

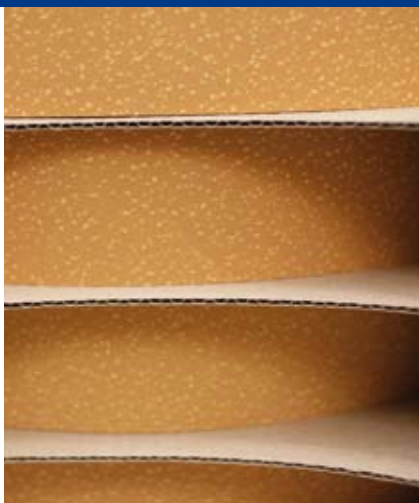


Production of one filter cigarette requires three specialty papers

If the tobacco tastes good, give some credit to the paper

Specialty papers are sometimes a matter of taste. That becomes quickly clear with a good coffee filter that influences the aroma of the stimulating drink. Papers for cigarettes are of a similar significance. The paper grades used have an effect on the taste, the strength and the reputation of a cigarette. Cigarette papers, plug wrap papers and tipping papers for the most varied brands are produced on Voith specialty paper machines.

For production of the roughly 700,000 tons of paper, the highest quality requirements apply, and thus also for the three machines that Voith Paper recently delivered in Europe and to China.



The tipping paper determines how strong a cigarette seems by means of the air supply.

Three different paper grades are used in the production of filter cigarettes: plug wrap paper, tipping paper and cigarette paper.

The cigarette market is currently developing internationally in different ways. While sales in Western Europe and North America are on the decline, sustained growth can be seen in Asia. Thus the market in China, for example, grew by 15 percent in 2007. The elaborate production that makes a filter cigarette a high-tech product is the same in all markets. Since the properties of a cigarette heavily depend on the paper characteristics, with these specialty papers it is a matter of a uniform basis weight profile and porosity profile. The porosity of the paper significantly determines the taste and the intensity, since it influences the amount of air that is used for burning tobacco in the cigarette.

Cigarette paper burns along with consumption

The best-known of the three paper grades is the usually white cigarette paper that encases the tobacco and burns along with it. A good CD profile with regard to porosity and basis

weight is necessary for this. With a high production speed of up to 16,000 cigarettes per minute, machine demands for mechanical strength and elongation of the paper are growing. In addition, high opacity is required that is achieved with filler material (25-35 percent). The cigarette paper in the basis weight range of 24 to 37 g/m² has a porosity between 30 and 110 Coresta (CUs). In the tobacco industry the porosity is measured by the Coresta unit. As a rule, wood-free fresh fibers are used for production, in part mixed with special fibers from flax and hemp. Most cigarettes are given an embossed marking that is already applied in the press section. In Jingfeng, China, the first spool reel was produced on the latest Voith cigarette paper machine in the third quarter of 2008. The proven components such as the RollJet K headbox, the DuoShake (shake unit, free of reaction forces for Fourdrinier machines) and the SpeedFlow also contribute to the highest reliability in this special paper machine.

Porous plug wrap paper determines cigarette strength

Optimum air porosity is required for plug wrap paper, because by means of the air supply this paper determines strength of the cigarettes. In production, the defined porosity must be achieved without deviation. It can be very high with up to 20,000 CUs, for example, with light cigarettes.

In order to achieve the required stiffness of the plug wrap paper, the very long special fibers made primarily of Manila or sisal hemp have to be optimally distributed. That can only be achieved with very low consistency in the headbox, and only the HydroFormer is able to handle the quantities of water needed to achieve the high porosity. For that reason, the two complete Voith paper machines and the last machine started up in China also have a HydroFormer. The dryer section is equipped with a DuoStabilizer for outstanding web run and with the SpeedFlow coating unit for efficient application of various additives.



This cigarette paper machine in China produces 12,000 tons of cigarette paper per year.

Appearance is decisive at the tipping

The printed tipping paper also determines the character of a cigarette; by means of its perforation, the quantity of additional air is controlled. The widest and fastest paper machine producing tipping paper runs in

Europe and was supplied by Voith. Like cigarette and plug wrap paper, tipping paper is also among the very light grades, with a basis weight of 28 to 40 g/m².

It gets its appearance in the gravure printing process, usually with a cork design, or white. Off-line perforation

brings about defined ventilation characteristics. The RollJet K rectifier roll headbox with ModuleJet ensures a uniform basis weight profile in cross direction and a good formation. A DuoCentri press is used in the press section. A subsequent straight-through press with the newly developed Nipco-F1 roll – ideal for deflec-

	Jingfeng PM 1	Hengfeng PM 14	N.N.
Paper grades	Cigarette paper	Plug wrap paper	Tipping paper
Basis weights	25-45 g/m ²	17-28 g/m ²	28-40 g/m ²
Wire width	3,800 mm	2,200 mm	5,950 mm
Uncut working width	3,300 mm	1,900 mm	5,100 mm
Design speed	600 m/min	400 m/min	1,000 m/min
Production	41 t / 24 hr	20 t / 24 hr	122 t / 24 hr

Left: Technical specifications of the Voith paper machines described.

Right: Design of a cigarette paper machine.



Brief cultural history:

Self-extinguishing cigarette



If things go the way the EU wants, in three years at the latest the self-extinguishing cigarette will be on the market to prevent fires.

And this is how the integrated fire stopper works: two rings made of cellulose or alginate that cannot be felt and are tasteless are sprayed onto the cigarette paper. If the cigarette isn't smoked for a longer period, they quench the burning ash. Depending on how far the burning ash is from one of the rings after last being smoked, the cigarette automatically goes out after a few seconds or minutes.

tion compensation – allows separate setting of the roughness two-sidedness. The SpeedSizer between pre- and after-dryer sections allows two-sided sizing, and for alternative grades even pigmentation. On the one hand, good printability of tipping papers requires a very homogeneous, smooth, glossy or matt surface.

On the other hand, the opposite side from the print must meet all requirements for further processing, e.g., penetration characteristics for the glue and suitability for bonding. Along with surface texture, this paper must of course be odor- and taste-neutral so that the smoker can enjoy the cigarette.

Contact



Christophe Le Morzadec
christophe.lemorzadec@voith.com

