



BERCHEM® 4136

Improves Coating Leveling, Improves Blade Coater Efficiency, and Reduces Quality Claims

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MACHINE OVERVIEW:

Type: Fourdrinier

Grades: Coated FS – Coated Publication

Furnish: Bleached Kraft

Basis Weight: 180 - 220 lb.

Production: 500 tpd

Coater: Off-Machine Blade; C2S

Coater Speed: 3500 fpm

Base Coating Solids: 65 - 69%

Top Coating Solids: 63-67 %

BACKGROUND:

The mill was a long-time user of BERCHEM 4136 diglyceride lubricant on both off-machine coaters. The BERCHEM 4136 dosage was gradually reduced from 0.6 parts to 0.3 parts over a 24-month period as the mill implemented cost cutting programs. Soon after, coater efficiencies began decreasing and quality claims increased. The surface quality defect was described as a rougher, non-uniform coating surface which would occur intermittently. Operators needed to shut down and clean or change blades. The larger, faster of the two coaters experienced the same surface defects a year prior.

PRE-TRIAL OBJECTIVES:

For the previous 12 months with the BERCHEM 4136 dosage at 0.3 parts, the average number of surface quality incidents was 9.9 per month. Over 80 tons per month were being culled due to this surface quality defect, resulting in a \$1MM+/yr negative impact. Customer claims had also increased. The goal was to reduce surface defect incidents by at least 50%.

TRIAL RECOMMENDATION:

The initial BERCHEM 4136 trial dosage was 0.8 parts to the top coating only to save cost. This dosage was selected based on a Bercen lab study comparing GWR, HHSV. and Brookfield viscosity improvements at various BERCHEM 4136 dosages. Dosage optimization would occur after the trial.

RESULTS:

- During the first 30 days of the trial, the coater experienced one surface defect. This occurred in the base coating where the BERCHEM 4136 dosage remained at 0.3 parts.
- The first 60 days of the trial had the lowest occurrence of surface defects in the past 15 months. **A 90% reduction in defects was observed in the topcoat.**
- Coater efficiency improved dramatically due to significantly less down time for blade cleaning / changes.

SECONDARY BENEFIT:

- Gloss targets were consistently achieved at the supercalenders without increasing coat weights.

CONCLUSION: The quality issue was solved by raising the BERCHEM 4136 dosage back to 0.6 parts in both top and base coating formulations at an annual chemical cost of approximately \$250,000. This increase in dosage immediately improved coating leveling and eliminated the surface quality issue.