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WATER

usage for tissue
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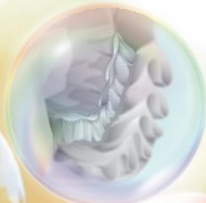
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TURKEY

A.Celli Nonwovens supplies a new winder to Merkas

A.Celli Nonwovens will supply Merkas Tekstil Sanayi VE Ticaret AS with a new generation STREAM® winder. In doing so, the company belonging to the Hassan Group has availed itself of A.Celli's technological excellence for the manufacture of air through bonded nonwovens improved mainly to perform as acquisition distribution layer and topsheet components in disposable baby/adult diaper and feminine hygiene industries. The new STREAM® winder will have a working speed of 350 mpm. The start-up of the plant is scheduled for the beginning of the second half of 2018.

EGYPT

Alex Converta starts up turnkey plant

On June 2, 2018, Alex Converta successfully started up the turnkey plant manufactured by Recard, at its Alexandria mill in Egypt. The supply included a Crescent Former machine with a 1500 mpm speed, 2850 mm net paper width, and a production capacity of 78 tpd, equipped with a virgin fiber stock preparation line and a rewinder with three backstands and calendar. The Crescent Former is actually an addition to the suction breast roll manufactured by Recard for the company in 1989, the year during which Alex Converta, founded in 1978, opened its facilities in Borg el Arab El Guedeeda, in Alexandria. The Egyptian company produces white and colored tissue paper, and has also a converting facility for facial tissue, handkerchiefs, toilet rolls, table napkins, kitchen towels, and sanitary towels. In 2016, it was purchased by Habibco General Trading Company.

SOUTH AFRICA



Twinsaver Group boosts capacity

PM5 project is a turnkey supply by Toscotec, which includes the stock preparation system, the AHEAD-2.0S tissue line, the electrification and control systems, the complete plant engineering, erection, and supervision for erection, commissioning, training and start-up. Toscotec's AHEAD-2.0S tissue machine is equipped with a second-generation TT SYD-15FT steel Yankee dryer of 15 ft diameter. The AHEAD-2.0S is set to produce premium-quality super-soft toilet tissue, with a total production of over 30,000 t/y and it will deliver on Twinsaver's plans to increase supply to the local and export markets and preserve its top position in the tissue industry. The Twinsaver Group awarded this turnkey project to Toscotec following the announcement of a R580 million (USD 42 million) investment earlier last year.

AUSTRIA

ANDRITZ acquires Novimpianti

International technology Group ANDRITZ has signed a contract for the acquisition of Novimpianti Drying Technology S.r.l., a company owned by Novigroup S.r.l. and based in Lucca, Italy. Novimpianti has approximately 40 employees and generates annual sales of approximately 10 million euros. Novimpianti is a global supplier of engineered equipment and services for air and energy systems to the paper industry's leading manufacturers. For ANDRITZ, the acquisition of Novimpianti further strengthens its product offerings in the field of air and energy systems, mainly for tissue and paperboard machines. "We are very excited about this complementary acquisition that extends the ANDRITZ market coverage and product range in Tissue and Paper," says Michael Pichler, SVP and ANDRITZ Global Paper and Tissue Division Manager

ANDRITZ officially launches the PrimeLineTIAC Tissue Innovation and Application Center

International technology Group ANDRITZ has officially launched the world's most modern research center for tissue, the PrimeLineTIAC Tissue Innovation and Application Center, in Graz, Austria. The opening ceremony, attended by around 150 customers and other stakeholders from the tissue industry, was a great success. Together with ANDRITZ experts and technical partner companies, the participants discussed the functions, designs, and features of the new PrimeLineTIAC and took a guided tour through the pilot plant. Several guest speakers also gave interesting inside views on developments in the tissue industry. PrimeLineTIAC comprises a complete, state-of-the-art tissue production line, including laboratory facilities for tests and trials to develop new products and processes in the tissue sector. It is available to tissue producers and suppliers, research and development companies, and universities. Thus, customers and developers can conduct tests and trials under many different conditions, for example to optimize fibers for a specific product, improve product qualities, increase dryness, and reduce energy consumption. The impact of variables such as stock preparation, chemicals, vacuum, machine

clothing, pressing, and drying with hot air and steam can all be measured and evaluated accurately.

The PrimeLineTIAC has its own complete stock preparation line together with the approach flow system. Many different kinds of pulp can be processed in one production line, which is split into a separate short fiber and a long fiber line. In addition, all units are available in small industrial scale, creating an excellent environment for best possible fiber treatment and tests according to the individual needs of customers and products. The tissue production line offers utmost flexibility for the production of conventional, textured, and structured (TAD) tissue. It currently features various configurations that are also available on the market as single-machine concepts. This means customers can run extensive trials with what could potentially be their future machine configuration. With a design speed of 2,500 m/min and a sheet width of 600 mm, the machine can be operated with either a suction press roll or a shoe press, a regular Crescent Former or a vertical Crescent Former, and with a 16 ft. steel Yankee or two 14 ft. TAD drums. ANDRITZ collaborated with many key partners on this project, including Fibria, Södra, Solenis, Albany International Corp., Danfoss Drives, Nash, IBS Paper Performance Group as well as Flowtec and Lantier. The PrimeLineTIAC is sponsored by the Austrian Research Promotion Agency FFG as part of its R&D infrastructure promotion.



The ANDRITZ GROUP's PrimeLineTIAC in Graz, Austria



The tissue machine offers various configurations to run trials for the production of conventional, textured, and structured (TAD) tissue.

TMC enters the IMA Group

TMC (Tissue Machinery Company), has concluded an agreement with the IMA Group, which entails an %82.5 stake by IMA in Tissue Machinery Company. IMA Group is the world leader in the design and production of automatic machines for the processing and packaging of pharmaceutical products, cosmetics, food products, tea & coffee, and listed on the Italian stock exchange since 1995 in the STAR index.

TMC's international leadership in market niches such as primary and secondary packaging of kitchen towel rolls and toilet rolls and secondary packaging of personal care products, together with the strength of the IMA Group – 5,600 employees (2,800 of whom abroad), 42 production facilities in Italy, Germany, France, Switzerland, Spain, UK, USA, India, Malaysia, China and Argentina, 29 branch offices with sales and assistance services and 50 agencies, covering 80 countries worldwide – will allow the TMC Group to accelerate its projects for growth, the development of innovation and the creation of superior-level partnerships. The TMC Group, with its subsidiaries, has a forecast turnover of about 80 million euro and an EBITDA of over 10 million euro with positive growth prospects, enhanced by the overall support it can provide thanks to its entry into the IMA Group.

Matteo Gentili President of TMC, commented: "This agreement is of great satisfaction for us. In IMA, we have found the best partner for the further development of our company to attain additional technological and commercial objectives in the field of Tissue and Personal Care products. Entering the IMA Group will enable a strong acceleration of our innovation, product development and geographical expansion projects. Personally, I will continue to play a leading role in the strategic management of the TMC group, with interests fully aligned with IMA,

with the goal of consolidating and developing TMC as a global reference for technological innovation and customer service."

Alberto Vacchi President and CEO of IMA, commented: "The agreement is strategic for the IMA Group and the partnership with Matteo Gentili, with TMC as a platform for the development of the project, will allow us to create an international hub that is the undisputed leader in the field of Tissue and Personal Care products. With this operation, IMA continues along its path of enhancing and growing the leading market bands, further strengthening its industrial presence in Italy."

Speed record for a Recard machine: 2150 m/min

The holder of this record is the machine owned by M.C. Tissue manufactured by Recard for Cartiere Carrara for the Tassignano (Lucca) plant. A figure very close to the world record. Just 3 months after start-up, M.C. Tissue's PM5 – the seventh machine supplied by Recard to the Lucca-based group which started up in the summer of 2017 – had shown great performance, running at 2130 m/min for 24 hours. The 2150 m/min was reached in February 2018 and there is ample margin to be able to exceed not just this personal record, but the world record, too.

Paperdi successfully runs new yankee

Cartiera di Pietramelara is successfully running a new 16 feet diameter steel Yankee dryer supplied by Toscotec. The second-generation TT SYD-16FT replaced a cast iron Yankee and it was started up on schedule in mid-January 2018. The scope of supply also included the complete Yankee steam and condensate system. Located in the province of Caserta, Cartiera di Pietramelara mill belongs to the Italian tissue producer Paperdi srl. Since 1989, the mill has been producing tissue products such as industrial rolls, kitchen rolls, toilet jumbo rolls and towel tissue, with the

household brand "Soavex" and the professional brand "paperdi". The current annual production is 45,000 tonnes.

Fabio Perini launches MYPERINI in Latin America

Fabio Perini presents to prospects and clients in Latin America its new family of products for converting and packaging of tissue paper: easy operation, high performance, technological excellence and reliability are the strongest points of MYPERINI family for manufacturers looking for production at speeds in the range of 450 to 800 m/min. MYPERINI lines are designed for customers looking for complete line solutions, without much need of customization; the most cost-effective solution in the market with the right balance between technology, quality and price; they also offer reduced lead time for production & installation. "These are standard lines, factory pre-configured aimed to be a smart solution. Simpler, though not less effective, with reduced delivery times", said Dineo Silverio, Regional President. "With any of the MYPERINI lines, our clients have the flexibility to produce 1, 2 or 3 ply products, and make embossed and laminated rolls for retail or private label market.", adds Claudio Muñoz, Americas Marketing Director. MYPERINI lines are offered in several versions, all of them combining high technology, quality and safety. For converting, the family is comprised of 3 versions suitable for different production needs: an entry level line, the MySincro (450 m/min); a mid-level, the MyLine (550 m/min) and a high level, the MyTime (800 m/min). All the lines feature the possibility of completing the system by including the MyPack offer for packaging up to 200 packs/min and 20 bundles/min. Fabio Perini is the global leader in the supply of equipment and services for tissue converting and packaging, and the only one with full-scale capabilities in South America. The ideal commercial partner for those looking for innovation, growth and distinctiveness.

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TMC
FORWARD THINKING

POLAND

Abris acquires Velvet CARE

Private equity company Abris has acquired Velvet CARE, the largest manufacturer of tissue hygiene consumer products in Poland.

The transaction has been approved by Poland's Office of Competition and Consumer Protection.

Velvet CARE is Poland's leading manufacturer of brand-name, paper-based personal care products (including tissue, toilet paper and kitchen paper towels) and the owner of the highly-regarded Velvet brand in Poland. The change will facilitate further acceleration of the company's rapid growth, including international expansion in the CEE region. Velvet CARE was established in August 2013, although its origins date from 1897. In that year the Paper Mill in Klucze was established and the company's main manufacturing facility has been located there for over 120 years. The Velvet name, the brand underpinning its paper-based hygiene products, was launched in 1997 on the 100th anniversary of establishing the company. Since its inception in 2007, Abris has secured cumulative commitments of approximately €1.3 billion from investors, all targeted at mid-market opportunities in CEE.

