

BC Coastal Hem-Fir Initiative – 2012/13

Project Title	Optimizing Hem-fir Value Recovery in Pulp and Paper
Project Number	H.13
Project Leader	Mark Firth
Project Team	Dongbo Yan, Xuejun Zou, Javad Saberian, David Wong, Sylvian Gendron
Total Budget	\$200,000

Need(s)

With the demand for printing and writing papers shrinking, there is an urgent need to improve the competitiveness of our BC paper mills, through both product performance improvements and improved manufacturing efficiencies. For example at Port Alberni, there is a need to eliminate paper cockling and fluting, a quality issue that limits expansion into some markets and creates significant costs in customer claims. Improved bleaching will reduce operating costs and has the potential to open the path to higher brightness grades in future to meet changing market demands.

Objectives & Approach

Improve or eliminate paper cockling and fluting:

1. Improved coating coverage has been identified as a potential solution and lab coating trials with different formulations are in progress.
2. The improved coating recipe identified in the lab coating trials will be tested in a mill trial and is expected to lead to significant improvement in cockling/fluting
3. The work to eliminate cockling and fluting will be expanded to Powell River PM10.

Improved TMP bleaching:

1. Our joint work with the Port Alberni mill in 2011/12 has shown potential savings of up to 5 kg hydrosulfite/tonne pulp by optimizing hydrosulfite bleaching, with potential additional savings in chelant usage. The approach for this year is to implement the changes and achieve the savings
2. Our previous work with the on-line chip sensor showed significant fluctuations in incoming chip brightness, including low brightness on Mondays (during the period evaluated) due to differences in week-end chip deliveries. We will evaluate the potential to use the on-line chip sensor for bleaching chemical addition control, and if feasible, will implement the control.

Benefits

- Solving the cockling and fluting paper performance issue in pressrooms would save ~ \$2.5 million/y and prevent the loss of major customers. Much larger long-term impact is expected by opening up additional market opportunities.
- Bleaching optimization of hem-fir mechanical pulp will deliver up to \$600 k/y chemical savings and open the path to higher brightness grades in future to meet changing market demands.

Project Tasks and Outputs – Current fiscal year

Tasks / Outputs	Expected Delivery Date
Complete lab coating trials with different formulations	July 2012
Conduct mill coating trial	December 2012
Work with mill to implement coating changes; measure and report the impact on cockling and fluting	March 2013
Work with mill to implement bleaching optimization; measure and report the results and savings	December 2013
Evaluate potential to use on-line chip sensor for bleach addition control (go / no-go decision)	December 2013
If feasible and if benefit is sufficient, implement bleach addition control using chip sensor, with potential application at additional mills in future.	March 2013

Status and Major Accomplishments – Previous year

- Cockling/fluting is a major issue for LWC paper, costing the Port Alberni mill ~\$2.5/y. FPInnovations' ongoing collaboration with the mill has already achieved significant improvements (\$200k/y). The second phase of this work is focusing on improving coating coverage. Lab coating trials with different formulations are in progress. The resulting coating recipe identified will be tested in a mill trial and is expected to lead to significant improvements in cockling/fluting.
- Our joint bleaching optimization work with the Port Alberni mill has shown potential savings of up to 5 kg hydrosulfite/tonne pulp by optimizing hydrosulfite bleaching, with potential additional savings in chelant usage.
- Our previous work with the on-line chip sensor showed significant fluctuations in incoming chip brightness, indicating a potential to use the on-line chip sensor for bleaching chemical addition control (one barrier is the process lag time between the chip sensor and the bleaching process).

Performance Measures

Key Success Factor	Key Performance Indicator	Target	How the outcome of the Project supports the Program objectives
Full collaboration from the mill in implementing lab results	Mill trial successful; Reduction in cockling/fluting validated in pressroom	An improved coating recipe confirmed with a mill trial	Enhanced product competitiveness and gained new market
Implemented bleaching optimization	Measured reduction in bleaching chemical consumption	Saving 2 kg hydrosulfite/tonne pulp	Enhanced competitiveness of hem-fir products

Communication Strategy for Information Dissemination

Detailed results will be shared with the industry partner in technical reports. High level results, with broader industry implications, will be shared in presentation format with industry and ministry contacts, at the semi-annual Steering Committee meetings and appropriate industry and public forums.

Collaboration – Research Partners

In-kind support provided by the Catalyst Port Alberni and Powell River mills