ViscosityIQ

Case Study

Manually Monitoring vs Automatically Controlling Viscosity

saint clair systems

SUMMARY: Saint Clair Systems displaced a manual viscosity control process with automation. The automated viscosity control system generated a 97% reduction in viscosity variation, resulting in decreased material usage and increased throughput.

Issue:

A multinational food packaging manufacturer was experiencing unacceptable film variations during its overvarnish process. This variation caused excessive material usage, and reduced throughput.

Analysis:

Operators were maintaining viscosity by taking cup measurements and performing manual adjustments every two hours. To establish a baseline of viscosity variation, Saint Clair Systems installed an automated viscometer. This viscometer recorded viscosity readings multiple times per minute.

The results indicated that much of the variation was due to the length of time between manual adjustments. Even during a two-hour period without adjustment, there was significant variation. Additionally, it was not uncommon for more than two hours to elapse between adjustments.

Solution:

Saint Clair Systems installed a simple automated viscosity control system consisting of a viscosity sensor, two valves, and a controller. The sensor was placed in the working overvarnish and reported viscosity to the controller. One valve was connected to a solvent source and the second valve was connected to unreduced overvarnish. Using the viscosity data from the sensor, the controller directed the appropriate valve to open and dispense into the working overvarnish to maintain the desired viscosity. In this case, the primary use was to make up for evaporating solvent.

Results:

Measuring and adjusting viscosity in real time, as opposed to every two hours, allowed the process to maintain viscosity in a much tighter range. The viscosity variation was reduced by 97%. This reduction in variation allowed the manufacturer to reduce its material usage by 3.5% while achieving desired throughput. Additionally, the operator responsible for making the adjustments spent more time troubleshooting other issues and problem solving. The company reported that the cost savings paid for the viscosity control implementation in less than six months.

Company:

Multinational manufacturer of metal containers

Location:

Northeast United States

Material used:

Overvarnish

Motivation:

The company was in a highly competitive industry with a very demanding customer base. The management team was focused on best practices and heavily focused on production costs and lean manufacturing. The manufacturing team was under pressure to meet productivity goals. They identified inconsistent overvarnish film as one of the issues preventing them from meeting their numbers.

See chart on page two.

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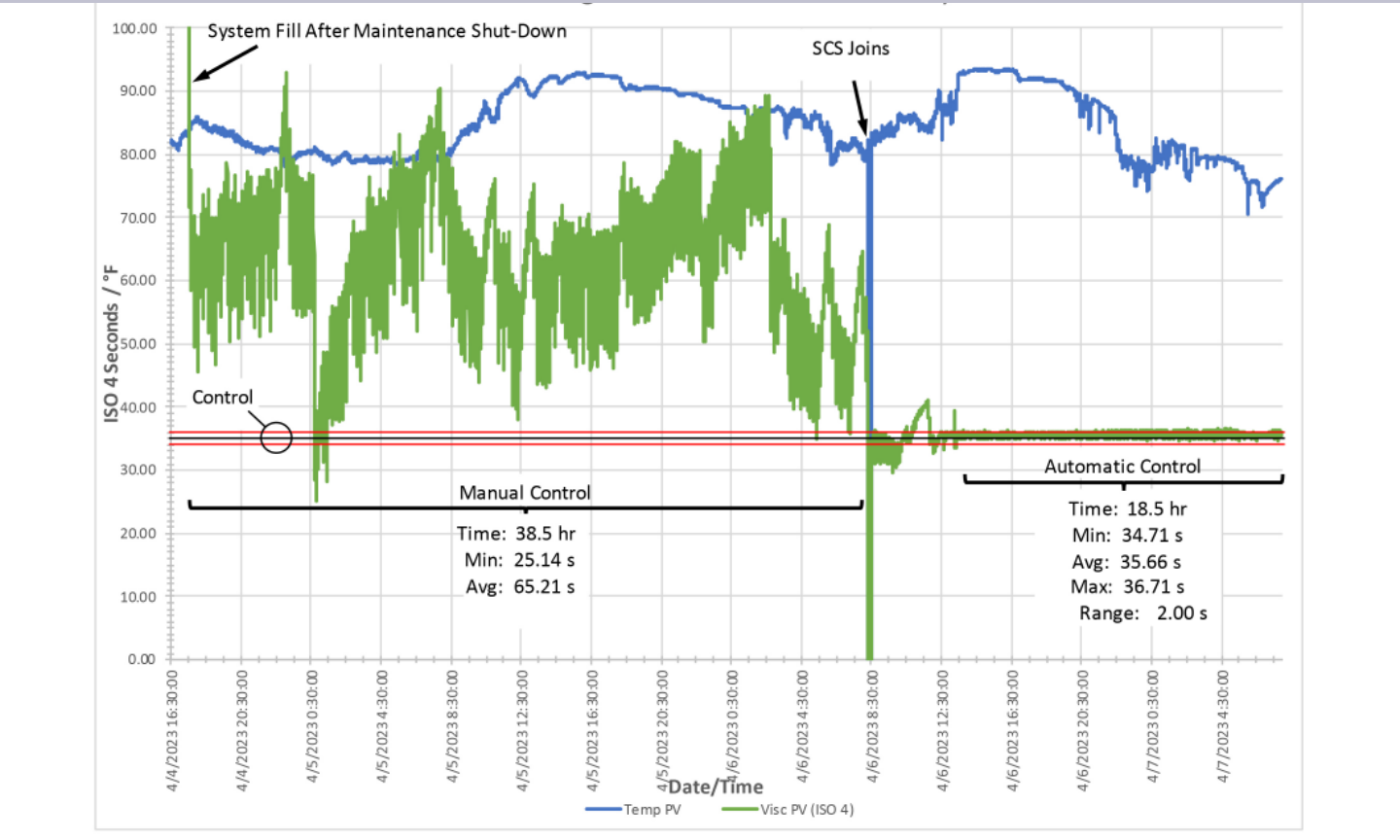

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