UK

WEPA takes over all shares in Northwood & WEPA Joint Venture

WEPA Hygieneprodukte GmbH has signed a contract to acquire all shares in Northwood & WEPA Joint Venture Ltd., located in the United Kingdom. With 230 employees, the production plant in Bridgend produces rolled products (toilet paper and kitchen towels) for the British consumer market. It has one paper machine with a capacity of 52,000 tons/year, and a converting capacity of 80,000 tons/year. The site generates a turnover of approximately 120 m £.

Martin Krengel, CEO of the WEPA Group, explains: "Since 2013 we have been holding a 50% share in the N&W Joint Venture. During this time, the company demonstrated its hygiene paper expertise in the UK consumer market. With the acquisition of all shares and with our outstanding team, the WEPA Group takes the opportunity to work even more intensively in the UK to generate further growth. With a total of 12 factories we are logistically very well positioned and can supply our customers with the usual reliability and quality." The WEPA Group is one of the three largest suppliers in the European tissue market, with 3,800 employees and a turnover of approx. € 1.2 billion following the transaction.

CHINA

Two successful startups for Lee & Man

Valmet recently made two successful Advantage DCT 200 tissue line startups at Lee & Man's tissue mill at Chongqing, China. The first machine in the startup queue was TM13, which started producing high quality paper right from the start on January 18. The second startup was on March 3, when just as good tissue paper hit the reel on TM15. Valmet will start two more Advantage DCT 200 tissue production lines for Lee & Man during 2018. All at the same mill in Chongqing and with the same scope of delivery - complete tissue production lines featuring stock preparation systems and Advantage DCT 200HS tissue machines.

The tissue machine has a width of 5.6 m and a design speed of 2,000 m/min. Each machine has the capacity to produce 60,000 tons of toilet and facial tissue per year. Lee & Man uses virgin wood pulp and bleached bamboo fiber as raw material. The company had a capacity of 7 million tons of container board, duplex board and tissue paper as well as 180,000 tons of pulp in 2014.

New Solenis manufacturing site opens in China

Solenis opened its new manufacturing site in Zhuhai City, Guangdong Province, China. With approximately 37,000 square meters of space, Solenis (Zhuhai) Chemicals Company Ltd. will produce various product lines, including functional, water and process chemistries to support the key markets served throughout the Asia Pacific region. The Zhuhai plant is the company's ninth plant in Asia Pacific. The other manufacturing sites that support customers throughout the region are located in Australia, South Korea, India, Indonesia, Taiwan and elsewhere in China.

"This site demonstrates Solenis' long-term commitment to the continued development of our resources and operations in Asia Pacific," said John Panichella, president and CEO. "The site will support anticipated future growth in the region to better supply our customers."

Xiamen Sin Yang Paper restarts idled machine

Valmet will supply a tissue machine restart-up package to Xiamen Sin Yang Paper TM1 in China. The delivery will include necessary project management, maintenance, spare parts and start-up of a tissue machine idled in 2014 and originally delivered by Valmet. The start-up is scheduled for July 2018.

This order is first of the kind for Valmet in China area. Zihou Song, Senior Manager, Mill Improvements from Valmet says: "This is a very challenging project due to tight time schedule, but at the same time very exciting new kind of a project for us that strengthens our services to tissue customers in China."

APP starts up new tissue machine

Toscotec's new Prodergy tissue machine fires up at APP Group's Perawang mill, in Indonesia. This start-up is part of a major APP order of Toscotec's Prodergy machines, to be installed at APP Indonesian paper mills. PRODERGY is Toscotec's leading innovation: an AHEAD-2.0L tissue machine, 5.6 m width, 2,000 m/min operating speed, featuring a second-generation TT SYD-22FT and steam-heated hoods. Toscotec's 22 ft. diameter steel Yankee dryer constitutes a world record: the biggest steel Yankee dryer ever manufactured worldwide for tissue application. Toscotec's Sales Director Marco Dalle Piagge affirmed, "We are extremely proud of this incredible achievement. The first 22 ft. TT SYD ever manufactured and delivered worldwide, and installed on a top performance tissue making line. We are making history and we expect Prodergy to set a new record for energy efficiency in tissue".



The new Zhuhai manufacturing plant in China affirms Solenis' commitment to customers throughout Asia Pacific.

PHILIPPINES

Two Toscotec's TT SYD start-up at Bataan 2020

The Philippine paper and tissue producer Bataan 2020, Inc. has fired up two Toscotec's steel Yankee dryers TT SYD3600-MM at its Samal mill in Bataan province, Philippines. Toscotec's second generation TT SYD replaced previous installations of cast iron Yankees on PM2 and PM5. Bataan 2020 is one of the leading manufacturers of fine quality paper, board and tissue in the Philippines. It operates paper mills in Samal, Bataan and Baesa, Quezon City to produce over 100,000 metric tons of paper annually.

VIETNAM

NTPM invests RM50 million in expansion project

NTPM, the manufacturer of Premier tissue paper, is spending RM50 million to expand its manufacturing facilities in Vietnam and Penang. The expansion will increase the group's total production capacity from 110,000 tonnes to 170,000 tonnes per year: Vietnam's site current annual capacity of 10,000 tonnes will be increased to 50,000 tonnes, as for Penang site, the existing annual capacity of 100,000 tonnes will reach 120,000 tonnes. The group is adding two tissue paper machines at Vietnam's site and one tissue paper machine at Penang's site. The expansion should be completed in the second half of 2018. The tissue paper business generates about 65% of group revenue, while the personal care segment contributes 35%.

RUSSIA

Arkhbum Tissue Group expands capacity

International technology Group ANDRITZ has received an order from Arkhbum Tissue Group LLC to supply a tissue machine PrimeLine™ W6-XT, including stock preparation, automation, and electrification, for its mill in Vorsino (Kaluga region), Russia, for the production of high-quality facial, toilet, napkin, and kitchen towel grades made of 100% virgin pulp. The new PrimeLine™ W6-XT tissue machine has a design speed of 2,100 meters per minute and a paper width of 5.6 meters. The combination of a 16-ft. steel Yankee and the latest PrimePress XT shoe press technology enables a high drying capacity and achieves remarkable cost savings and operational flexibility compared to systems operated with conventional presses and cast Yankee dryers. Start-up is scheduled for the third quarter of 2019.

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R2G to acquire First Quality nonwovens businesses to create Global PFNonwovens Holding

R2G, a family office based in Prague, Czech Republic which owns majority interest in PEGAS NONWOVENS a.s., and First Quality Enterprises, Inc. have entered into a definitive agreement under which R2G will acquire 100% of First Quality's nonwovens operations in the United States and China. The transaction is expected to be completed early in the third calendar quarter of 2018. R2G's nonwovens business PEGAS NONWOVENS a.s. is a leading producer of nonwoven textiles with operations in Europe and Africa. The acquired operations will continue, post transaction, to supply nonwovens to First Quality's U.S. absorbent hygiene division; which manufactures premium infant care, adult incontinence, and feminine hygiene products for the retail and health care markets. This strategic acquisition will expand R2G's presence into North America and Asia. R2G was established by industrialist Oldrich Slemr in 2016. R2G's goal is to preserve and grow capital through investments geared to long-term growth. Investments are implemented through an investment platform backed by three families: the Slemr family and the families of software entrepreneurs and major shareholders in London Stock Exchange listed anti-virus company AVAST, Eduard Kucera and Pavel Baudis.

Solenis and BASF to combine paper and water chemicals businesses

Solenis and BASF signed an agreement to combine BASF's paper and water chemicals business with Solenis to jointly create a customer-focused global specialty chemical company. The combined company intends to operate under the Solenis brand. The transaction is expected to close around the end of 2018. Financial terms were not disclosed. "Together, we have a unique opportunity to create a customer-focused global specialty chemical company with an enhanced focus and expanded offerings," said Solenis President and CEO John Panichella, who will lead the combined company headquartered in Wilmington, Delaware, USA. "I am pleased that our cultures are closely aligned and that our companies share a strong common desire to create value for our customers. Together, as one team of experts, we will continue to strive toward excellence in innovation, sustainability and safety." The transaction comprises BASF's global paper and water chemicals business, including nearly 1,300 employees globally. The transaction includes the paper and water business assets of BASF's Performance Chemicals unit, including production sites in Bradford and Grimsby, UK; Suffolk, Virginia, USA; Altamira, Mexico; Ankleshwar, India; and Kwinana, Australia. BASF's paper and water chemicals production plants in Ludwigshafen, Germany, and Nanjing, China, will not transfer and will deliver raw materials pursuant to supply agreements. BASF's paper coating chemical business is not part of the contemplated transaction. Solenis and BASF will continue to operate strictly as independent companies until the transaction is complete.

Valmet and Georgia-Pacific enter agreement on eTAD Technology

Valmet and Georgia-Pacific have entered into a licensing agreement covering the eTAD(TM) tissue making technology. Under the license agreement, Valmet will market, manufacture and install Advantage eTAD machines for tissue customers outside North America. The eTAD(TM) Technology was developed by Georgia-Pacific. The company has three eTAD(TM) machines operating in North America; the latest two re-built by Valmet in 2012. The machines are running in full eTAD(TM) configuration and producing structured tissue and towel with high quality and absorbency. The eTAD(TM) concept provides an ultra-premium product with high bulk to fiber ratio in combination with low energy and water consumption. The concept is also capital efficient. "We are very excited about this agreement that will support our strategy to provide tissue making solutions that offer top quality tissue with sustainable production. Valmet and its customers will have the possibility to make trial runs on Georgia-Pacific's pilot eTAD(TM) machine, and also bring customers to reference visits at mills with operating eTAD(TM) machines. This agreement will further strengthen our product portfolio and ensure that we are able to provide tissue machine concepts covering the whole product range," says Jan Erikson, VP Sales, Tissue Mills Business Unit, Valmet.

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• 2018 International Paper Technical Conference



August 30th, China Technical Association of Paper Industry and China National Pulp & Paper Research Institute will cooperate with Forest Products Engineers (PI) from Finland to hold 2018 International Paper Technical Conference.

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A look behind the scenes of GDM Innovation Week 2018

On 7-11 May 2018, GDM has hosted the second edition of Innovation Week: more than 40 companies, for a total of 136 people, have joined the Open House, catching the unique opportunity to live the GDM experience through its portfolio of solutions and services and the latest R&D developments.

Let's discover together the four highlights we will treasure from Innovation Week 2018.



BP8 Red: Driving Baby Pants future, together

The new GDM machine, designed to produce baby pants at 800 ppm ensuring optimized absorption and comfortable movements, has been finally unveiled.

Our technology, our proven solutions

GDM counts on its 30-years' experience in the hygiene disposable machinery to provide reliable solutions through the company portfolio, responding to customer needs for both product and production requirements, as the best-seller baby open diaper machine B8-W Red.

Product Experience Area: exploring the trends of the disposable hygiene products

Bamboo, eucalyptus, banana and cotton are driving the global trend of sustainability in raw materials: GDM's testing facility allows to perform lab tests on the most innovative products, as well as the traditional ones, also using natural fibers.

