

Curtain coating for label papers and flexible packaging papers

Higher efficiency and quality thanks to contactless coating

For high coat weights with especially high requirements in terms of finish quality, the curtain coater outclasses the standard method.

You find them on shampoo bottles, luggage for air travel, letters, fruit baggies at the supermarket and advertising stickers on cars: label papers. Whether waterproof, tear-proof or easily printable, labels are used in a variety of different applications. For the purposes of coating label papers or flexible packaging papers, Voith Paper successfully tested a cost-saving method known as curtain coating. In the past, it was used primarily for specialty papers such as thermo and NCR paper. The curtain coater applies the coating color with perfection and improves the efficiency of the production process.

Label papers and flexible packaging papers are often characterized by a relatively low basis weight of the base paper while having high coat weights at the same time. Multiple coats are normally applied to the paper. Usually a precoat with 6 to 8 g/m² is followed by one or two top coats with 8 to 12 g/m². This usually involves multiple blade coats or a combination of film and blade coats. For high coat weights, if there are especially high requirements in terms of the finish quality, the curtain coater outclasses the standard method. Coat weights of 20 g/m² per

side or more can only be applied using a contactless method such as the curtain coater, if defects in the finish such as film splitting, misting or doctor streaks are to be prevented.

Better efficiency thanks to fewer breaks

Compared to a conventional blade coat, the curtain coater from Voith Paper achieves better coverage. This also has a positive effect on the subsequent printing because a homogeneous printed image is achieved with

less mottling. The curtain coater also prevents costly breaks occurring especially with light base papers due to the mechanical stress on the paper web with a coating blade. The curtain coater not only offers higher paper quality; it also increases the efficiency of the paper machine. When starting up a new paper grade, saleable quality is achieved faster because the ideal coat weight can be immediately applied and the grinding-in time of the coating blades is eliminated. In addition, downtimes are shorter because no wearing parts such as

blades, rods or rubber covered applicator rolls have to be replaced. Cleaning times are drastically reduced as well. Tests with the Voith Paper pilot coater showed that the combination of MG base papers and a curtain coater yielded especially outstanding results. Use with label papers and flexible packaging papers is therefore a viable application. This involves applying the coat to the smooth side of the paper. In trials, the master samples were outdone in terms of the roughness as well as gloss. Because the base paper is already smooth, using the curtain coater achieves PPS values around 1.0 µm. It is possible for curtain-coated papers to match the gloss level of blade-coated papers.

The curtain coater offers a broad operating range

The coat weights and speeds that are possible with the curtain coater de-

pend on the particular application. Basically the minimum flow rate is approximately 4 to 6 l/min*m, no stable curtain is formed at lower rates. The maximum coat weight greatly depends on the properties of the coating color and on the base paper. Trials performed by Voith Paper have shown that coat weights between 5 and 20 g/m² at a machine speed between 400 and 1,500 m/min are possible without any problems. It was also possible to apply coating weights greater than 30 g/m². For borderline applications such as at very high speeds or light coats, it may be necessary to optimize the coating color. Together with BASF and Omya, Voith Paper developed the testing method and the necessary components for different coating colors. Pigment mixtures, binding agent systems and the selection of additives are practically no different from those of standard coating methods. The solid content and viscosity are of a similar level. The right selection of the binding

agent system and the additive ensures production efficiency and product quality. When it comes to specialty papers in particular, the curtain coater offers a great economic advantage because an expensive functional coating can be at least partly replaced by a less expensive base coat. The curtain coater can also be used for specialty papers by applying multiple coats with the curtain coater. Using multi-layer curtain coating it is possible to apply several different media simultaneously. In the future, Voith Paper plans to use the curtain coater not only for specialty papers but also for classic pigment coats for wood-free and wood-containing commodity papers.

Contact



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Label papers are encountered frequently in day-to-day life, for example, when buying fruits and vegetables.

