

PAPER - ANOTHER END USE FROM THE TIMBER INDUSTRY

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Western Maryland's forest resources are used by a variety of consumers and manufacturers throughout the United States. One business enjoying a long association with the regional timber industry is paper manufacturing, whose facilities are located throughout the East Coast. The paper mills have provided employment to thousands of workers and paper products to customers around the world.

Early editions of the mills were not as sensitive to environmental issues; however, those conditions have changed. In recent decades, professional foresters and the paper industry have developed a successful working relationship that seeks to provide the necessary wood fiber for the industry, while also establishing stewardship programs that will protect the environment and sustain renewable resources for the future.

The papermaking process is one that begins with forest resources and ends with a variety of manufactured products. From the planting of trees or natural regeneration of hardwood forests to the shipping of finished goods, each step in the process requires careful planning.

The forest nurtures the wood necessary for the production of paper. Private landowners and independent loggers and sawmills provide most of the harvested wood that arrives daily at the NewPage mill in Luke, Maryland. Charlie Hartman, Wood Operations Superintendent at NewPage, notes that his company is not the prime harvester of forest products because it is the lesser quality material that creates the pulpwood supply for papermaking. Paper companies do not typically purchase prime grade timber because that is sold by landowners to large saw mills where higher value can be realized. About one-third of the wood fiber arriving



One of the paper mills in the East Coast region is situated along the banks of the Potomac River in Luke, Maryland. The NewPage Luke mill operation has 1,100 employees and extends into three counties and two states—Allegany and Garrett counties, Maryland, and Mineral County, West Virginia.

at the paper mill is composed of sawmill chip residual materials, another third from tree limbs, tops, and lower graded hardwoods, and the remainder from forest thinning operations.

All pulpwood arriving at the mill must first be processed to remove bark. This is accomplished by placing the wood in large tumblers that resemble giant clothes dryers. As the wood turns in the tumblers, friction removes the outer bark and it falls onto a conveyor belt for removal and sale to another industry. The cleaned pulpwood slides from the tumbler onto a conveyer belt that transports them to a chipper wheel. Uniform size wood chips, about the size of fifty-cent pieces, are formed in the chipping process. Not all chips are produced at the plant; some arrive by truck already cut

to size at sawmills throughout the region. Approximately 70% of the chips are derived from hardwoods because they provide smoothness to the paper, while about 30% come from softwoods, such as pine, that provide sheet strength. This mix may vary depending on the type of paper produced.

After chips are prepared, the papermaking process moves indoors. The wood chips are mixed with chemicals and fed into pressure cookers to soften the lignin material that binds the fibers together. Those fibers are sent through several stages of bleaching, washing, screening, and cleaning to reach a desired level of brightness. Pigments, dyes, sizing, and resins are added to the fibers in a “headbox,” a large rectangular container above the paper machine. The headbox mixture is more than 90% water and resembles white slurry as it flows evenly onto the paper machine immediately below. A moving screen initially supports the slurry allowing much of the water to be drawn into collection tanks below.

As the paper slurry continues forward on the paper machine, it passes through heavy rollers that remove additional moisture and through steam-heated cylinders that further speed the drying process. Each dryer steam heats to 180 degrees, so the paper will eventually dry on contact before reaching the end of the process. Depending on customers’ requirements, pigmented coatings are applied by a coater. The paper exits the machine and is rolled onto large cylinders that are assigned bar codes and protective

coverings. All finished products are finally placed into a storage area until transportation arrangements to customers are finalized.

Some paper mills only produce coated paper, a broad term including printing and cover paper, as distinguished from wrapping papers, newsprint, and non-coated products. Those coated paper products can be found in some of the best known books, journals, canned good labels, and magazines, like *Mountain Discoveries*.

The editors of *Mountain Discoveries* have established a positive working relationship with the Luke operation of NewPage, a nationally recognized producer of coated papers. The magazine is printed on Sterling® paper manufactured at the Luke facility, thereby making NewPage a part of *Mountain Discoveries*’ success. Lance Bell and Kathie Smith, publishers of *Mountain Discoveries*, appreciate the quality of the paper produced at NewPage and the dedication of the employees who work there, the forest landowners who properly manage their standing timber, and the producers that supply the wood fiber to the mill.

Western Maryland’s timber industry continues to thrive as thousands of workers are employed to plant, manage, and harvest the trees for consumer products made available throughout the world. Proper management of forest resources has shown that the needs of industry can be met in an environmentally friendly and sustainable manner. 🌱



WOOD CHIPS

The logs, which come from properly managed forests, are cut into inch-sized pieces before being sent to the Pulp Mill for further processing. Additional wood chips are also purchased from area sawmills.



UNBLEACHED PULP

Pulp is prepared by cooking the wood chips in a large pressure vessel known as a digester. Water and chemicals are used during the cooking process, which takes approximately two hours.



BLEACHED PULP

After the cooking process, the brown pulp passes through a multi-stage bleaching process to achieve the whiteness and brightness levels required for various products.