EOL solutions for value generating

GDM combines its converting and packaging portfolio with FlexLink and HAPA end of line systems, to provide to customers turnkey solutions for value generation, also responding to the latest market needs of e-commerce.

Innovation means R&D

GDM has been actively working on cutting-edge solutions development, aimed to improve liquid distribution of the baby diaper optimizing its absorbency, as well as the most innovative technologies to maximize production flexibility and providing competitive advantage through the best Total Cost of Ownership.

The most important Raw material and Technology players within Hygiene Disposable market have participated to the event, contributing to Innovation Week 2018 amazing success.



Established in 1996, Crown Paper Mills LLC (CPM) is a producer of Jumbo Tissue Paper rolls. The mill covers a total area of 50,000sqm, with an annual production capacity of 35,000 metric tones having machine deckle size of 1860mm for PM1 & 2700mm for PM2.

Headquartered, in the Industrial city of Abu Dhabi (ICAD) – U.A.E, the mill's "Prime Quality" Jumbo Rolls come in various grades such as Facial, Toilet, Kitchen Towel, Napkin, C-Fold and Carrier Tissue ranging from 13.5gsm – 45gsm.

Our mission is to serve our partners by providing best quality of tissue in the region and to fulfill the demands we also have expansion plans by year 2018 with new machine having annual capacity of 65,000 MT with deckle size of 5,650mm.



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DISCOVER MORE



Current State and Prospects of

China's Hygiene Industry

China National Household
Paper Industry Association



The market capacity of China's disposable hygiene products industry continues to grow steadily with more fierce market competition. The high-end consumption trend, comprehensive implementation of the two-child policy and aging population present new opportunities for the industry, which attracts investments and capacity expansion. Meanwhile, in order to maintain the competitiveness in the Chinese market, multinationals continue to increase imports of high-end products. Since the profit margins are squeezed by the changes of market landscape and rising prices of raw materials, the enterprises are forced to carry out initiatives focused on R&D, innovation, equipment upgrade, and consumption reduction. A number of enterprises stand out of the competition, others are expanding into overseas markets.



1. The investment fever is in the ascendant; it is not focused on simply copying the existing projects, but on projects upgrade.

In 2017, the existing domestic hygiene enterprises invested to expand capacity, upgrade technology and equipment, and introduce intelligent manufacturing.

On the basis of working as OEM for overseas brands, some enterprises like Cosom and U-play launched their own brands in the developed markets. Hengan and other leading enterprises started exploring the Southeast Asian market. Some large pharmaceutical enterprises, textile enterprises and dairy enterprises outside the hygiene industry, such as Mayinglong Pharm, Shuangfeiren Pharm and Beingmate, entered the disposable hygiene product industry with large investment projects and advanced technologies.

Some well-known brands in e-commerce and Wechat business channels invested to build plants and started their own production.

The existing projects of multinationals in China are progressing smoothly, with few new investments.

Year 2017 saw also the completion and operation start-up of Kimberly-Clark's diaper production base in Tianjin, Japan Daio Paper constructed a new diaper plant in Nantong Jiangsu and expanded the production capacity of current plant, while P&G established the China digital innovation center in Guangzhou.

Consumption and Retail Market Size of Disposable Hygiene Products in China (2016-2017)



2. The trend of high-end disposable hygienic products continues; the upgrade of sanitary napkin products is mainly reflected in the air permeability, fitness and individualization. The natural materials are favored by consumers, while the tampon market is growing rapidly, though in a small proportion.

Due to the consumers' preference for imported baby diapers, the multinationals continue to import high-end products, while the domestic brands strive to develop and upgrade products. The niche innovation and differentiated products have become the advantages in competition. The product quality of many domestic brands has reached and even exceeded that of multinational brands. However, the product stability needs to be further improved and the brand cultivation needs to be strengthened to gain the trust of consumers. Adult diapers products are upgraded to achieve the air permeability, deodorization, wet indication and other functions.

The functions of wet wipes products are becoming more and more differentiated and diversified.

3. Raw material suppliers are investing in production expansion to meet the growing market demands, and customizing R&D innovation to follow the trend of high-end products.

Suppliers of nonwovens, SAP, films, hot melt adhesives, closed systems, cores and packaging materials introduced advanced equipment in 2017 and expanded their production capacity to provide more materials with stable performance and high added value. They continue to develop natural and degradable materials.

4. The overall level of homemade equipment has been improved,

while that of the leading enterprises has reached advanced international level.

Customization, high-end orientation and differentiation are the development trends.

5. In 2017, Tianjin Yiyi and Beijing Dayuan have been successfully listed on the National Equities Exchange and Quotations, Xiamen Yanjan

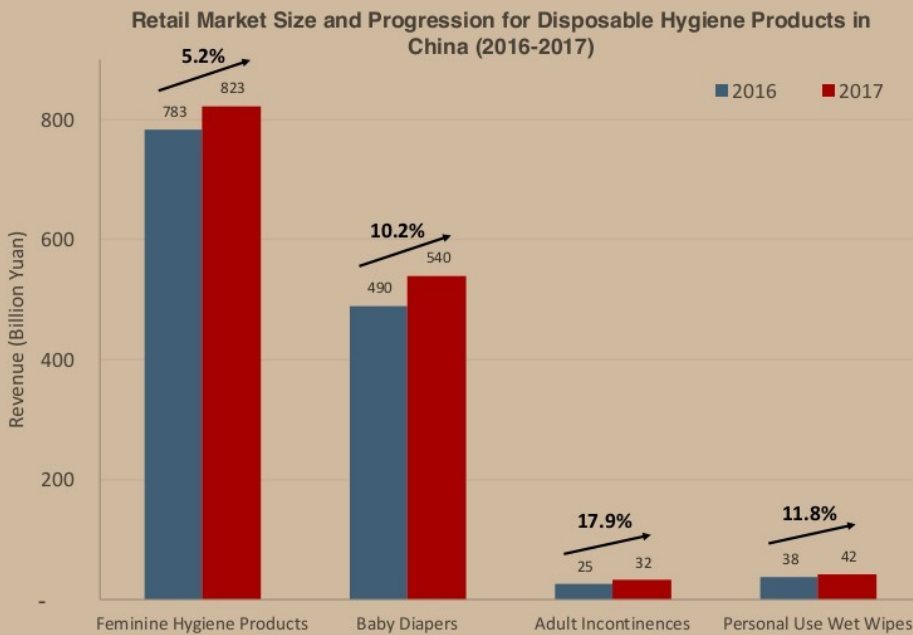
has been officially listed on the Shenzhen Stock Exchange GEM. While enterprises have set foot on the capital market, breaking through the capital bottleneck, their business management also has become more standard.

6. Enterprises are actively trying the O2O, social marketing, Wechat

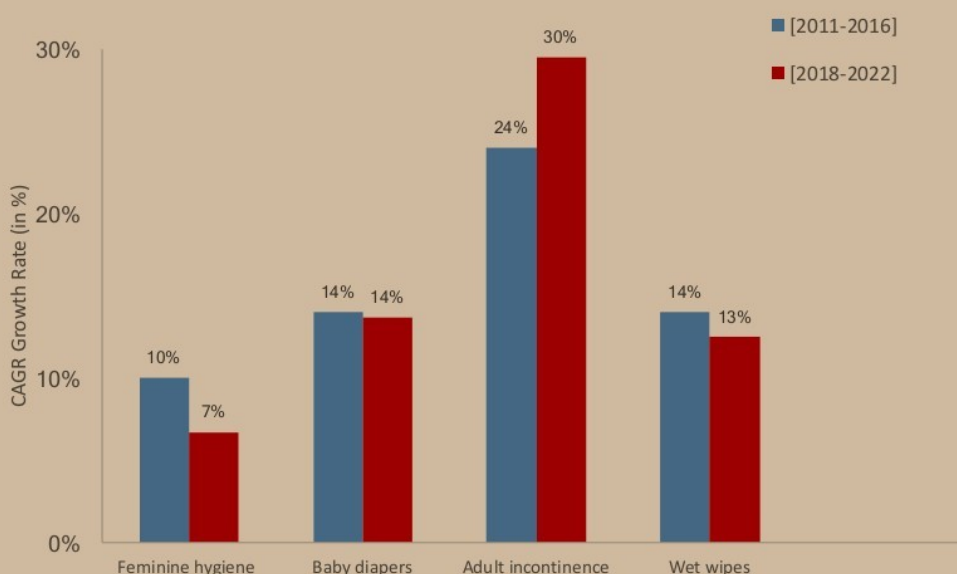
business and other new marketing models to explore new retails. P&G, Hengan, Kidsyard, Daddybaby, LEO and other traditional enterprises explored the new marketing modes, and developed new marketing patterns. The brands in Wechat business like Care Daily have achieved remarkable results.

7. In the first three quarters of 2017, the import volume and value of disposable hygiene products continued to increase. The overall growth was higher than that in the same period of 2016.

The imported diaper products experienced the highest increase, which is 19.14% (the increase rate was 7.69% at the same period of 2016). The average price of imported sanitary napkins (including tampons) increased significantly, which indicates the high-end trend of imported products and the increasing proportion of tampons. As the major import category, the total import volume of baby diapers accounted for 93.7% of disposable hygiene products and the total import value accounted for 90.8%. Its increase rate of import volume was higher than that of the overall disposable hygiene products. Since the import tariff of diapers had been reduced to 0 in China from December 1, 2017, the competition between the overseas brands and domestic brands of baby diapers is becoming more intensified.



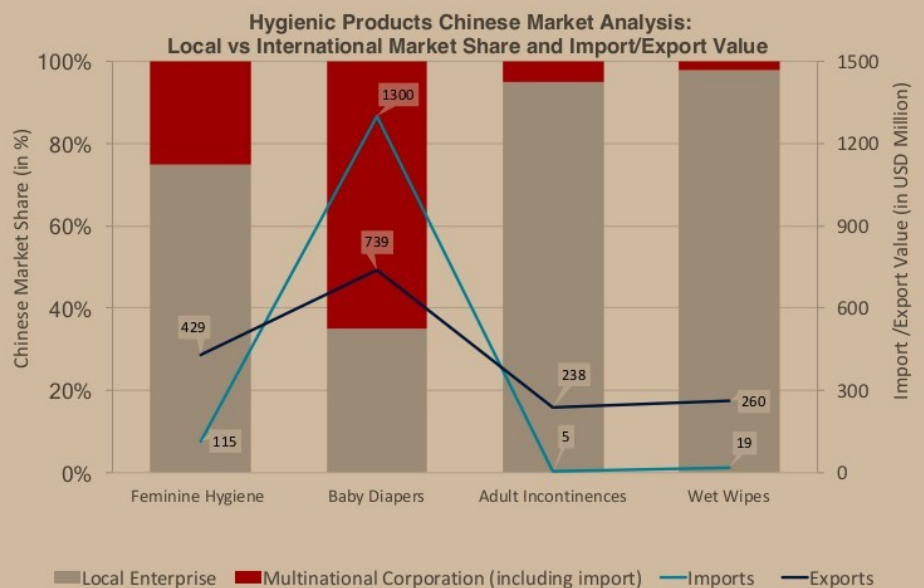
Compound Annual Growth Rate (CAGR) for Disposable Hygiene Products





In 2017 the total import volume of baby diapers accounted for 93.7% of disposable hygiene products

8. As the price of raw materials is still rising, the manufacturers are faced with greater operating pressure. Therefore, the enterprises need to increase income and benefit, and reduce expenditure and cost through enterprise management to ensure the basic profit.



