



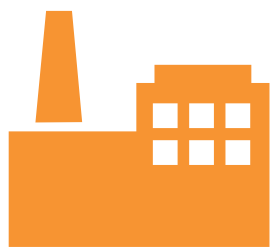
EVOLUTIONARY LIGNIN RECOVERY PROCESS

West Fraser has developed the world's first commercial process to extract a kraft lignin product used in a multitude of industrial applications.

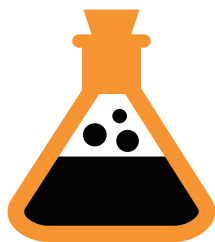
- the lignin product extracted from the pulp-making by-product, black liquor, can be used in a variety of innovative applications such as commercial glues for plywood, fibreboard and laminated veneer lumber manufacturing, and advanced bioproducts



UTILIZING CANADA'S FORESTS: RESULTS EXPECTED



PULP MAKING



BLACK LIQUOR



LIGNIN

**10,000
TONNES
PER YEAR
OF LIGNIN
PRODUCED**

INNOVATING WITH WOOD

- lignin is the polymer which gives trees their physical strength
- dry lignin is produced by removing a portion of the black liquor from the recovery boiler for processing in a lignin recovery plant where it undergoes a number of precipitation and washing processes to deliver a final product
- the lignin product will range from a dry powder to a wet cake depending on client needs

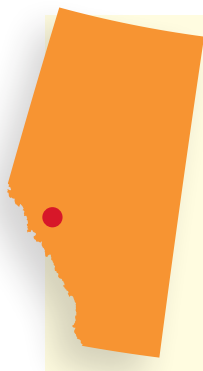
POTENTIAL OPPORTUNITIES

ENVIRONMENT: A LOW COST GREEN CHEMICAL ALTERNATIVE TO PHENOL-BASED PRODUCTS

ECONOMIC: PRESERVATION OF THE LONG-TERM SUSTAINABILITY OF THE MILL

MARKET: POSSIBLE NEW APPLICATIONS SUCH AS THERMOPLASTICS, PULP MOULDED PRODUCTS, ADHESIVES

ENVIRONMENT: REDUCED GHG EMISSIONS BY 10,300 TONNES PER YEAR



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.

PROJECT LOCATION: HINTON, ALBERTA

This Project represents Canada's first implementation of a commercial scale kraft lignin production facility. It allows Canada to take a leadership role in the production of a Canadian-developed biomaterial for use in traditional and non-traditional markets.

— Ted Seraphim, President and Chief Executive Officer West Fraser Mills Ltd.

Investments in Forest Industry Transformation Program: In 2010, Natural Resources Canada's Canadian Forest Service created the Investments in Forest Industry Transformation Program (IFIT) to support Canadian companies to develop and grow markets for new and innovative high-value products using Canada's forest resources. *For more information www.nrcan.gc.ca/forests/federal-programs/13139*

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