



**PAPER
EXCELLENCE**

HOW WE MAKE KRAFT PULP

Kraft pulp is a distinctively high-strength type of pulp and a key building block of many familiar and important products in our daily lives. This includes such things as printing and writing papers; tissues, coffee filters and other consumer products; and specialized applications like fibre cement and Japanese washi paper.

We manufacture high-quality softwood and hardwood kraft chemical pulps, and chemi-thermo-mechanical pulps, that in turn are used to make packaging, papers, tissues, towels, and other specialty products.

The essential elements for making kraft pulp are wood fibre, water, chemicals and heat.

THE KRAFT PULPING PROCESS

We make kraft pulp by mixing wood fibres with a solution of caustic soda and sodium sulphide, and cooking them inside a digester. This separates the fibres from the lignin, which is a natural glue-like substance that binds them together. Our production facilities are designed to recover and reuse much of the water, chemicals and steam used in the process.

PUTTING SAWMILL LEFTOVERS TO USE

The fibre we use to make kraft pulp is mainly made up of leftovers from lumber mills. These wood chips and shavings were once considered waste and sent to landfills or burned. We match tree species and other pulp characteristics with customers' end-use requirements, and control blending and bleaching to exacting specifications.

ENVIRONMENTAL ASSURANCE

As with all products from our Canadian mills, our kraft pulp is made from responsibly sourced fibre and in facilities that have achieved sector-leading greenhouse gas reductions. We use a lower-impact elemental chlorine-free bleaching process. And with our chain-of-custody systems (using FSC®, PEFC™ and SFI®)¹ we can provide pulp that is certified as originating from sustainably managed forests for those customers wishing additional assurance.

PAPER EXCELLENCE CARES ABOUT CERTIFICATION

Paper Excellence buys fibre from local sawmills and forest tenure holders and owner. We also manage some forests in Nova Scotia.



ABOUT US

Paper Excellence is a diversified manufacturer of pulp and specialty, printing and writing, and packaging papers. We believe in the enduring value of wood-based products in global markets, and have built a large network of mills and chipping plants to produce them competitively. Through our distinct approach to operational excellence, we deliver high-quality and cost-effective products to international customers.

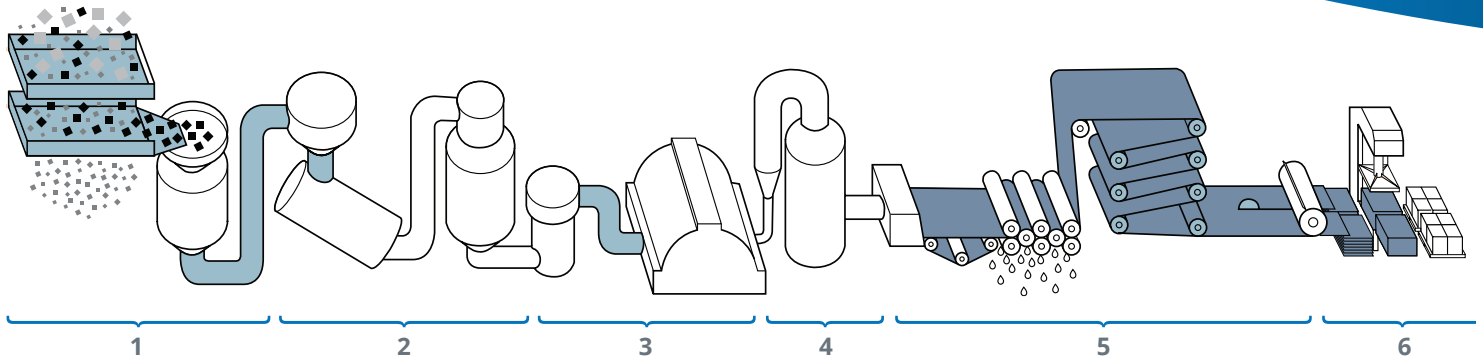
Paper Excellence has a combined annual pulp production capacity of 2.5 million tonnes.

- » Crofton
- » Howe Sound
- » Mackenzie
- » Meadow Lake
- » Northern Pulp
- » Skookumchuck
- » St. Gaudens
- » Tarascon

¹ FSC=Forest Stewardship Council | PEFC=Programme for the Enforcement of Forest Certification
SFI=Sustainable Forestry Initiative

HOW WE MAKE KRAFT PULP

THE KRAFT PULP PROCESS



1 WOOD CHIPS

The main ingredient of kraft pulp is wood fibre in the form of chips. A typical wood chip measures 40 x 25 x 10 mm, and is a leftover from lumber manufacturing. They are stored in a silo after delivery to the pulp mill. To produce pulp, the wood chips must be broken down into their individual cellulose fibres.

2 DIGESTER AND BLOW TANK

A digester is a large tank, between three and six metres in diameter. Inside it, a combination of chemicals, heat and pressure dissolve the lignin and begin the process of converting chips to pulp. From the digester, the fibre goes into a blow tank, where a rapid change in pressure causes the wood to separate into individual fibres.

3 SCREEN AND WASHING

Screens remove any fibre bundles that have failed to separate, and they are reprocessed. The pulp is also washed thoroughly to remove chemicals and dissolved lignin. The pulp, now a brown-coloured combination of individual wood fibres and water, is then stored to await bleaching.

4 BLEACHING

Bleaching is a five-step process of soaking and washing within a vertical tower, using a sequence of hydrogen peroxide, chlorine dioxide, oxygen and caustic soda. This both dissolves any remaining lignin and turns the brown pulp fibres white. We use an elemental chlorine-free bleaching process. Then it's on to another storage tank to await pressing and drying.

5 PRESSING AND DRYING

The pulp is now a slurry which is converted into sheets by being passed through a sheet former, where water is drained through a combination of gravity and suction. The sheets then pass through the press sections – which squeeze out more water – before heading for the dryer. Here, steam-heated air jets reduce water content to less than 10%.

6 PULP BALES

Once out of the dryer, sheets are immediately cooled to keep their colour consistent. They are then cut into smaller sheets and baled. A hydraulic press compacts the bales before they are wrapped for shipment to customers. Bales typically measure 81 x 85 x 38 cm and weigh 250 kg.

Paper Excellence sells its kraft pulp externally to customers around the world. Some of Paper Excellence's Canadian mills also produce a type of mechanical pulp, referred to as thermo-mechanical pulp or TMP, for use in making their own paper products (see "How we Make Paper" fact sheet). Our Meadow Lake mill makes Bleached Chemi Thermal Mechanical Pulp (BCTMP) which is a hybrid of kraft and TMP.

RICHMOND HEAD OFFICE

2nd Floor, 3600 Lysander Lane, Richmond, British Columbia, Canada V7B 1C3
1.604.247.4400 / info@paperexcellence.com / www.paperexcellence.com