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Current trends in global WATER usage for tissue and towel mills

Dana EL Sanioura, Contributing editor

Pressure on water supply keeps building up; a trend that we cannot expect to regress as the planet's population (and needs) keeps growing. In response, an immersing consciousness among consumers as well as a growing need to reduce costs among producers is driving the tissue industry to adopt more sustainable techniques in order to satisfy customer needs and save on production costs.

A recent industry study by Mr. Matt Elhardt, Vice President of Business Development at Fisher International Inc., a business intelligence consulting firm, has delved into the highlights of water efficiency measures and the industry's response to growing water scarcity concerns. The following is an overview of the aforementioned research.

According to Mr. Elhardt's study, the tissue industry process is not the largest consumer of water; industries such as Printing and Writing (P&W) and Newsprint in reality top the charts consuming over 9 million gallons per day (MMGD) on average, with the market pulp industry coming at a whopping average of over 17.5 MMGD (See Figure 1). Within the tissue industry, North America and Asia are found to be the largest water users across all Tissue & Towel (T&T) grades. Each region consumes in total over 500 MMGD of water, whereas Europe and Latin America trail behind them at about 150 MMGD and 90 MMGD, respectively (Figure 2).

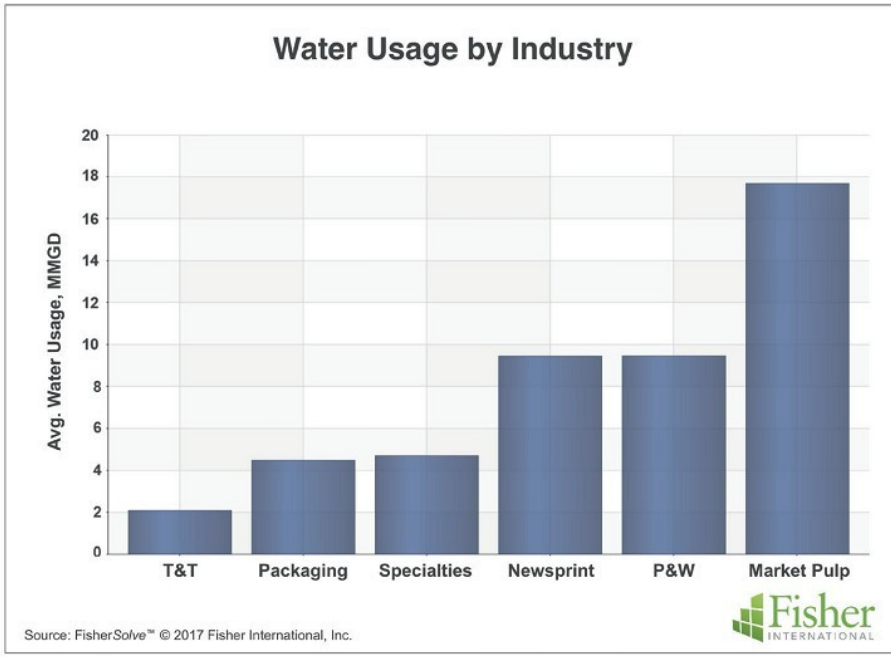


Figure 1
Water usage by industry

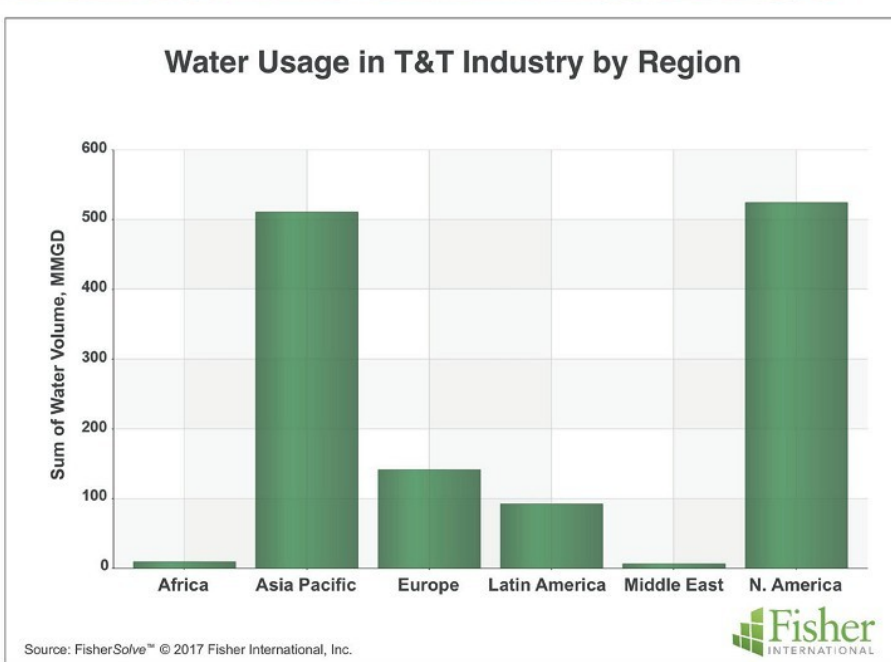


Figure 2
Water usage in T&T industry per region

Notably, T&T industries in the Middle East and Africa are the smallest consumers of water in the world, a fact that was not lost on Mr. Elhardt, begging the question, is necessity the mother of invention? Certainly, there is a correlation between availability of water and the urgency to use water efficient production techniques and equipment. Predictably, the

T&T industry in North America is the largest consumer of water in the world (See Figure 3). Truly, American virgin integrated mills use almost four and ten times the water volume than its counterparts China and Germany. Even recycled integrated mills in the U.S. use significantly more water than identical mills in Europe or China (Figure 4).

Water Usage in Global Regions per ST paper

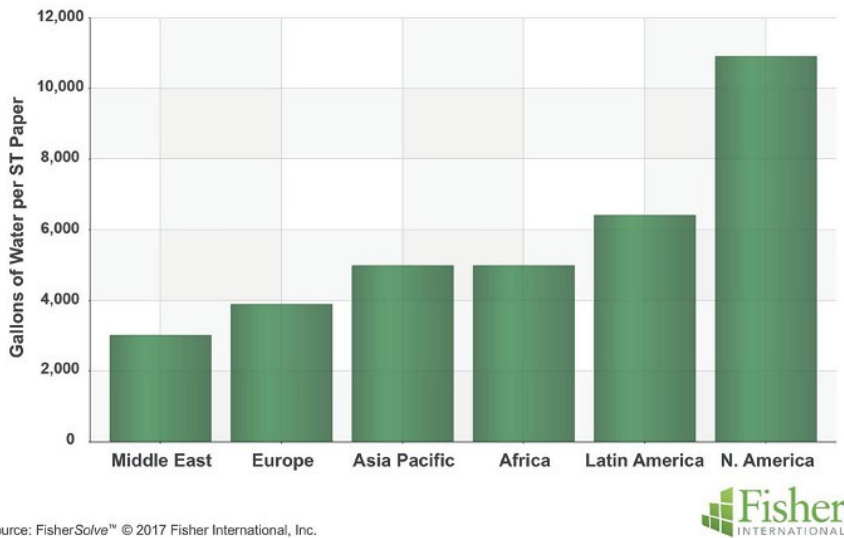


Figure 3

Water usage among global regions per ST paper

Average Water Usage in Developed Countries

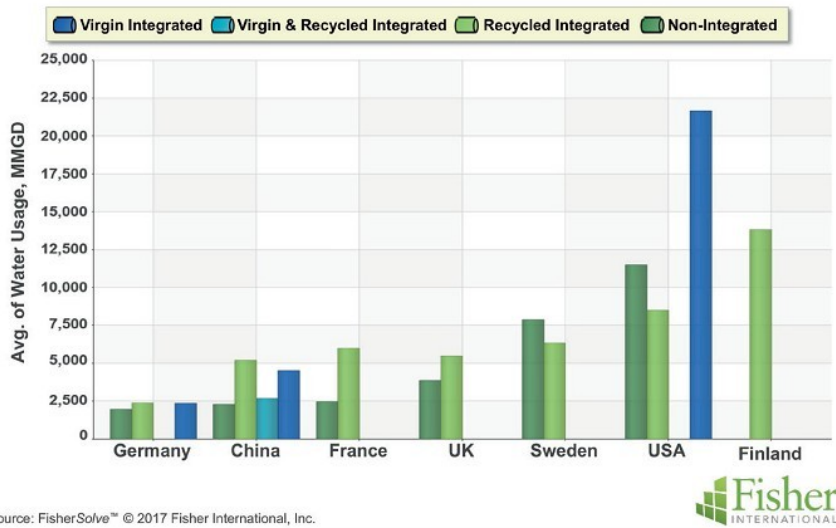


Figure 4

Average water usage among developed countries

A similar trend is seen with German non-integrated tissue mills which use a fifth of the water used in U.S. mills (Figure 5). This matter is independent to the age of the used equipment, as machinery in both countries is of similar age (between 23-27 years). In comparison, machinery used in non-integrated tissue mills in China is newer (average age of 3 years), operates on newer sites (average year of establishment is 2000), and still with an average rate of water consumption (per ton of paper)

comparable to that of Germany (Figure 6). The discrepancy in water efficiency is also seen among users of advanced technologies as not all machineries are created equal. The differences in water consumption among cutting-edge tissue machines is quite obvious when comparing the average water usage of machinery in North America to other parts of the world (Figure 7); yet again the Middle East and Europe still manage to outdo North American industries in terms of water efficiency.

