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CANADIAN FOREST SERVICE

SPOTLIGHT

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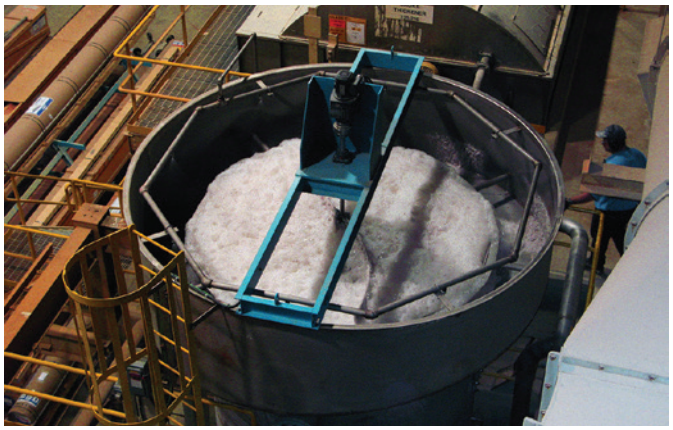
Deploying Innovative Technologies in Canada's Forest Sector

In the past few years, a number of innovative technologies have been deployed in forest mills throughout Canada.

These deployments have helped Canada's forest sector demonstrate the commercial potential of emerging or breakthrough technologies and processes.

Dispersed Air Flotation

Take dispersed air flotation, for example, a new technology that was recently pilot tested and implemented at Alberta Newsprint, a newsprint mill in Whitecourt, Alta.



Dispersed Air Flotation Technology. Courtesy of Natural Resources Canada

This technology was previously only used in the mining industry. With funding provided in part by the Government of Canada, it was adapted for use in the forest sector by FPInnovations, Canada's national forest research institute.

In simple terms, the technology treats the water used by the mill to produce paper with improved brightness and strength properties. This is achieved through dispersed air flotation, a process whereby small dark pulp fibers that become contaminated with wood resins are removed from the waters of the paper making machine.

The technology's implementation has also enabled Alberta Newsprint to make better use of underutilized mountain pine beetle-affected wood which is abundant in the province of Alberta but contains high contents of wood resin.

Prior to the flotation column's installation, resin from this wood would leave sticky deposits on both the mill's paper machine and the paper it produced. This not only affected paper quality; it also hampered the paper machine's smooth operation.

Today, with the dispersed air flotation column fully operational, Alberta Newsprint is able to double its use of mountain pine beetle-affected wood without having to contend with the troublesome paper machine resin deposits it had to deal with in the past. This has helped improve the mill's competitiveness.

The success of this innovative technology will soon be replicated elsewhere. In fact, a Canadian engineering firm has recently signed an agreement with FPInnovations to transfer it to other paper mills around the world.

Converting Waste Streams

New technology can also help Canadian forest companies convert their waste or surplus residue streams into non-traditional products.

Examples of two such technologies are the hollow fibre contractor reactor system and generator acid purification system. Both were

developed by FPInnovations and recently pilot tested at Canadian forestry facilities.

The hollow fibre contractor reactor system was recently pilot tested and implemented at AV Cell's mill in Atholville, N.B. It treats mill effluents more efficiently than the conventional anaerobic digestion process which uses microorganisms to break down biodegradable waste in the absence of oxygen. When anaerobic digestion is combined with the hollow fibre reactor system technology, the mill is able to convert part of its effluent into biogas. It can then re-use the biogas as fuel, lowering its operating costs and reducing its environmental footprint.

Hollow fibre contractor reactor system. Courtesy of Natural Resources Canada

For its part, the Generator Acid Purification (GAP-S) technology was recently implemented at Mercer International's Zellstoff Celgar facility in Castlegar, B.C. During the pulp bleaching process, the technology separates two important chemicals from the mill's residue stream.

Since the mill can then re-use the chemicals, it is able to save money on future purchases of these chemicals as well as on costs related to their environmental disposal. This enhances the mill's competitiveness and its environmental sustainability.

The GAP-S system. Courtesy of Natural Resources Canada

Federal Support

The federal government is committed to fostering innovation in Canada's forest sector. Since 2007, it has financially supported research on the development and deployment of innovative technologies and processes for the sector. This funding has been delivered through a number of federal programs while the research has been led by FPInnovations.

The introduction of these innovative technologies is helping the sector diversify its product base. It is also repositioning it for a more competitive future.

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