

A little air puts an end to static for good

Belgian printer Verstraete specialises in the production of PP labels. This polymer plastic is a sensitive component, making constant production conditions a must. So the company has invested in a high-pressure air humidification system to prevent electrostatic charging and problems with material flow. Draabe Industrietechnik marketing manager Dominic Giesel reports

“People will always need food,” says managing director Geert Verstraete as he recalls the reason behind his decision almost 25 years ago to start producing food labels.

It was certainly the right decision. This family run business is now into its fourth generation and a quick glance at the big names that make up its customer base tells everyone all they need to know. International finished-products manufacturers, soft drinks and confectionery suppliers stand shoulder to shoulder with breweries and dairies.

With a total production volume of over 3.5bn units, paper label production now accounts for only around 15% of the business. The company's rapid growth was primarily spurred on by the introduction of film printing in 1989.

Looking to become a ‘specialist in the area of label printing’, the company ventured into completely new territory. “We would never have been successful without our intensive independent research and the extensive materials knowledge we have acquired,” says Verstraete, emphasising the specialised nature of PP label production.

Labels made from PP are used for a variety of plastic packaging materials. What makes them particularly special is their ability to fuse with the packaging material when heated.

Unlike paper labels, PP labels are therefore less susceptible to the kind of damage that can occur during storage or transportation. In addition,



Synthetic polypropylene film have a sensitive reaction if the humidity is too low

the material is 100% recyclable. The key requirements in the production of high-quality PP labels are colourfastness, quick drying and easy cutting.

Electrostatic charging

Due to its sensitive nature, synthetic PP film requires constant, optimum production conditions. This is even more important when working with PP than with paper. A relative humidity of 55-60% is required for smooth material flow.

If the relative humidity falls below this value, the production process can be considerably impaired, predominantly by electrostatic charging. Problems that can arise as a result include:

- Films sticking to one another in the feed and stacking areas of the press,

- Transportation difficulties,
- The appearance of deposits, and
- Puckering and poor ink transfer.

The lower the ambient humidity, the higher the electrostatic charge. In contrast, when humidity is kept at an optimised, constant level, the conductivity of the air and the material surfaces (film, machine components) is increased to such an extent that the electrostatic charging can be eliminated without any problems.

Verstraete needed additional air humidification right from the start of its new PP label production venture. Air washers were initially installed in the ventilation duct for this purpose.

Inadequate performance, the inability to target the humidity (no zonal humidity) and, above all, the intensive maintenance and cleaning requirements

ultimately tipped the scales in favour of the decision to seek out new technologies for this purpose.

Maintenance concept decisive

A visit to the Heidelberger Druckmaschinen test printing facility in Wiesloch, Germany at the end of the 90s gave Verstraete his first experience of Draabe humidification systems.

"I was impressed to see that the entire area around the atomiser remained dry despite the high humidification output," sums up Verstraete's positive impressions.

Working at an operating pressure of 85 bar, the high-pressure pump systems used by the Hamburg-based air humidification specialist generate a pulsating water flow that works in conjunction with special atomiser nozzles to produce microfine, non-drip atomisation.

The atomisers can be positioned individually, according to the prevailing requirements in the room and can also be swivelled horizontally and vertically in the required direction.

The water, prepared specifically for air humidification, is delivered by a pure water system equipped with automated hygiene functions. Both the high-pressure system and the water preparation system are installed in small portable containers that support rapid replacement and servicing.

With the Draabe full-service rental system, customers automatically receive completely serviced and

disinfected replacement parts every six months. This is designed to ensure that the systems work hygienically, economically and reliably even after years of use.

The German print and paper processing professional association has awarded Draabe the BG-Prüfzert certificate for 'optimised humidification' in recognition of this special maintenance and service concept.

Humidification throughout

In the interests of a holistic approach to quality management, the Verstraete printing works decided right from the start to equip its entire production chain with direct-room humidification, starting in the pre-press area and extending to the print room, the storage area and subsequent processing.

Comprising over 70 high-pressure atomisers, nine Draabe PerPur pure water systems and five HighPur high-pressure pumps, this humidification project is thought to be one of the largest of its kind in Europe.

Despite the considerable investment sums involved, cost was not the decisive factor for Verstraete. "We certainly didn't opt for the cheapest system. The extensive service package offered by Draabe, plus the container replacement option provided, added value that pays off for us in the medium term."

"Without a reliable, high-performance air humidification system such as this, we would never be able to achieve production at the current high level." ■



High-pressure atomisers in the print room ensure optimum production conditions



High-speed processing generates electrostatic charging as a result of the sudden separation of the foil surfaces



The Draabe TurboFog high-pressure nozzle system