T&T industries in the Middle East and Africa are the smallest consumers of water in the world

Comparison in Water Usage Between German and US mills

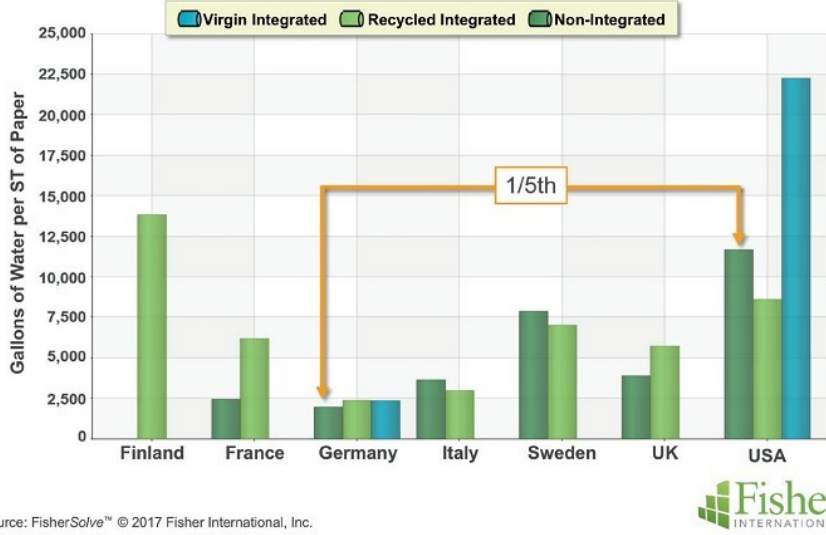


Figure 5

Comparison in water usage between German and US mills

Comparison in Water Usage in Terms of Equipment Age

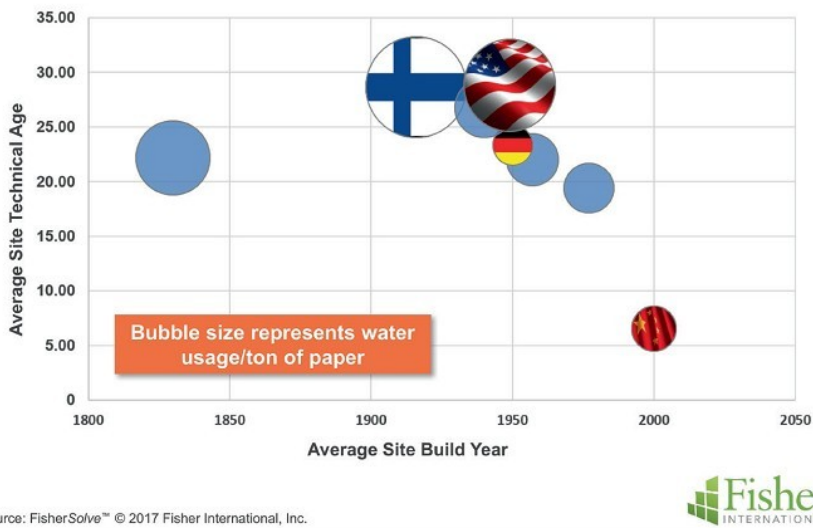


Figure 6

Comparison in water usage in terms of age of equipment

Pressure to conserve water differs by location; though as evident by the European model, the pressure may not be due to water scarcity. Europe is registered as a low water risk (Figure 8); with some locations considered a very low risk such as Scandinavia (Figure 9); however, across the board, tissue mills in the continent are still some of the world's most efficient water users. This contradiction stems from Europe's natural inclination to be

more environmentally conscious than the United States, despite the latter's sincere intent to be environmentally friendly. Europeans live on a continent where space comes at a premium; thus they had to learn early on to live with greater awareness of human's impact on nature. So, building huge water or wastewater treatment facilities is a luxury, and any measure (or machinery) that can lead to decreased consumption is welcomed.

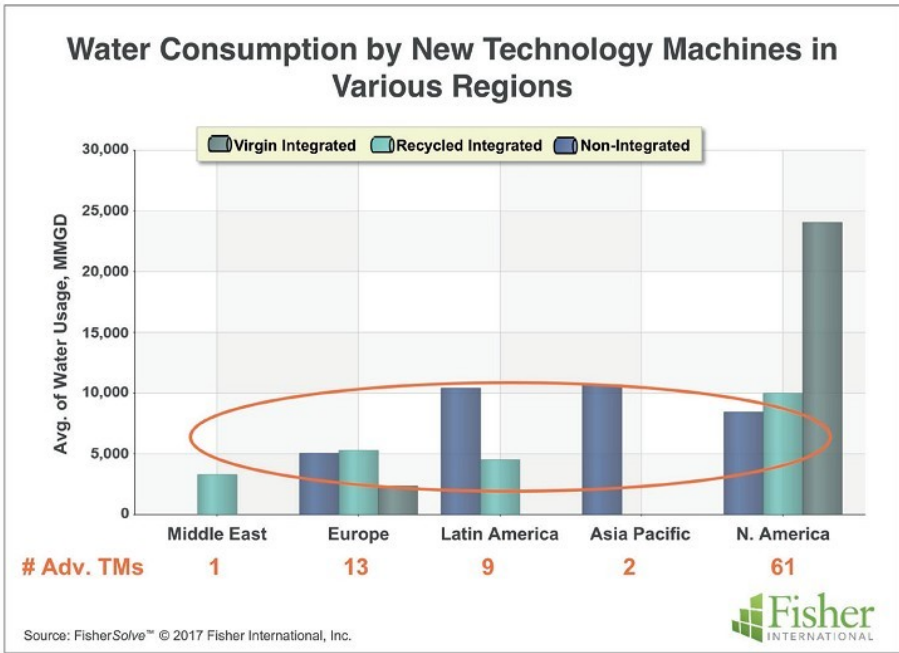


Figure 7

Water consumption by new technology machines in various regions

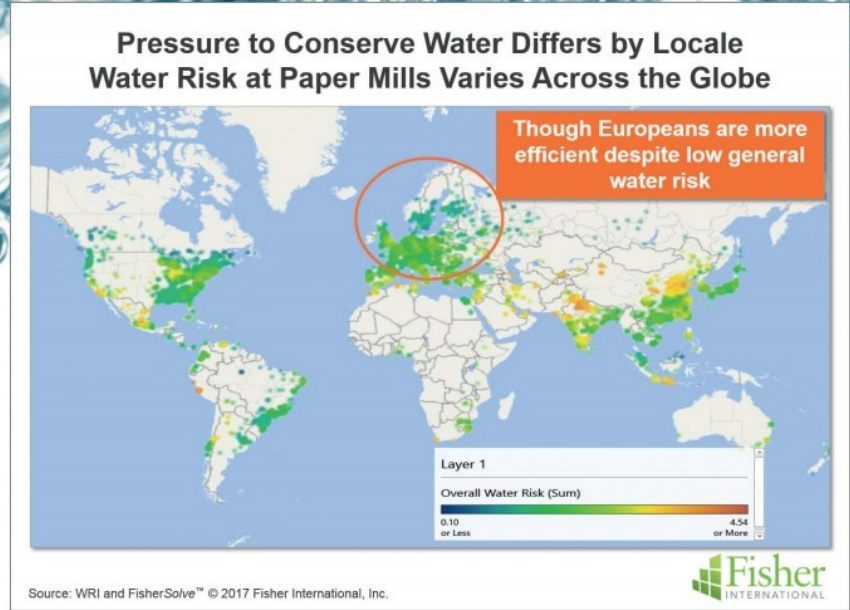
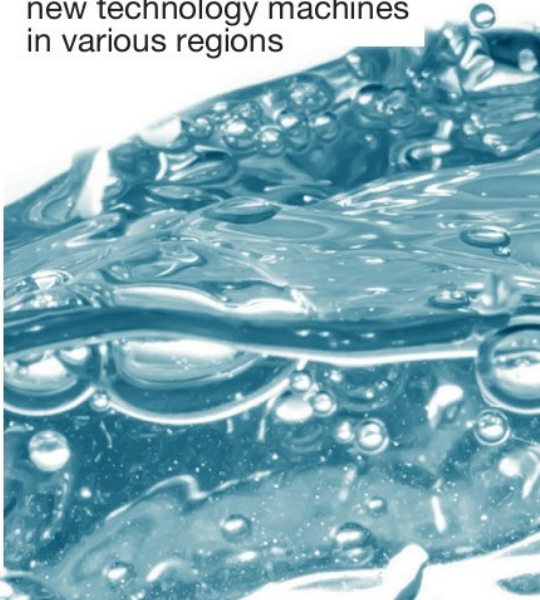


Figure 8

Distribution of water scarcity around the globe

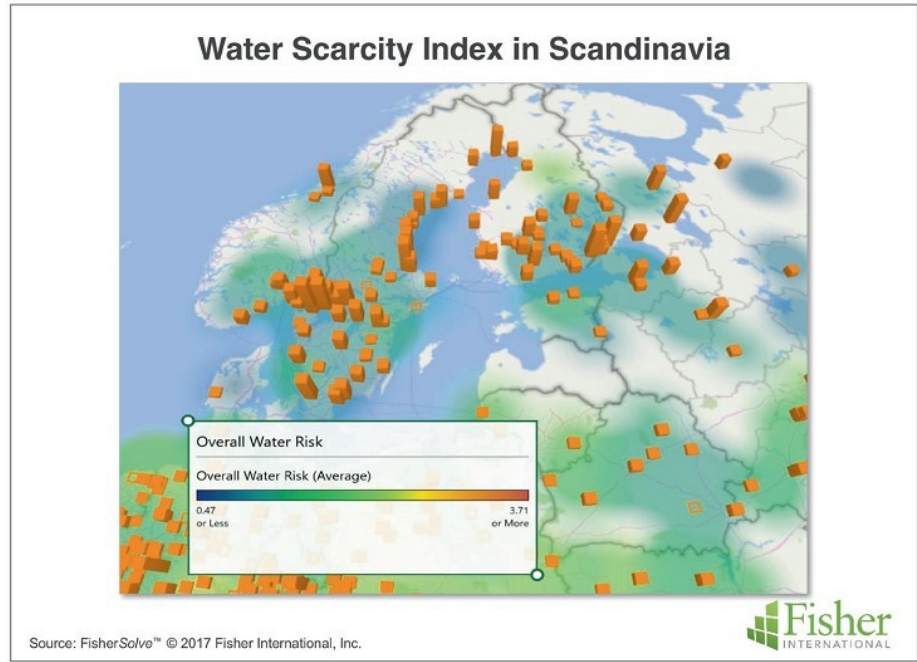


Figure 9

Water scarcity index in Scandinavia

On the other end of the spectrum, water scarcity is a pressing concern in other locations (Figure 10). A prominent example of real world impact of water scarcity is the Tamil Nadu Newsprint and Paper mill, one of largest bagasse-based paper mills in Asia. In 2017, their mills at Pugalur in Tamil Nadu had to shut down their operations due to acute water

scarcity. Eventually, they did resume their normal production following renewed availability of water, the production halt meant a production loss of about 400 tonnes a day. Nevertheless, the withdrawal of 56 million liters per day need by the mill is causing added pressure on water resource in the area and leading to protests by residents of neighboring villages who are struggling to meet

