

## Raising the curtain on *Prime* performance

A new curtain coater from ANDRITZ helps an innovative paper producer produce top quality and develop technical papers for the future.



*"Because only the non-contact contour coating process can achieve an almost perfectly homogenous surface."*

Peter Müller, Plant Manager and member of the Cham Paper Group's Management

"Paper is used in more technical applications than most people are aware of," says Dr. Peter Müller, Plant Manager and a member of the management board for Cham Paper Group (CPG) of Switzerland.

CPG concentrates on specific value-added technical applications, lending credence to their motto "Innovation out of tradition!" The tradition comes from Cham's 350-year history. The innovation comes in such areas as digital printing. CPG's expertise is so comprehensive that employees function as consultants in the development of special printing software.

"We have always been looking for competence areas that show medium- to long-term development potential," says Müller. "Years ago, we targeted digital printing – developing papers which would showcase the strong points of that printing technology. As part of this, we also investigated curtain coating as a tool, because only the non-contact contour coating process can achieve an almost perfectly homogenous surface."

### Labels and flexible packaging

Digital printing, however, is not the only focus at Cham. CPG believes the areas of labels and flexible packaging are just as important. Here, the intent is to replace plastics in certain applications. "We are able to offer paper for flexible packages which are comparable in their properties to plastics," Müller explains, "but are manufactured from renewable, sustainable resources. With this added benefit, they are better alternatives."

The more diverse the packaging material, the higher the separation costs in waste disposal. "Companies and communities can save money by limiting themselves to one type of material," Müller says. "This is why we are developing new papers which have the properties of plastic foil, but use wood fiber."

In this development area, explains Müller, curtain coating is also an important precondition for further development – especially for coatings which ensure special chemical or mechanical properties. The efficiency and economics are improved by the ability to apply several coating layers at the same time.

### Raising the curtain on technology

Curtain coating achieves excellent coating profiles in cross-web and machine direction – and can apply multiple layers simultaneously in one pass. While it may be rather unknown in the paper industry, it has been well-proven for coating single and multiple layer products in the photographic industry since the 1970's.

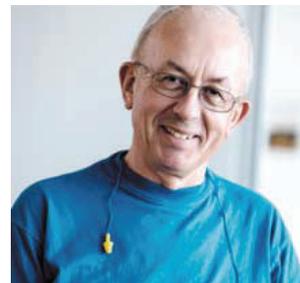
The coating liquid in curtain coaters is metered with minimum deviations in profiles ( $<\pm 0.5\%$  in MD,  $<\pm 1\%$  in CD), and no excess application of coating liquids. The process creates an even coating on uneven substrates (contour coating) and defects, which can be observed in blade coaters or slot die coaters, are virtually absent.

For multilayer curtain coating, different coating liquids are applied through individual metering slots in special dies. It is also possible to split one very thick layer to two or more slots and to combine layers with different thicknesses.

### PrimeCoat Curtain project

In 2009, Cham Paper Group made an investment in a new curtain coater (PrimeCoat Curtain) from ANDRITZ PULP & PAPER. In addition to the coating machine, ANDRITZ retrofitted two air float dryers and delivered a new air float dryer with heat recovery.

The new PrimeCoat Curtain design is highly flexible, according to Walter Keller, CPG's Head of Engineering, which was a key consideration in it being selected. The new coater is more than a production unit; it is



*"The PrimeCoat Curtain design is highly flexible."*

Walter Keller, Head of Engineering for Cham, was responsible for the modernization and start-up of Coating Machine 5

▲ The Cham Paper Group manufactures speciality paper grades for applications in the areas of printing, packaging, and labels.



▲ Above: The PrimeCoat Curtain is capable of over-board (no edges as shown above) or in-board (with edges) coating. Below: Since May 2009, the PrimeCoat Curtain has been utilized for production and product development in the Coating Machine 5 line. ▼



also used to systematically develop new paper products. "We run trials for product and process development every chance we get," Keller says. "This is an ideal way to bring innovative products to the market."

The PrimeCoat Curtain can be easily configured to produce in-board or over-board (with or without edges) coating. The curtain height and angle of inclination can be adjusted individually. A multi-layer die has been integrated into CPG's coater. Another feature is the web guiding system included in the delivery, which guides the web smoothly and straight through clearly defined edges down the machine. The guide, spreader, and tension measuring rolls are all driven to exclude tensile strain. In addition, a web break monitor shuts down the drives immediately in case of a web break. The vacuum roll, also part of the ANDRITZ delivery, provides a fixed point for tension control.

### The die is critical

The core of the PrimeCoat Curtain is the die. CPG opted for a cascade die capable of applying different media in a two-layered curtain simultaneously. The coater at CPG is infinitely adjustable for widths between 3,020 and 3,280 mm. The curtain can be set up at different heights (200 to 350 mm) and its angle of impact can be inclined by up to 10 degrees. Base papers from 60-200 g/m<sup>2</sup> are processed at speeds between 200-750 m/min.

In March 2009, Coating Machine 5 restarted operation, initially with the three-blade coating apparatus. Since May of 2009, the PrimeCoat Curtain has been running in regular production. The greatest challenge has been in arriving at the perfect coating mass. Temperatures and other chemical aspects are as important as setting up the machine parameters, Keller says. Like other processes in paper finishing, coating is a

complex interaction of many different factors, which lead to a highly modern and effective way of producing innovative special papers.

"We are the experts in developing and producing papers with special functionalities," Müller explains. "Sure, we produce the base papers which contribute significantly to the end product, but at the end of the day it is the coating which makes the difference."

Coating is one of CPG's essential competences. It has ensured them success in special profitable niches. "And this," Müller stresses, "will be strengthened markedly with the new curtain coater from ANDRITZ."

Chief Chemist Natacha Valera and her colleagues setting the parameters for the "slurry" (coating mass). ▼

