

Opal Paper & Recycling Botany Mill is a 100% recycled paper mill, producing packaging paper from waste cardboard collected within Australia.

There are essentially two stages to the paper recycling process at Botany Mill:

- Stock preparation - pulping and screening of the waste cardboard
- Paper making - where the pulp is turned into paper

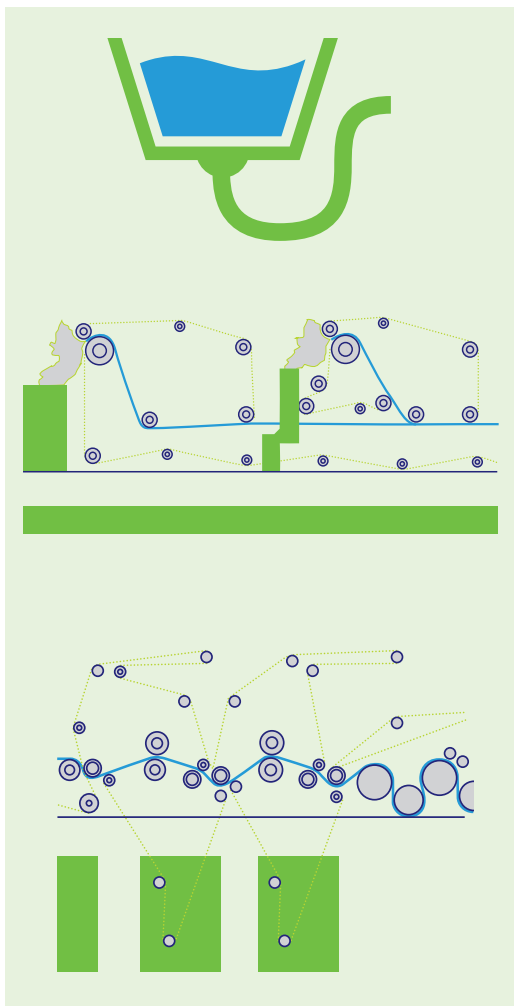
The stock preparation process is a very simple process of adding water to the cardboard to produce pulp - there are no chemical pulping additives and our process does not produce any black liquor.

The pulp is then passed through a series of screens and separators to remove any rubbish such as plastic and glass that comes in with the waste cardboard.

The paper making process turns the pulp into paper by removing the water through vacuums, pressing, and finally evaporation.

The steam coming from the exhaust stacks on top of the Botany Mill building is the evaporation of the water from the paper as it passes over hot rollers.

The B9 paper machine process requires a high volume of cardboard boxes to make recycled brown paper. One 50 tonne roll of recycled paper from the B9 paper machine can be used to make roughly 140,000 recycled boxes!



Stock Preparation

Recycled waste paper and cardboard is blended in water in a large vessel called a “pulper” that acts like a blender to separate fibres in the paper sheets from one another. This creates slurry that then passes through screens and other separation processes to remove contaminants such as clays, dirt, plastic and metals.

Forming

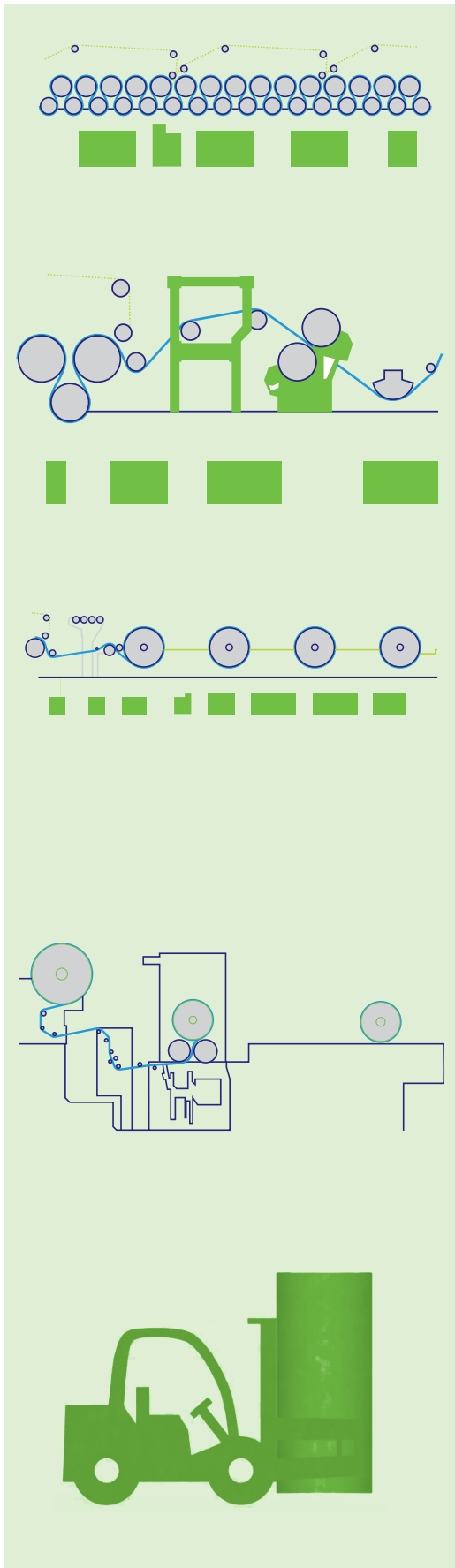
This recycled fibre is pumped to the “head box” which has a narrow opening known as a “slice”, equal to the width of the paper machine. Through this slice, the recycled fibre is injected onto synthetic fabrics, with fibre retained on top and water passing through for reuse. This produces a layer (or ply) of paper.

The forming process is then repeated with additional fibre layers being placed on top of each other to create two ply paper. The paper layers bond together in preparation for the “Press Section”.

Press Section

In this section of the process, the main objective is to remove all water from the sheet via mechanical means.

Firstly, the wet paper sheet is pressed under high pressure and vacuum to remove water from the sheet. The pressing also helps make the final paper sheet stronger.



Drying

The pressing process removes most of the water from the sheet, but not all. To ensure that the remaining water is removed, the paper is “dried” over steam-heated drying cylinders and vacuum rolls.

Sizing

During the Drying process, the paper sheet passes between two rolls which apply a thin film of starch to each side of the sheet. The starch is absorbed into the paper to provide extra strength.

After Dryers

This is the final drying process, whereby all residual moisture added during the Sizing process is removed over steam-heated drying cylinders and vacuum rolls.

Reeling

The paper is wound into a large reel before being transferred to the Winder. Samples are taken from the large reel and tested to ensure the paper meets stringent quality standards and customer specifications.

These large reels, known as “Parent” reels, weigh around 50 tonnes and measure almost six metres in diameter.

The maximum speed of this process on B9 is 1600 metres per minute.

Winding

In order to supply appropriately sized rolls of paper which conform to our customers’ requirements, the large Parent reel of paper is unwound, cut into smaller widths, and rewound into rolls which can be more easily transported by our customers.

These smaller rolls, known as “Customer” rolls, weigh around four tonnes and measure approximately 1.5 metres in diameter.

The maximum speed of this process on B9 is 3,000 metres per minute.

Storage and Delivery

The Customer rolls are then stored for a short period before being dispatched to the respective customer for conversion to corrugated board.