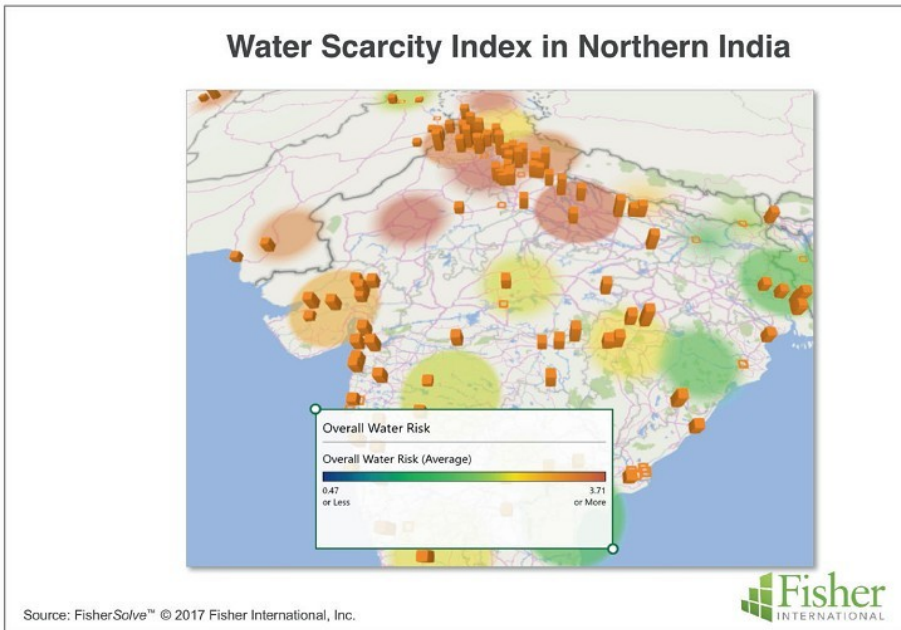


Figure 10

Water scarcity index in Northern India

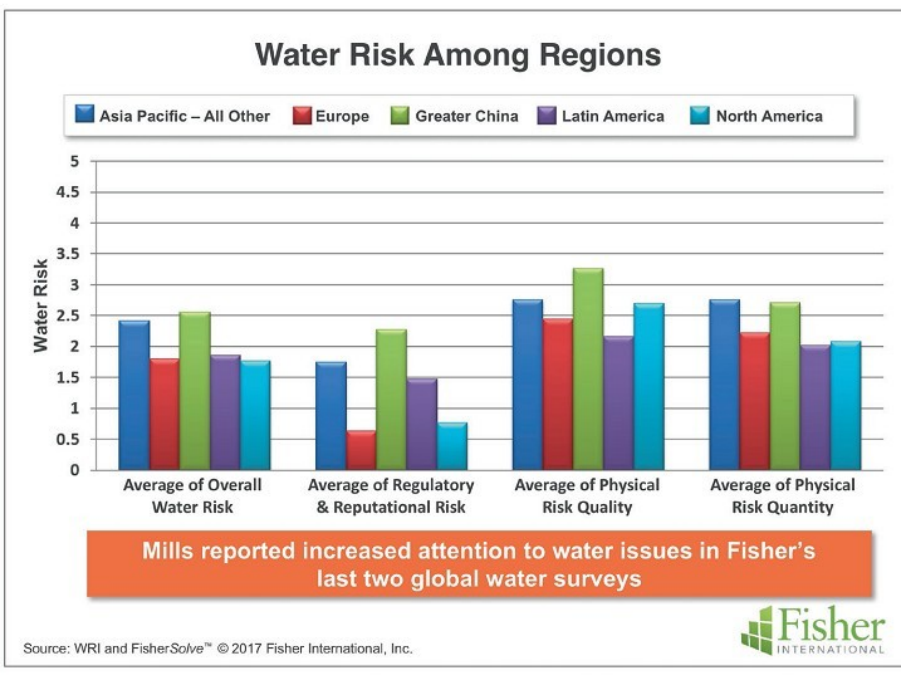


Figure 11

Water risk among regions

the drinking water requirement. The situation in neighboring China is similar; compared to Europe, Asia Pacific and both American continents, Greater China has the highest water risk across all possible categories (Figure 11). Thus it is no wonder that Fisher's 2016 water usage survey attested that water usage goals at the mills

were emphasized in the past 5 years, and will continue to be in the future (Figure 12). This validated another survey which presented water reduction initiatives as the most pressing mandate by governments and top managements alike (Figure 13).

Greater China has the highest water risk across all possible categories

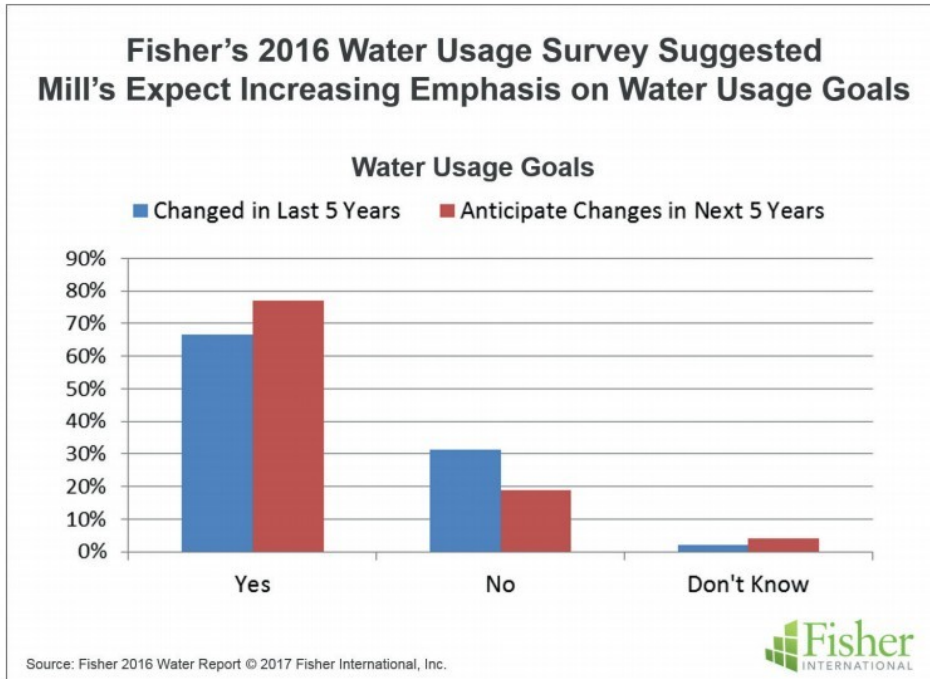


Figure 12
Results of water usage survey

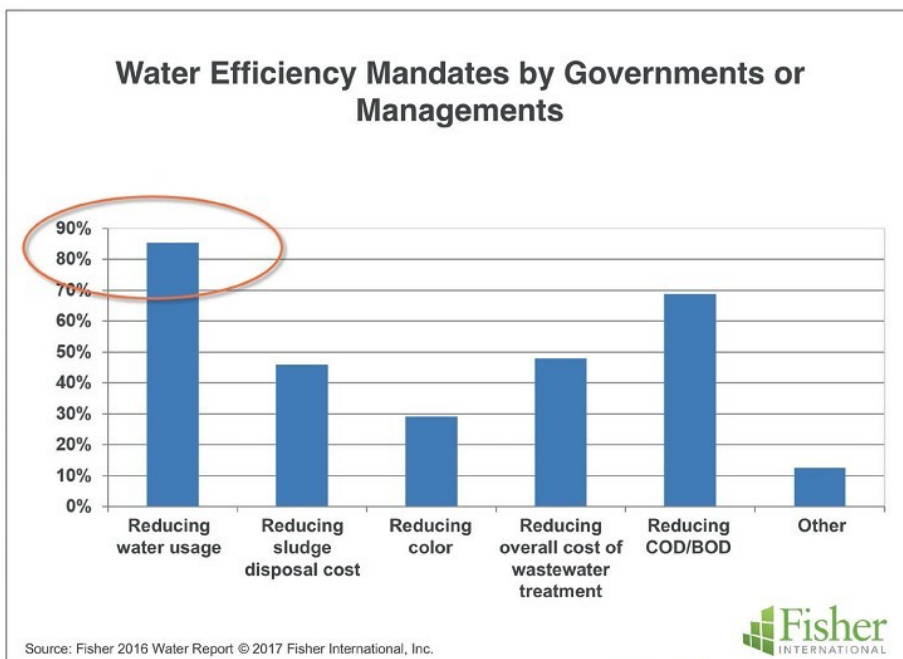


Figure 13
Water efficiency mandates by governments or managements

Finding the reason behind the rising interest in water conservation measures may seem like looking for the answer to the chicken or the egg question. Whether it is the increased interest in water conservation by the consumers (Figure 14) or whether it is high risk water scarcity locations; water efficiency is a powerful marketing tool that brands are taking note of. While it is unclear whether consumers will drive efficiency, brands are focusing on absolute water reduction. Indeed, Unilever reported that 33% of consumers are now choosing to buy brands based on their social and environmental impact. An observation that other companies like Kimberly-Clark (K-C), Georgia-Pacific (GP), and Procter & Gamble (P&G) are also

noticing. In fact, 2016 was K-C's first year implementing their 2022 sustainability strategy which included goals such as reducing greenhouse gases through water and energy conservation initiatives. Likewise, GP has been tracking their gas emissions, wastewater effluent discharge, and water consumption since 2009 and publicizing the level of reductions in their annual reports. Finally, P&G set several sustainable goals for the year 2020, including Goal 1 "Reduce water used in P&G manufacturing facilities by 20% per unit of production by 2020, with a specific focus on conservation efforts at facilities located in water-stressed regions."

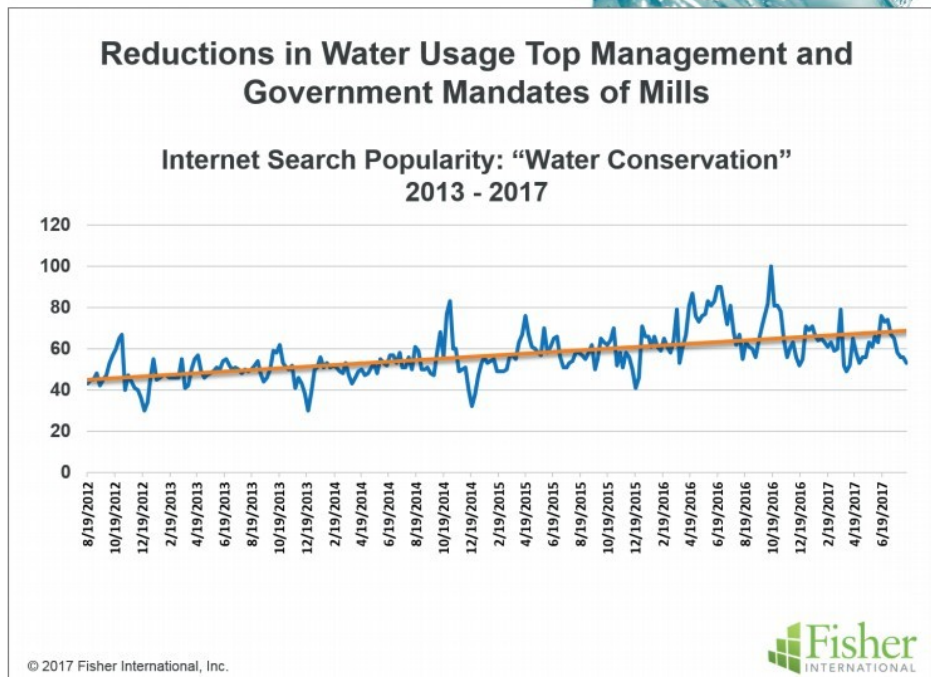
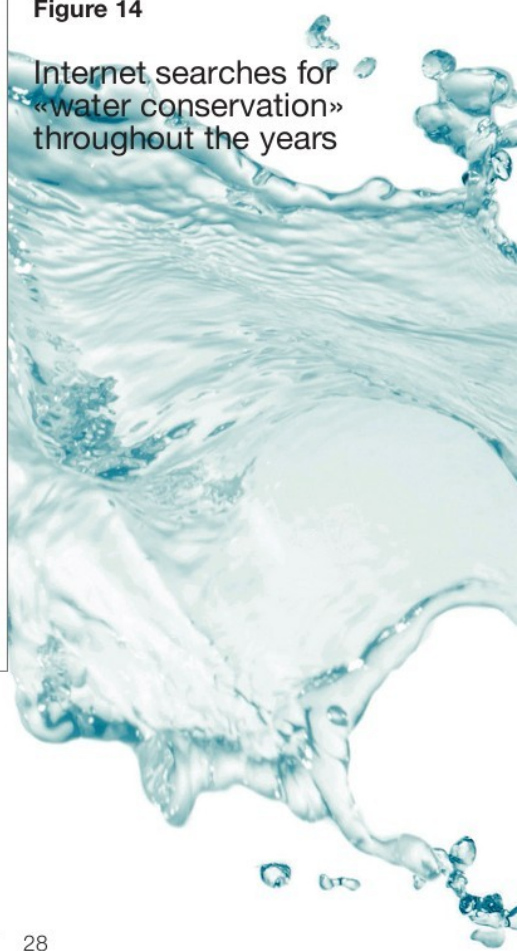


