First 3-layer headbox at Sappi Maastricht

T. Boersma ·Sappi Maastricht B.V. · Maastricht / The Netherlands

Sappi Maastricht PM 6 (4.56 m wide) has been producing graphical board with super printability since 1996. Over the years, the production range expanded from 170 gr/m^2 up to 450 gr/m^2 end product. (approx.:100 to 350 gr/m^2 adro on wire-speed 400 to 750 m/min)

The ash content has grown from a 15% in the year 1996 to now almost 40% in the base paper. So the question is how do you reach such targets while preserving the right quality, high bulk, stiffness, cracking at the Fold resistance, delamination resistance... etc.

The range of products was expanded in 2016 with the addition of Solid Bleached Board and first tests to produce Folding Box Board as premium packaging were performed with the single headbox – with good result....but it was decided to improve the surface properties for FBB and to reduce the cost at the same time.

The big question was how to produce these very different products on the same machine. As a consequence we had to look for a flexible process that can produce the 3 base products.

The 3-fiber layer concept was chosen due to Sappi's theoretical and practical lab test investigations. However, a new traditional 3 headbox set-up was too expensive and not possible due to a lack of space in the Mill.

Also, in the sustainable philosophy to produce paper with less electrical power, less water, less “consumables” (like wires), less down time, etc., a traditional set-up was not the solution. An innovation had to be created – 3 layers of different pulp out of 1 headbox.

To be sure that it had a chance to work, tests were performed at the Valmet Pilot plant in Jyvaskyla Finland. After one year of preparations, design of a new stock approach flow and control system by Sappi engineering, the Valmet headbox was ultimately installed in January 2018. Starting up in the graphical grades was no problem, but an optimisation of the SBB and FBB production was needed.

It appears that in a continuous process the hydraulic behaviour in the headbox had to be changed to blend the 3 different layers in such a way that quality requirements could be met. A lot of tests and scientific studies were undertaken by Sappi mill in 2018 and 2019 related to the headbox concept, wet-end chemistry and stock approach flow system.

Innovation turns into a proven concept, based on experience, entrepreneurship and perseverance.