

A CLINICAL OPERATION WITH MAXIMIZED EFFICIENCY

The production area of Turkish specialist nonwovens producer Sapro is more like a group of clinical laboratories than the production hub of one of the world's largest producers of wet wipes. And it's not just super clean; the company has embarked on a journey utilizing Metris solutions that will see it become one of the most efficient wet wipe producers in the industry.

"This is a very serious business we are in," says Ceyhun Zincirkiran, Managing Director, Sapro. "Our products are used by some of the most important people on the planet – mothers and babies – therefore there is no option for less than perfect products."

Sapro is based in Istanbul, Turkey, close to the new airport, and is one of the top three producers of wet wipes globally. It makes, converts, and supplies some 120 million wipes a day for personal, household, and

industrial use. It exports 70% of its production, which goes all across Europe, the Middle East, the US, and Australia.

"So, you might think because this is a niche market that it's an added value area of the hygiene industry, and with good profit margins," continues Zincirkiran, "but actually we are subject to the same market price conditions as any other industry; we are in a commodity business. We have to find ways of making our own margins, and that is why we have



JetlaceEssentiel hydroentanglement unit with neXjet injector state-of-the-art



eXcelle TT card in 3.75 m working width

to become ultra-efficient in everything we do. This is the only way to create our own decent profit margins."

Sapro is a company with a history typical of those led by visionary entrepreneurs. Starting out as a supplier for "Fast-Moving Consumer Goods" companies in 1995, Zincirkiran and his partner, joint Managing Director Mehmet Gündoğdu, saw other opportunities in which to engage and in 1997, they formed Sapro to enter into the fast-growing wet wipes market, as a converter. "This was a time when there was a shift from cotton pads to spunlace products, and we could clearly see there was an opportunity for us," adds Zincirkiran.

BACKWARD INTEGRATION

Progress was rapid and Sapro grew, adding numerous converting lines for various

wet wipe products. The company began consuming a lot of spunlace material from other suppliers and it soon became clear that a move into producing its own spunlace would make real economic sense.

"We have always had the adage here that 'we have to grow'. We have a history of vertical integration with our other companies and we decided that what we really needed to do in this case was to backward integrate and to begin producing our own spunlace material," says Zincirkiran.

For Sapro, there was only one company that first came to mind to supply the spunlace technology for its own production needs, ANDRITZ. Zincirkiran has a long association with the wet wipes industry and knew that ANDRITZ could supply the

very best in technology; he says, "In 2016, we gave ANDRITZ a call and started talking. ANDRITZ came and visited us, and pretty quickly we decided to install the very latest in technology for our spunlace production."

ANDRITZ scope of supply for the spunlace line included technology and equipment for web forming, bonding, and drying. For forming, it supplied opening-blending, card chute feeds, and two eXcelle cards. For bonding, ANDRITZ supplied its JetlaceEssentiel hydroentanglement unit with one pre-wetting injector and five high-pressure injectors and a water filtration system. Web drying included a neXocodry energy optimization system for dewatering, a neXdry dryer with two "U-drums", smart heat recovery with an air-heat exchanger.





Spunlace line for production of wipes for hygiene markets

After signing of the contract, the project to install the spunlace line began in August 2016. "We chose the main equipment from ANDRITZ as we knew it was the best, but also we knew we would get good service," says Zincirkiran.

The project, which has been realized by the sister company of Sapro, Lotus, went without too many hitches despite the fact that there was a small space into which the line had to fit. Volkan Yavuz, Sapro's project manager for the installation and now Factory Manager for the spunlace plant, says, "We had to be quite inventive with this installation and, because of space limitations, we had to design

the line as a "C" shape as there was not enough length in the building for a straight spunlace line.

"However, the project went according to plan, and within six months of the start of the project we began producing top quality spunlace, and we were up to full speed not long after."

"WE WERE VERY ENTHUSIASTIC ABOUT METRIS SOLUTIONS"

Once up and running and producing top quality spunlace, Sapro began looking for ways to implement its already high standards of efficiency into the line. Zincirkiran says, "We were already using

various Industry 4.0 applications in converting lines and other areas of the factory through our management information system; it was the next natural step to apply our knowledge and experience to the spunlace line.

"After the spunlace line had been running successfully for some months, ANDRITZ approached us and demonstrated its Metris portfolio of digital solutions, and asked us if we would collaborate with them and install a system on our spunlace line. We were very enthusiastic as we really do believe that digitalization and data management is the future for us."

André Michalon, Sales Director, Nonwoven Division, ANDRITZ, says, "We asked Sapro to collaborate with us on implementing Metris solutions on the spunlace line simply because they are already speaking the digital language at the production site. We could also see Metris applications making a real difference to efficiencies of operation of the line.

"The Metris UX Platform as a tool is very user friendly and the hardware can be configured within a few weeks. The most important part of implementing the solution is listening to the customer and understanding their expectations. In the case of Sapro, we know the process and technology well, how the company operates, and we could quickly focus on their needs."

REAL SAVINGS

The Metris UX Platform was installed and implemented on Sapro's spunlace line in March 2019. The package consisted of the use of existing sensors installed around the line, installation of new sensors when



Performing filtration system designed by ANDRITZ

required, linked to software tools for managing a huge array of process operations, from pumps and motors to PID loops. The system allows operators to see exactly their real time usage of raw material, energy, water, and also maintenance issues, for instance an overheating pump, or a bearing that needs replacing.

"We have only been using the Metris UX Platform a short while, and we are really impressed with the visibility of the operating processes of the spunlace line it



"We really do believe that digitalization and data management are the future for us."

CEYHUN ZINCIRKIRAN
Managing Director, Sapro

has given us," says Yavuz. "At a glance we can clearly see where we are losing and where we are gaining, how much energy and water we are using, and how well all the sections of the line are performing.