Figure 14

Internet searches for «water conservation» throughout the years



The industry has a long way to go to meet the American Forest & Paper Association (AF & PA) 2020 goal of water usage. But strides are being made to reach the 12% water reduction goal set by the association for their member's pulp and paper mills (from 2005 to 2020), signs of progress are showing as newer North American tissue making facilities are using less water than old ones (Figure 15). Ultimately, reducing water consumption (so long as product performance is met) will always be a good "idea" as it saves on the use of energy, chemical, and even capital investment. So whether a mill is interested in sustainable development

or not, water conservation is a smart business and economic decision anyways. Still, for mills located in high risk water scarcity areas, or companies catering to markets with conscious consumers, there is long-lived value in staying ahead of the curve and going green.

Strides are being made to reach the 12% water reduction goal set by the American Forest & Paper Association

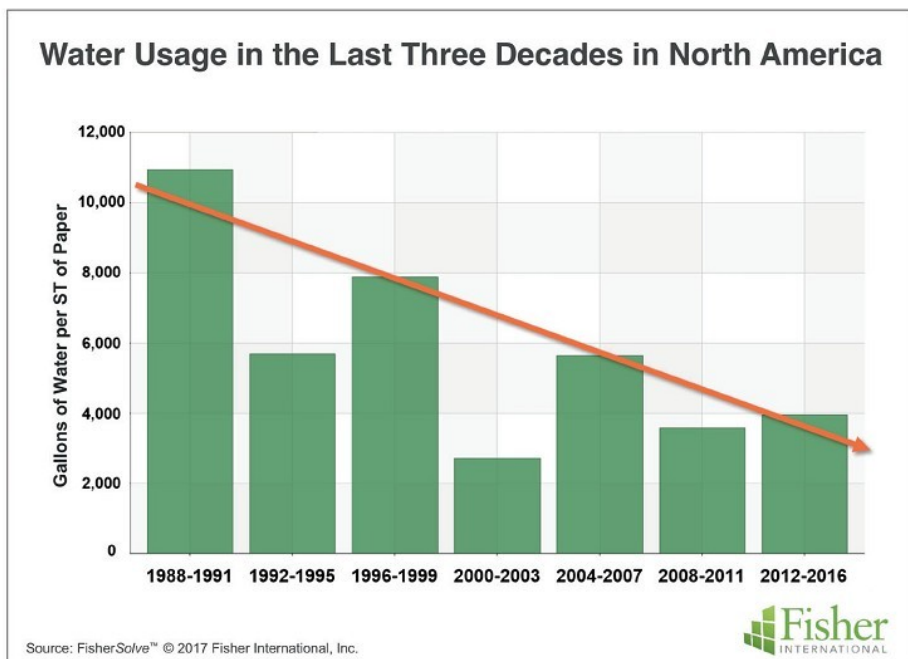


Figure 15

Water usage in the last three decades in North America

Tissue and Towel Sustainability

How

Next-generation
Chemicals Can
Enhance Sustainable
Development

Richard Cho,
Global Marketing Director, Solenis

Sustainability is often defined as a requirement of the current generation to manage resources effectively so that future generations can enjoy a similar quality of life. For tissue and towel manufacturers, the three most vital resources to manage are fiber, energy, and water.

In recent years, the industry has been working diligently to refine or introduce technologies that enable mills to drive sustainable development along a number of fronts. Chemical suppliers in particular have taken great strides to be change agents in this effort. Working together, suppliers and mills are implementing innovative solutions that help papermakers responsibly manage fiber usage, save energy, conserve water, and meet safety and compliance requirements — all while increasing production levels and delivering higher-quality products.



A focus on fiber

In certain areas of the world, tissue and towel production still relies on 100 percent virgin forest fiber, though progress is being made every day to increase use of recycled or alternate fibers. For most mills, responsible fiber management now forms the cornerstone of their sustainability programs, and a number of new technologies are enabling greater diversity in fiber sourcing. Recent innovations enable mills to:

- Decrease consumption of virgin fiber.

Reduced basis weight papers require less virgin fiber, but they often suffer strength and softness deficits. Dry strength resins help overcome these challenges by delivering supreme flexibility in wet-end systems, enabling higher dry strength while maintaining excellent softness.

- Introduce more plantation-sourced fibers.

The use of eucalyptus and acacia can help tissue makers diversify their pulp portfolio, but they introduce their own production challenges. Creping adhesives and release aids minimize dust when using such short fibers while they extend the life of Yankee cylinders and creping blades.

Energy potential

Papermakers consume significant quantities of fuel and electricity, making energy efficiency one of the highest priorities for mills looking to achieve environmental targets, cost savings, and improved output. By working closely with their chemical supplier, a mill can implement a range of solutions that target the most energy-intensive aspects of the papermaking process. For example, mills can introduce solutions to:

- Make water drainage more effective

Increasing the effectiveness of water drainage yields lower dryer energy requirements. Advanced retention and drainage aids combine the drainage benefits of traditional microparticles with the fines and filler retention capabilities of micropolymer technologies for superior water drainage. Paper performance additives can also often reduce or eliminate the use of wet-end additives, allowing for more effective water drainage while improving dry strength.

- Improve the efficiency of the Yankee dryer.

In any mill, the Yankee dryer represents a significant opportunity for energy savings. Creping adhesives and release aids are designed to provide the desired film rheology over a wide operating window of machine conditions and furnish variables.

Water conservation

Tissue and towel producers, especially those in high water-risk areas, that effectively plan ahead with aggressive risk mitigation programs, will

be well positioned for the future. As partners to papermakers, chemical suppliers have been equally focused on water conservation, both in their own manufacturing processes and in their expanded offerings to customers.

As a result, a number of programs have been developed to reduce freshwater consumption, enabling mills to:

- Facilitate the operation of closed systems.

Closed water circuits can result in deposition problems, but a number of innovations can help papermakers address these issues. For example, pitch and stickies control agents combine the benefits of detackifiers, stabilizers and fixatives to address multiple deposition parameters, and antiscalant solutions help to control the formation of virtually any type of scale.

- Reduce contaminants in wastewater.

Wastewater treating and discharge, as well as sludge-waste disposal, represent significant challenges for tissue and towel makers. Luckily, the R&D programs of chemical suppliers have yielded advanced technologies to address solids removal and reduce COD/BOD in effluent streams. These advances include alkaline-effective biocides, flocculants and bioaugmentation, which involves adding specialized bacteria, enzyme products, or other active biologics to a treatment system.

Protecting people, too

Sustainability initiatives must go beyond protecting natural resources — they must also enable mills to protect the health and safety of employees and the general public. Many chemical suppliers are introducing products that are simplifying storage and handling issues and making it easier to comply with local safety standards. For example, recently developed wet strength resins are low- and zero-VOC products, which means mill workers are exposed to fewer harmful compounds.

At the same time, these resins make it possible to produce safer, healthier products for consumers. The newest wet strength innovations are designed to meet recommendations issued by the German Federal Institute of Risk Assessment (Bundesinstitut für Risikobewertung, or BfR) and the U.S. FDA for safe food contact with paper products or components.

Taken together, all of these innovations provide today's tissue and towel manufacturer with an array of tools to target specific phases of the papermaking process or objectives of a sustainability program. Either way, mills should turn to their chemical suppliers as true partners who can help solve problems, improve operations, and reduce their environmental footprints.

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Valmet AB, Fabio Perini S.p.A., Elettric80 S.p.A.: Smart Factory launch

Smart Solutions
for integrating the
processes of the tissue
value chain presented
at Valmet Tissue
Making Days 2018



From left: Jenny Lahti-Samuelsson, Manager Global Tissue Technology, Valmet -
William Nelson, President of Elettric80 Inc & Elettric80 S de RL -
Kent Nika, Valmet and Oswaldo Cruz, Fabio Perini CEO

During Valmet Tissue Making Days 2018, Valmet, Fabio Perini and Elettric80 disclosed new digital solutions to implement the “ideal smart factory” resulting from the cooperation of three market leading companies.

The conference has been hosted since 1983 by Valmet, the leading global developer and supplier of process technologies, automation and services for the pulp & paper industries.

This year Valmet has involved Fabio Perini, leading company in the converting & packaging industry, and Elettric80, specialized in creating automated solutions for FMCG (Fast Moving Consumer Goods) as partners for the event. It has been three days of sharing ideas, technologies and market trends with the key tissue players and producers from all over the world.

The event theme, T-Evolution – Transforming Tissue Together, focused on the transformation of the business environment and how Industrial Internet and digitization are leveraging new strategies and solutions to satisfy the customers. Valmet, Fabio Perini and Elettric80 are three individual companies, part of a unique value chain. They work as separate entities but can at the same time be integrated into one system. They are individually strong, worldwide established companies, but can make the difference within a tissue factory meeting the customers’ needs.

“To continue to develop this industry we have identified and created new solutions with a more holistic approach. This is a proof that working together with our partners and utilizing the data from end to end can bring greater value for both the tissue industry and the development of new sustainable solutions” says Jenny Lahti-Samuelsson, Manager Global Tissue Technology at Valmet.

“The complexity of the market - Oswaldo Cruz, Fabio Perini CEO, comments – calls for cooperation between companies like ours in supplying customers with solutions enabling them to go beyond their business objectives: improve overall equipment efficiency, maximize production output, look after environment sustainability, focus on safety and optimize overall cost, as well as a general and transversal efficiency, attainable only through integration”.

