

NEXT GENERATION FLUSHABLE, BIODEGRADABLE WIPES



ANDRITZ neXline wetlace starts up in Turkey

A company that started in the shoe industry over 200 years ago is now one of Turkey's largest manufacturers of nonwovens. Akinal recently introduced its own brand of 100% biodegradable and certified flushable wipes – BioFlush® – using state-of-the-art Wetlace technology from ANDRITZ Nonwoven.

At the end of 2016, Akinal Sentetik Tekstil of Turkey completed the start-up of a 15,000 t/a neXline wetlace production line from ANDRITZ Nonwoven and has since launched its brand of next-generation flushable and biodegradable wipes in response to growing market demands.

Flushable wipes range from adult moist toilet tissue and toddler toilet care to feminine hygiene wipes, and the sector is growing rapidly. But there have been problems – some flushable wipe products made with non-biodegradable material have been causing difficulties with plumbing – particularly with blocked drains.

“The choice and selection of nonwoven substrates for flushable wipes is changing,” says Önder Doğan, Production & Project Manager for Akinal Sentetik Tekstil. “The move is away from petroleum-based non-biodegradable fibers toward the increased

use of wood pulp, which is sustainable. Wetlaid web forming technology has been able to incorporate very high levels of wood pulp, while carded web forming has been limited. Only a few products manufactured with conventional spunlace technology (carding and hydroentanglement) can meet the dispersion requirements, so a different technical solution was called for.



ANDRITZ Nonwoven is the only company providing complete Wetlace technology from stock preparation to drying and winding from a single source.

THE PRODUCT HAS TO BE STRONG - AND BE ABLE TO DISINTEGRATE

“It seems like a contradiction that is difficult to solve,” says Stéphane Robin, ANDRITZ Application Engineer for Nonwovens. “The strength of the wipe has to be sufficient during its production and use so that it stays intact. However, after the wipe is used, it needs to disintegrate quickly and completely.”

Conventional spunlacing — carding and hydroentanglement — can provide wipes with high tensile strength and softness. However, the spunlace fiber lengths create entanglements that are difficult to open up again when flushed. “It became clear that a fiber length considerably less than 20 mm is necessary to produce flushable wipes,” Robin says.

From this, the Wetlace technology was developed. “Our fiber processing during stock preparation, fiber lay-down during wet forming, and mechanical bonding with hydroentanglement have all been designed to optimize the strength of wipes for use and fast release when flushed. In addition, we have the added benefit of using a blend of fibers (wood pulp and short-cut staple fibers) without chemical additives or binders so that they are completely biodegradable,” continues Robin.

“The key to success in the Wetlace process is the combination of raw materials, fiber blend, and specific process settings during wet laying and hydroentanglement,” Robin says. “We draw upon ANDRITZ expertise from the paper industry (processing of short fibers) with our nonwovens wetlaid expertise (wet forming) and deep expertise in hydroentanglement from our spunlace technology.”

ANDRITZ neXline wetlace lines are designed for high production capacities of up to 15,000 t/a and integrate stock preparation, wet forming, hydroentanglement, and drying. ANDRITZ Nonwoven is the only company providing complete Wetlace technology from stock preparation to drying and winding from a single source.

DISCUSSIONS MOVED QUICKLY FROM CONCEPT TO PURCHASE ORDER

When it came to the development of the BioFlush product, Akinal was already familiar with ANDRITZ experts and technologies, having purchased ANDRITZ equipment (Asselin-Thibeau and Perfojet at the time) for their very first spunlace line in 2002. Since that time, additional ANDRITZ equipment has been purchased for spunlacing, calendaring, needlepunching, and drying.

Management from Akinal met with ANDRITZ in 2014; the discussions between the two companies moved quickly from concept to design to technical refinement to purchase order. The contract for the neXline wetlace production line was signed in October 2014.

“For this particular project, there was not an operating reference line that we could visit,”

Doğan confirms. “But we knew ANDRITZ well and we were able to do extensive pilot work at its plant in Germany.”

Plus, Akinal had the benefit of learning first-hand from ANDRITZ's experience with the first neXline wetlace installation in China. “That system started up in August 2015,” says Doğan.

Design production speed for the Akinal neXline wetlace is 110 m/min to 225 m/min, depending upon the fiber mix and the nonwovens product being produced (fabric weights from 40 gsm to 80 gsm). Design capacity is from 1,800 t/h to 2,250 t/h and at a production width of 3.4 m.

ANDRITZ supervised the mechanical erection and commissioning of the line, trained Akinal's operators on the new technology, and oversaw the start-up itself.

“We are getting good response from our worldwide customers about the new BioFlush product,” says Önder Karadağ, Foreign Trade Manager, Akinal Sentetik Tekstil. “The specific requirements differ slightly from country to country, and we have the flexibility with this technology to adjust our fiber blend in order to basically produce a tailor-made product for customers. We can produce according to the latest EDANA/INDA guidelines for flushable wipes.”

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