"This is a very busy spunlace line, we sometimes have up to 10 or 11 changes of products being made in one day. Before Metris UX was installed, we didn't really know how long a change from one product to another was taking us, but we soon could see that it was around 15 minutes.

Using Metris technologies, and analysing data from the line, we could see areas that were slowing the change times down and after some concentration on these areas we have now got the changes down to around five minutes. This is a real saving."

Metris UX is also a viable and real solution for predictive maintenance using a series warning lights and alarms. "Before Metris UX, each area of operation on the spunlace line was down to the expert knowledge of the operator. Now, with the traffic light

VOLKAN YAVUZ
Factory Manager, Lotus

"With Metris UX we can now see at one glance where we are losing and where we are gaining."



Metris
ANDRITZ Digital Solutions

INSTALLING METRIS SOLUTIONS ON AN EXISTING SPUNLACE LINE

Most nonwoven lines are not equipped with central control systems such as SCADA or DCS. However, ANDRITZ can install Metris solutions in any new or existing nonwoven lines and enhance performance thanks to data acquisition and analytics, even starting from single PLCs dedicated to individual machines only.

Whereas a dedicated server and visualization have to be foreseen, it can be virtual units incorporated into the customer's existing IT infrastructure, thus involving no change to the integrity of the customer's IT network other than opening a VPN connection with ANDRITZ. All data remain the property of the customer.



ANDRÉ MICHALON
Sales Director, Nonwoven Division,
ANDRITZ

In a nutshell, the Metris UX Platform is very user friendly and the hardware can be configured within a few weeks. However, every nonwoven line is unique, therefore most of the intensive work involved is to listen to and analyze the needs of our customers, in order to properly set the system and data acquisition. ANDRITZ experts are able to implement monitoring of the line within two to three months after an agreement is in place, with identifiable savings in process optimization achievable within three months.



Monitoring system for process supervision

system of red amber and green, we can tell straight away from the monitor display how each part of the process is performing and if we need to carry out any maintenance. If everything is green, we are happy; if it's amber, we act; the plan is to never get to the red. Metris UX helps us with that."

METRIS – THE FORTUNE TELLER

So far, Sapro is very pleased with Metris UX and the way it has helped identify areas of its production on the spunlace line, but what about the bottom line? Is it going to make a difference when it comes to

making the operation more profitable? "This is all about uptime and increasing productivity," says Zincirkiran. "It's early to say what difference Metris UX has made to the bottom line, but already we have identified parts on the spunlace line that could be redesigned to improve productivity; this will help us and, of course, ANDRITZ in their own technology design. So far, we have noted many small wins in productivity and, of course, they all add up.

"This really is the future for improving efficiency at our plant. Even an expert on the



End of line: Jumbo ready to be used in the converting line

line can't be a fortune teller, but Metris UX is our fortune teller. We can see exactly what we are looking at, trends on the line, figures, graphs and tables all in real time, and then act on them."

ENVIRONMENTAL AND SOCIAL RESPONSIBILITY – RIGHT AT THE HEART OF SAPRO OPERATIONS

"The most significant and important trend that we are identifying in the non-wovens market, is the consumers' need for environmentally sound and sustainable products," says Zincirkiran. As

"Generation Y" – those born in the 1980s and 90s – start families, they are not only looking for the safest products, they are also looking for the most sustainable ones. Here we are working very closely with our suppliers of raw material to make sure we can deliver on those demands."

This focus on the environment and sustainability also extends right into the heart of Sapro operations, where a close eye is kept on electricity, gas, and water use. "This is another area where Metris UX is helping us win," says Zincirkiran. "We can clearly identify where we are using too much energy and we can also identify the sweet spots where we are maximizing our raw material and energy usage."

As well as environmental considerations, the health and well-being of the 650 employees is of paramount concern at Sapro. As well as providing free meals in a dedicated canteen on a 24-hour basis, all production areas of the factory are completely air-conditioned for the comfort of the employees. "We really do care about the people that work for us here, and we do our utmost to provide a safe and comfortable working environment. Air-conditioning helps us to keep the inside temperature the same throughout the year, particularly throughout our hot summers."



neXdry dryer with heat recovery

THE FULL ANDRITZ SCOPE OF SUPPLY AT SAPRO

WEB FORMING:

- 2 TMS: Fiber reserve silo: 1.75 m working width
- 2 TCF: Card chute feed: 3.75 m working width
- 2 Servo-X: Card input autoleveller
- 2 eXcelle TT cards (type S56TT): 3.75 m working width

WEB BONDING:

- 1 JetlaceEssentiel: Hydroentanglement unit with 1 pre-wetting injector and 5 water-needle injectors
- 1 Water filtration system (including a water high-pressure system): 160 m³/h
- 1 Supervision system

WEB DRYING:

- 1 neXocodry energy optimization system for dewatering (moisture content at the inlet of the dryer can be reduced up 15%)
- 1 neXdry dryer with 2 U-drums
- 1 dryer heat recovery: One air-air heat exchanger collecting the energy of the dryer dumped air and pre-heating the dryer make-up air

METRIS UX PLATFORM

At a glance, the spunlace line operators can clearly see losses and gains in productivity.



The spunlace line at Sapro can have up to 10 or 11 changes of products being made in one day.

Due to the highly critical and hygienic nature of the nonwoven production at Sapro, the company is subject to over 50 audits a year from both independent and internal auditors, with visits often occurring unannounced at any time. "We have all the top quality certifications here at Sapro, and we never worry about any

audits. We have a culture where everybody follows all the rules on hygiene and safety to the letter, all the way across the length and breadth of the company."

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