

Glassine paper: Five Star's clear advantage

Five Star Group's Wuzhou Special Paper launched an 80,000 t/a specialty line in the fall of 2012 with glassine paper as the flagship product. ANDRITZ's pioneering ShortFlow deaeration system, the first in China, aids the mill in producing this glass-like sheet. It also provides the flexibility required for frequent grade changes while consuming less energy and chemicals.

Zhao Lei, General Manager of Wuzhou Specialty Paper (left), with Wu Xiaoyan, Marketing Specialist with ANDRITZ China, in front of the ANDRITZ ShortFlow deaeration system. At this mill, extreme grade changes from glassine to wallpaper base stock and blueprint grades happen fast. The ANDRITZ ShortFlow deaeration technology provides this flexibility. ▶



Wuzhou Special Paper's new facility in Quzhou (Zhejiang Province) in China is located near its sister company, Wu Xing Paper, which operates three machines producing specialty products from cup stock to packaging grades. Now producing over 320,000 t/a, the Zhao family, owner of both mills, continues to develop as a homegrown specialty paper producer.

Since launching their paper enterprise in 2002, the Zhao family has looked for market opportunities where growth is strong, and imported products are high. They captured a formidable share of the cup stock business, including self-serve containers of noodle dishes found at railway stations, small shops, and supermarkets throughout China.

More recently, the family decided to delve deeper into specialty grades: this time by producing low basis weight glassine grades – with the flexibility to switch to higher weight specialties on short notice. So, the flagship product of the Wuzhou Special Paper mill

is glassine, a very thin, usually translucent, paper used in food services, packaging, and other specialty products. In addition, the machine produces a limited amount of wallpaper base stock and blueprint grades.

"Our specialties focus, with a range of products and frequent grade changes, made us an ideal candidate for the ANDRITZ ShortFlow deaeration system," says Zhao Lei, General Manager of both Wuzhou Special Paper and Wu Xing Paper. "Flexibility in meeting customer requirements is one of our core goals. The compact, multi-tasking ShortFlow system helps us switch from one grade to another very quickly. This way we can respond fast and efficiently to a wide range of customers."

The ShortFlow difference

Complete deaeration of stock and wire water is standard practice on high-speed paper machines, particularly those producing printing and writing grades. Air removal, at least partially, has become increasingly important for other grades as well.



◀ The Zhao family's initial success has largely been built around cup stock and packaging grades. In 2010, the family made a bold decision to pioneer again with domestic production of glassine. Zhao Yunfu, President of the Five Star Group (left), and his son-in-law, Zhao Lei, General Manager, are holding samples of their new glassine paper. At center the happy, prosperous Buddha made of yew wood.

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Zhao Yunfu
President
Five Star Group

“We see a window of opportunity in China for glassine grades. Many of our customers now use glassine products inside of their packaging.”

Zhao Chenjia, Finance Leader
Five Star Group



▲ Even though the Five Star Group began only a decade ago, their Wu Xing operation is already a leading producer of cup stock. Shown are Zhao Lei, General Manager (left), with his wife Zhao Chenjia, Finance Leader.



▲ A complete paper machine approach system from ANDRITZ is also in place. A ModuScreen headbox screen plays an important role in delivering stock to the new machine.



▲ Papillon stock prep refiners reduce energy costs and gently treat the fiber to ensure desired properties in the sheet.



▲ Headquartered in Quzhou, Zhejiang Province, China, Five Star's Wuzhou Special Paper and Wu Xing Paper are located near their customer base.

“There are many applications where complete deaeration is not essential, such as specialty and packaging grades,” says Ari Pelkiö, Chief Technology Manager for stock preparation and machine approach systems at ANDRITZ. “However, removal of air and entrained gases in the wire water offers big benefits even for these grades. The ShortFlow deaeration system is an advanced solution for partial air removal, combining the functions of the white water silo and deaeration into one compact unit.”

The patented ShortFlow deaeration system collects water from the wire and former in a deaeration tank, where a vacuum is applied. Water from the machine is transferred to the deaeration tank through transition pipes and enters the tank through a vacuum space above the liquid in order to prevent air submergence. Unlike a traditional deaerator, such as the ANDRITZ Deculator, boiling point vacuum is not required. A single vacuum pump system is sufficient and no

condenser is required. Deaeration performance can be easily adjusted to match the requirements of the paper machine and the grade being produced.

According to Jiang Weiqiang, for Fiber Preparation, ANDRITZ China, “The ShortFlow deaeration solution at Wuzhou Special Paper simplified their ability to produce high quality paper with minimal energy consumption. And, with small tank volumes. The system itself is compact with a small footprint. It does not require a special mezzanine. Only short piping runs are needed because this compact unit is placed next to the wet end.”

Clear potential

Zhao Yunfu, President of the Five Star Group, says, “China consumes more than 100,000 tonnes of glassine paper annually, but only 50% is made domestically. We have already secured a large contract with a leading label producer, and have locked in business with various food brands which

use our products inside their packaging packages.”

This fast penetration in the domestic market is a direct result of Five Star Group's success in the pressure sensitive label market. Five Star supplies this label stock to factories in China and elsewhere. “Our customers have learned to expect consistent high quality, and appreciate our ability to meet their needs for short runs,” Zhao Yunfu says. “Because we have invested in the best technology from stock preparation through supercalendering, we can modify our products according to customer specifications.”

“We see a window of opportunity in China for glassine grades,” adds Zhao Chenjia, Finance Leader, who is the wife of Zhao Lei and daughter of Zhao Yunfu. “In addition to our labels, many customers can now use our glassine products inside of their packaging. Food products especially benefit from glassine's grease resistance and abil-

ity to slow the passage of air. Brand leaders of cookies and snacks like us for these reasons.”

Short response

“Critical to our ability to be competitive is quick grade changes,” says Zhao Lei. “This is challenging because our basis weights range from 30 to 80 gsm, and sometimes even higher. The ShortFlow deaeration system is a principal reason for our good sheet formation no matter what the grade, and the flexibility we have in making quick changes.”

Being smaller and simpler by design means less flow volume, which contributes to simplified operation. That is the essence of the ShortFlow deaeration technology according to Ari Pelkiö, Chief Technology Manager for stock preparation and machine approach systems at ANDRITZ. “The smaller volume of deaerated water represents a huge simplification compared to conventional systems,” he says. “In addition to faster

grade changes and less transitional paper or broke, less defoaming chemicals and biocides are required. Energy consumption goes down, too. These are all benefits that every papermaker wants.”

While Pelkiö is quick to point out that the ShortFlow technology is not suitable for applications that require complete deaeration (for example printing and writing grades on large, fast machines), it is beneficial for grades where partial deaeration is sufficient, such as specialties and packaging. “For Wuzhou's machine running at about 750 m/min and producing these specialty grades, it is a perfect match at a much lower investment,” he says.

Another factor in the success at Wuzhou Special Paper is clean pulp, achieved with the stock preparation system from ANDRITZ. In addition to delivering the ShortFlow deaeration system, ANDRITZ provided thick stock screening, a stock

blending system, machine screens, broke handling, and stock refiners.

Look for more pioneering and growth

Looking forward to growth in glassine paper sales, as well as the production of additional cup stock capacity at the mill, Wuzhou Special Paper is already considering installation of a second machine.

“Since we are a family, we are able to make important decisions quickly,” says Zhao Lei. “We are all in this business together, so we share the credit when it's deserved, and we accept responsibility when we don't meet goals.

“Two generations give us another advantage,” concludes Zhao Yunfu. “Perhaps you will see even a third generation at Five Star a few years from now.”

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