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Innovative Alberta pulp mill to recover wood byproduct for transformation into green bioproducts

Commercial-scale West Fraser lignin recovery plant in Hinton a Canadian first

EDMONTON – Alberta is home to the **first commercial-scale plant in Canada** to extract a natural substance in trees called lignin for the development of **sustainable new value-added products**.

West Fraser, a diversified forest products company with operations across Western Canada, has built the new plant at its pulp mill in Hinton, Alta. The state-of-the-art facility will recover lignin from the pulping operation using a novel technology, and transform this wood byproduct into **useful, environmentally friendly bioproducts**.

The \$30-million plant – made possible through joint funding by industry and government – began production in March.

Alberta Innovates Bio Solutions (AI Bio) awarded West Fraser a \$3-million innovation grant. The provincial portion was leveraged with investments from West Fraser and federal government sources, including Natural Resources Canada and Sustainable Development Technology Canada.

AI Bio's funding agreement with West Fraser includes a provision for the company to contribute \$1.5 million into a "lignin research fund."

"Innovation can open new markets and commercial opportunities for our forest industry, which plays a crucial role in further diversifying our economy and strengthening our rural communities and the province as a whole," said Oneil Carlier, Alberta Minister of Agriculture and Forestry.

West Fraser will develop the use of lignin as a natural adhesive in its engineered wood products – as a renewable substitute for certain synthetic resin components currently derived from fossil fuels. Examples of other potential applications include green chemicals (bio alternatives to petroleum-based chemicals), thermoplastic composites (advanced mouldable materials), and packaging.

The startup of a lignin recovery plant is a major innovation in the forest industry and represents a significant milestone in the growth of the Alberta bioeconomy, said Steve Price, CEO of AI Bio.

"Foresters have long been searching for ways to put lignin to better use," Price noted. "The ability to recover lignin and transform it into green bioproducts will add more value to an abundant Alberta biomass and contribute to the provincial economy in a sustainable way," Price said.

Ted Seraphim, president and CEO of West Fraser, said the company recognizes the strategic importance of continuing to develop the company in a manner that fully utilizes the forest resource. West Fraser has been at the forefront in bioenergy and bioproduct development in Western Canada and the lignin project is the next step.

“Lignin is an opportunity to expand our product line and recover the maximum value from our fibre and our manufacturing process,” Seraphim said. “This technology has the potential to be a new product offering for all pulp mills in Canada. In addition, it is a sustainable choice. Every tonne of lignin substituted in phenol-formaldehyde resin prevents a tonne of CO₂ emissions from entering the atmosphere,” he said.

Backgrounder:

Lignin is the natural compound in trees that gives wood its strength. It is one of the most abundant organic polymers on Earth. Scientists worldwide have been researching potential value-added uses for this renewable biomass and how to extract it economically.

Pulp mills usually burn the “black liquor” (byproduct from the pulping operation, consisting of lignin and spent chemicals) as a fuel source for the mill. West Fraser will divert a portion of the black liquor and extract high-purity lignin using a proprietary process developed in Canada with FPInnovations and NORAM Engineering, called the LignoForce System™. The Hinton facility is the first commercial-scale implementation of this new technology.

In addition to AI Bio funding, Natural Resources Canada (NRCan), contributed \$10 million to the project in 2014 under the Investments in Forest Industry Transformation (IFIT) Program. The IFIT program provides funding for near-commercial or first-commercial deployment of innovative technologies in the Canadian forest sector — a critical step in taking ideas from the research and development stage to the marketplace.

Sustainable Development Technology Canada (SDTC) announced in 2015 that it would be investing \$6 million into this project. SDTC is an arm's-length foundation created by the Government of Canada to promote sustainable development and support projects that develop and demonstrate new technologies to address issues related to climate change, air quality, and clean water and soil.

Initially, West Fraser plans to market lignin as a natural replacement for certain components of phenol-formaldehyde, a synthetic resin that is widely used as an adhesive in engineered wood products, such as plywood, oriented strandboard and laminated veneer lumber.

About: Alberta Innovates Bio Solutions

[Alberta Innovates Bio Solutions](#) (AI Bio) is a board-governed agency funded by the Government of Alberta. AI Bio invests in science and innovation to grow prosperity in Alberta's agriculture, food and forest sectors through new technologies, products, services or industry practices.

About: West Fraser

West Fraser is a diversified wood products company producing lumber, LVL, MDF, plywood, pulp, newsprint, wood chips and energy with facilities in Western Canada and the southern United States.

For more information: www.westfraser.com

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