh Storrer

Job at ACSI: Operations Assistant
Hometown: Fostoria, Ohio
Background: Associate's Degree in Power and Controls, Completing Bachelor's Degree in Electrical Engineering (May 2011)
Started with ACSI: November 1st, 2010
Interests: Movies and sports
Favorite Movies: The Big Lebowksi, Office Space, and The Good, the Bad & the Ugly
Favorite Winter Time Activity: Watching football
Best thing about working at ACSI: The people and the atmosphere

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improving performance through advanced control solutions

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