

The Paper Making Route



THE
NAVIGATOR
COMPANY



1

Forest

The sustainable development cycle implemented by The Navigator Company means our products are environmentally responsible, based on sustainably managed forests planted specifically for this purpose. In short, using our paper stands for forestation and protecting Nature.

WE DON'T JUST MANAGE A BUSINESS, WE MANAGE FORESTS.
The management of Eucalyptus forests is done in a sustainable manner through annual plantation plans and tree renewal as well as biodiversity conservation projects that meet international certification standards of forest management.

CLONING EUCALYPTUS GLOBULUS
Our forest nurseries produce over 12 million plants annually. The main species is Eucalyptus globulus.

PHOTOSYNTHESIS
12 YEARS
LIFE CYCLE



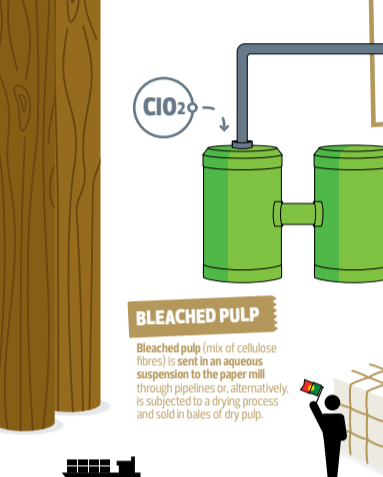
12M
12 MILLION PLANTS GROWN ANNUALLY

HIGHER NUMBER OF FIBRES PER KG
Eucalyptus globulus requires a smaller amount of wood to produce the same amount of paper: up to 46% less when compared to some conifers, like Cupressus sempervirens or Pinus sylvestris.

2

At the pulp mill

WOOD COOKING AND PULP PRODUCTION
The purpose of cooking the Eucalyptus wood is to individualize the pulp fibres by dissolving lignin through the use of chemicals, temperature and pressure. Lignin is an organic compound with high heat value and is reused for the production of steam and energy by being burnt in the recovery boiler.



EUCALYPTUS WOOD CHIPS
The pulp mill receives Eucalyptus wood and produces bleached Eucalyptus pulp.

WHITE LIQUOR

BLEACHED PULP
Bleached pulp (mix of cellulose fibres) is sent in an aqueous suspension to the paper mill through pipelines or, alternatively, is subjected to a drying process and sold in bales of dry pulp.

BEKP BLEACHED EUCALYPTUS KRAFT PULP

COGENERATION POWER PLANT
All the energy used during the production process comes from several sources, the greatest being the biomass which comes from The Navigator Company forests. In addition to the use of green energy, The Navigator Company also produces energy that is subsequently sold to the national power grid.

3 To the paper mill

At the paper machine nearly all the water is removed, whilst keeping the fibres and other components connected to each other. The water is removed in 3 phases: by **filtering** (the fibres and other raw materials are placed in the forming table, which has a web which removes most of the water); by **pressing** (the sheet is compressed, with water being "squeezed" by large rolls which apply pressure on the sheet, transferring the water to felts from where it is later removed) and by **drying** (the remaining water is removed by using heat. Paper passes between the different cylinders which are heated by internal steam injection, thus evaporating water from the paper sheet).

60 min

JUMBO
The paper is reeled into large jumbo reels. A jumbo takes 60 minutes to be made and contains 80 tons of paper.

80 Tons

4

Converting

WINDER
Afterwards, this jumbo is transported to the cutting section where rotating blades cut the paper longitudinally, which is then wrapped around paper cores to form rolls of smaller width and diameter. Afterwards, it will be sent to the reels converting area or to the automatic warehouse.

TWO DESTINATIONS

CUTTING LINE
There are two large cutting lines with double wrapping equipment, packaging, labelling and palletisation. Six reels with a width of 3.4 meters and 5.3 tonnes each are unwound simultaneously on each line. Sixteen reels are cut side by side at a speed of up to 256 reels per minute.

DISPATCH
The boxes are strapped and follow towards a palletizer where they are grouped according to the customer's order (number of layers per pallet, pallet size, etc.). These pallets are then transported by robots to another machine where they will be wrapped in plastic. In the case of folio sizes, the palletized sheets also follow the same process. The labels that identify the product and the destination are placed here. There are several shipping methods: truck, ship and train. Every day, around 2000 tons of paper leaves the mill.

CUTSIZE
FOLIO PRE-PRINT
FOLIO OFFSET

5

End User

Paper reaches the end user through an international network of official distributors who sell paper, therefore providing their customers with the best available quality in graphic and office papers.



CONVENTIONAL WAREHOUSE
3.500 Reels
Only 15% of the reels are specific for external end users. The remaining 85% are reels meant to serve an internal customer - the mill's own converting department. The warehouse where the converting reels are being stored has an overall capacity for 3500 reels, corresponding to about 10,000 tonnes of paper.