Paper Machine APC – Wet-End Control (WEC)
Optimizes first pass retention and reduces chemical consumption

Moreover, disturbances such as change in pulp properties, machine speed and product grade changes add to the complexity of the problem. Because of the nature and dynamics of the wet-end process, it takes a small disturbance to destabilize the process and lead to a significant downtime. A poor wet-end stability can have a significant effect on the paper quality and lead to a substantial increase in the product rejects.

WEC is an advanced process control (APC) system for the control and monitoring of the retention performance in the wet-end of the paper machine. WEC maintains stable process conditions and allows for controlling the first pass retention and paper ash. It optimally manipulates the retention aid dosages and filler/chemical additives, thereby minimizing the product variability and simultaneously reducing the production costs.

Model Predictive Control
Model predictive control (MPC), an established technique for advanced multivariable control, is the core component of Wet-End Control (WEC). MPC offers substantial performance improvement for processes with strong interactions between variables and complex operational constraints. The MPC strategy achieves improved wet-end stability, lower product variability, lower chemical usage, and improved machine runnability by simultaneously controlling the retention and paper ash by optimizing the chemical and filler dosages.

Features
- Multivariable model predictive control
- White water consistency control
- First pass retention control
- Paper ash control
- Chemical consumption optimization
- Process key performance indicators
- Day/Shift reports
- KPI dashboards

Benefits
- Reduced filler consumption (10-20%)
- Reduced retention aid consumption (10-30%)
- Increased production (5-15%)
- Reduced production cost ($2-$4 per ton)
- Reduced downtime due to sheet breaks
- Improved wet-end stability
- Reduced rejects due to quality variations
- Smoother transitions and faster grade changes

Key Performance Indicators
System calculates key process performance indicators and periodically reports control utilization for in-depth technical analysis.

Operator Displays
Highly intuitive task oriented and easy to access standard operator displays are provided to monitor real-time, historical and prediction trend data. WEC allows customization of operator and tuning displays to meet project needs.