“Elettric80 has totally changed the way of designing tissue factories, offering one of the most efficient and safe solutions available around the world that is able to respond quickly to customers’ needs and to changes in the market,” says William Nelson, President of Elettric80 Inc & Elettric80 S de RL. “The solutions by Elettric80 cover the entire value chain because they enhance the reliability and safety of the entire

plant as well as of the entire business life cycle. The results are a significant increase in factory efficiency, total traceability of handled products, significantly reducing spaces, maximum safety and cost-effectiveness. We work in close partnership with our customers around the world to solve the logistical challenges of the tissue industry; we do not offer our customers a single product, but solutions that are tailor-made, scalable, modular and efficient.”

Valmet, Fabio Perini, Elettric80: how process integration happens

Product optimization, throughout machine digitization, starts right at the beginning of our ecosystem. The journey of the fibres from pulp to a dried tissue sheet is long and every step of the journey is important.

Through the Valmet Advantage NTT machine all the parameters used to transform the fibers into a tissue web and the characteristics of the dried paper, are collected and controlled for immediate corrective actions. The wet end system is measured and controlled by a variation of different Valmet Analysers. Every centimetre of produced tissue is monitored for quality, by the Valmet DNA system, carrying all information on the jumbo roll’s excellence and flaws: chemicals used, softness and eventual damages.

The Advanced Balance Control system (ABC) provides optimal and automatic balance control of hood and air system for any production range, boosts productivity while minimizing energy consumption, allows remote control of the parameters and enables a direct connection to Valmet experts for remote diagnostics on the drying process.

When jumbo rolls are stored and ready to be transformed on the conversion lines, an Elettric80 LGV Elephant system machine collects the right reel from the warehouse and takes it towards

“The complexity of the market calls for cooperation between companies like ours in supplying customers with solutions enabling them to go beyond their business objectives.”

Oswaldo Cruz, Fabio Perini CEO

the Fabio Perini converting line. Elettric80's Smart Decision Maker - the "decision making" logic that oversees all the logistic operations and material movements inside the factory- reads and collects all the information transmitted by Valmet. The main systems by Elettric80 and BEMA, the second company specialising in the manufacture of products that perfectly complete the Elettric80 value chain, designed according to the tissue customer's needs are: a wide range of LASER GUIDED VEHICLES (LGVs); WOODPECKER pallet control system; DRAGON palletizer; SILKWORM stretch wrapper; ROBOTIC LABELLER and SMART STORE warehouses. SMART BOX is a unique, sturdy, modular and extremely efficient solution. Within a 12m x 7.5m space, it combines palletizing, stretch wrapping and labelling in a flexible and compact layout. SMART BOX offers multiple advantages such as high efficiency, reduced accumulations, low maintenance costs constant over time.

The reel is automatically loaded on the new Fabio Perini Smart Unwinder (chuckless and crankless) with intelligent features, that allow to optimize manpower and prevent injuries.

The next step is embossing: the Fabio Perini CATALYST smart embosser can change both steel rolls in just 10 minutes, without an overhead crane, thanks to its exclusive technology. Saving time helps to improve production and optimize

cost, confirming that "Less is more". The Active Exchange System allows adding or removing the steel rolls from the warehouse while the machine is running, granting flexibility and versatility. The Fabio Perini 179AX LOG SAW is able to change the Log Saw blade automatically, with no operator access inside the machine, thanks to its 5-slot warehouse feeding an automatic system that is able to change the worn blade in less than 3 minutes. More than 80% of machine downtime saving and 100% Reduction of Operator Intervention, during changeover procedures, can be attained thanks to the Fabio Perini A6T Wrapper with the Trolley One Touch.

Throughout the whole production cycle, a factory is an assembly of complementary processes performed by different machines, each performing very unique activities. We may say that a factory, in many ways, is like an orchestra, each machine being like a musician creating its own sound, and all the coordinated sounds resulting in music. The whole process is managed centrally by a single software platform developed by Elettric80, named SM.I.LE80 (Smart Integrated Logistics), which ensures a "direct link" between systems and production processes, and the optimal and effective management of all internal and external plant operations: from incoming raw materials to complete warehousing and shipping management.

Valmet AB

is the leading global developer and supplier of process technologies, automation and services for the pulp, paper and energy industries. We aim to become the global champion in serving our customers. Valmet's strong technology offering includes pulp mills, tissue, board and paper production lines, as well as power plants for bioenergy production. Our advanced services and automation solutions improve the reliability and performance of our customers' processes and enhance the effective utilization of raw materials and energy.

Fabio Perini S.p.A.

was born in 1966 in Lucca, Italian hub and world tissue production and converting technology center. Today, with its 5 production facilities in Italy, the United States, Brazil and China, it helps its customers stay competitive and grow thanks to complete production solutions for converting and packaging. Technology, globalization and ongoing, continuous investments in research have led the company to stand out internationally and to be acknowledged as a true excellence in the world of tissue.

Elettric80 & BEMA

were established in the 1980s and 1990s respectively, in Viano, in the province of Reggio Emilia. The two companies have introduced a new concept within the factories: the total integration of products and services, which causes a shift in focus from "line efficiency" to "factory efficiency", thus offering the market quality and prompt deliveries. At present, Elettric80 and BEMA have a unique know-how, which is exclusive both software- and hardware-wise. They have installed more than 1,700 robotic systems and 4,300 Laser Guided Vehicles worldwide. Beyond their headquarters in Viano, Elettric80 & BEMA have set up branches in Australia, Brazil, Chile, the United Arab Emirates, France, Great Britain, Mexico, Poland, Russia, Sweden, and the USA to provide their customers with service and support, not only remotely (24/7), but also on-site, guaranteeing constant efficiency over time.

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Fameccanica has recently presented at the 25th China International Disposable Paper Conference new solutions for pant diapers for baby, feminine care and incontinence, with improved breathability, softness and fit. While absorbency is currently considered as a must property when buying a product, there's an increase of attention on higher breathability, softness and fit.

The rise of pant diapers industry

The recent years have seen an evident growth of the pant diapers market. This trend covers the key Asian regions and, according to a recent report from China National Household Paper Industry Association, in 2016, pull-up diapers held around 20% sales volume of baby diapers, almost 5% higher than previous year. Also, according to the Association, the growth rate of pant diapers is higher than the average of the diaper industry. All big players and multinationals have increased the presence of their pant-versions in their portfolio. This is valid not only for baby but also for feminine care and adult incontinence. Furthermore, other statistic resources show that China baby pull-up pants industry is rising dramatically. From 2011 to 2015, China's retail sales of baby pants increased from 700 million yuan to 3.2 billion yuan. This means a compound annual growth rate of 44%, which is higher than the overall baby diaper market 15% CAGR in the same period. The estimated annual growth rate, from 2016 to 2020, of retail sales volume of China baby pants is 27%.

New opportunities for better products in the pant-style diapers segment

Fameccanica identified 3 key areas of improvement:

First, there's a focus on COMFORT resulting from breathability. Waist band solutions with film - or with threads, have been explored and updates on options for in-line perforation of nonwoven backsheet have been provided.

The second focus is on tactile perception, which normally means a request for product softness.

There are three areas of attention:

- New technical solutions for soft side seams
- How softness may be improved with the appropriate waist band solutions with film - or with threads
- Solutions for three-dimensional laminates.

Finally the FIT characteristic that offers three opportunities:

- Thin cores with appropriate levels of absorption as a result of different core versions
- Less wrinkles on waist band, and
- Thin side seams

Comfort through increased breathability

A first solution based on Fameccanica patent EP3092997B1 provides the removal of glue on the waistband elastic application. Elastics are incapsulated in the waistband. The elimination of the glue between the waistband nonwoven layers, provides improved breathability to the product. Then there's the case of products having elastic film waistband instead of threads. Films are normally non-breathable or with very low breathability, and in such case, there's Fameccanica solution for in-line sealing and simultaneous film perforation. This solution provides improved breathability as it creates holes during the in-line lamination. Fameccanica can propose different versions of this film laminate, using different sealing patterns for aesthetic purpose. The third solution for increased breathability is the in-line perforation of the nonwoven backsheet. Perforated materials provide the feeling of increased breathability. It is possible to find several premade materials in the market. The advantage of Fameccanica solution, compared with



Fig. 1 : Glueless elastic waistband solution based on Fameccanica patent EP3092997B1



Fig. 2: Pull on with breathable film lamination (Fameccanica process)

pre-mades, is cost saving. In fact, this process is done in-line by the machine and reduces the cost in comparison with commercial materials.

Softness through better side seam

A solution for increased softness is related to the side seam of pants, generally obtained with mechanical sealing, however, ultrasonic sealing proved to be a better way to achieve a softer application. This solution provided by Fameccanica on machine models producing up to 650 pieces per minute. For higher speeds, up to 900 pieces per minute, Fameccanica has a second solution which is a recent unique technological solution named MHR. This solution provides the softest side seams, along with the strongest bonding ever, and impacts also discreteness and fit, as it reduces the dimension of side seams thanks to a precise final product cutting between the sealing lines.

The third solution for increased softness includes 2 different opportunities for waist bands through the elimination of glue. These solutions, in fact, have an impact on softness; as the presence of glue, in many cases, gives a stiff feeling, the elimination of glue makes it possible to have a positive impact and higher softness.

Softness through 3d laminates

This is a solution that creates a 3D effect with material lamination, and is a new process covered by a patent application. Such Fameccanica 3D laminate provides a significant increase of softness and caliper vs the 2 initial flat layers. Thickness increase is normally 3 times the initial layer, and the different aesthetics on the two sides (protrusions and channels) shouldn't be underestimated.

Fit through thin cores

Ultrathin absorbent cores provide perfect fit. Fameccanica has two proposals for the manufacturing of thin absorbent cores: one with a high percentage of fluff and one that is totally fluffless.

The first has two different forming systems designed to accept a wide

range of SAP/fluff ratios. The second is characterized by the following key advantages: breakthrough acquisition, breakthrough integrity, superiority in dry and wet conditions and thickness depending on the grammage and thickness of the fibrous material encapsulating the SAP.

Fit through less wrinkles

This solution for better fit is related to the use of film in waistbands, such as the laminated film that was introduced before, when talking about breathability. Laminated film, in fact, impacts discreteness, as it significantly reduces wrinkles. The market demand is for flat appearance of the waistband and this can be achieved by replacing the traditional elastic threads with film materials.



Fig. 3: Ultrasonic side seam



Fig. 4: Top layer with protrusions

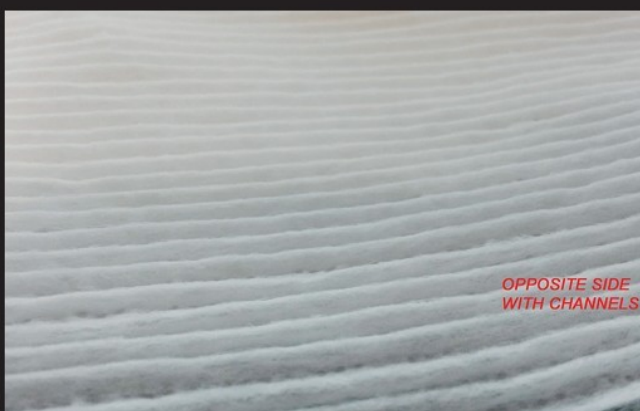


Fig. 5: Opposite side with channels

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