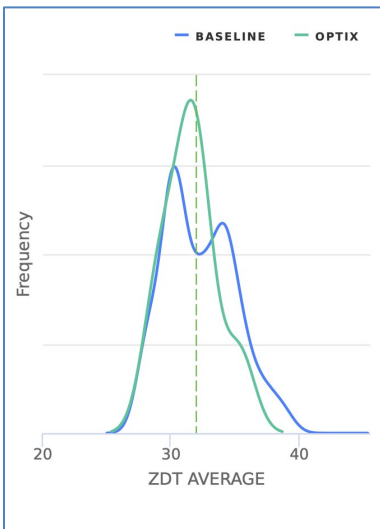


RECORDED BENEFITS

- Complete Hercobond Plus 555 / OPTIX program produced a 300% ROI
- Eliminated 3,000,000 kgs/yr. of wet end starch providing a cleaner wet-end
- Removed starch cooker
- Simplified and stabilized chemical application and control strategy
- OPTIX effectively controlled ZDT during periods of full and curtailed production
- Improved ZDT target adherence reduced downgrades due to off quality



AI-Driven Autonomous Control Aids Optimizaton of Sheet Strength (ZDT)

OPTIX™ Applied Intelligence

Customer Challenge

A North American Virgin Folding Carton producer desired to improve internal bond sheet strength properties (ZDT) while also eliminating wet end cationic starch.

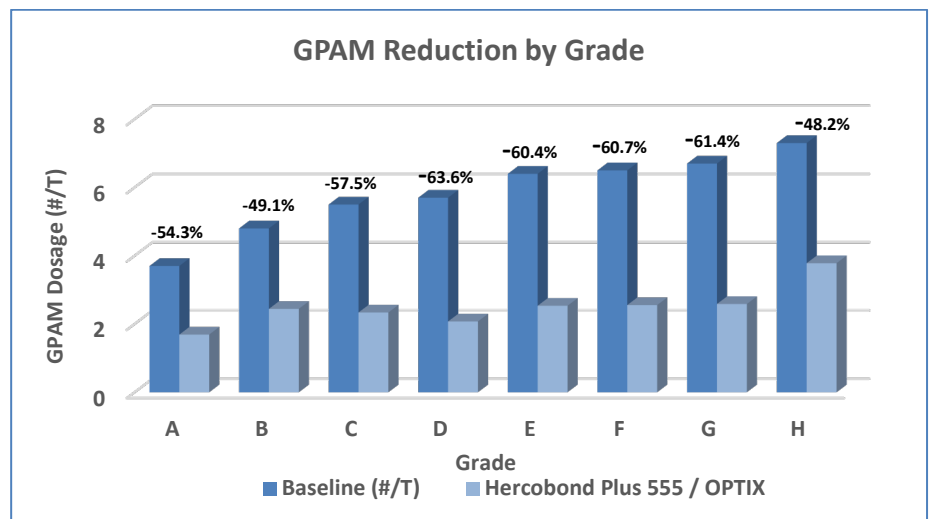
Recommended Solution

Solenis recommended a multi-tiered solution involving Solenis Hercobond™ Plus 555 (an On-Site generated GPAM dry strength resin), refining trials, and implementation of OPTIX Applied Intelligence (AI).

OPTIX, a machine-learning, predictive analytics platform with autonomous control capabilities generates a virtual measure of ZDT strength value in real-time. Utilizing AI to make data-driven process adjustments, the Hercobond Plus 555 dry strength chemistry is finely tuned to drive ZDT quality to target.

Results Achieved

1. Replaced incumbent GPAM supplier with Hercobond Plus 555 dry strength.
2. Modified GPAM application strategy to eliminate wet end starch.
3. Reduced refining with improved strength properties associated with Solenis Hercobond Plus 555 – improving machine drainage.
4. Over a twelve-month period of utilizing OPTIX autonomous control, the mill realized reduced ZDT quality variation and increased target quality adherence.
5. Overall GPAM dosage reduced by ~50% across all grades.



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