P3

Paper Print Packaging

+ Druckspiegel

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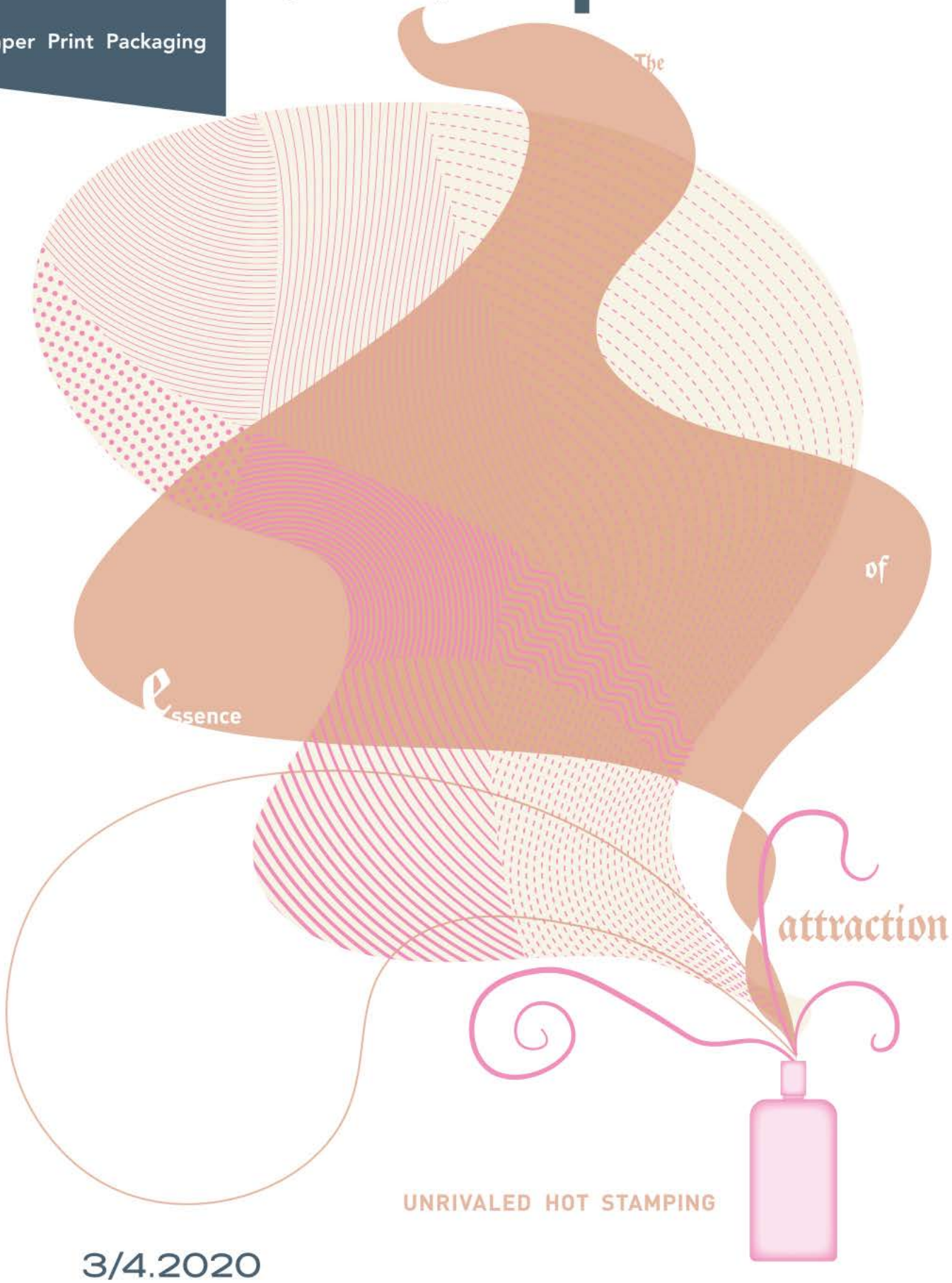

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Dear Readers,

this combined edition of our P3 magazines *Paperazzo*, *ipw* and *bio-fibre magazine* is an issue we have put a lot of effort into – and we had great support. Although, due to the worldwide Corona situation, the big P3 drupa special originally planned for this issue has to wait another year, we offer you an exciting, illustrated mix of pulp, paper, haptics, design and packaging, bringing together the parts of a paper's lifecycle: from the production process over packaging and end user applications up to recycling and re-usage.

The specially designed and elaborately produced and refined envelope in hot stamping (without using ink during the printing process) is of particular note. Initial plans had it that it should be a special (and limited) production for our German-language edition of *Paperazzo* and *Druckspiegel*, but the final result was so convincing that we did not want to withhold this cover from you, even though it doesn't feature the *ipw* logo under these circumstances. You can find details on the design and the companies involved in our cover story on page 18.

I would also like to take the opportunity to thank our Art Director for having managed to translate the various magazines and their topics into a uniform, modern layout that we hope you will enjoy. You can find the complete ePaper on our website as usual. Thanks also to our contributing editors for organizing all the photos and illustrations – not the easiest of things in home office times.

On behalf of the editorial staff, I wish you a stimulating read. Stay safe!

Stefan Breitenfeld

Stefan Breitenfeld
Editor-in-Chief

Photo: private

P3
Paper Print Packaging

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ipw bio-fibre magazine
+ Paperazzo

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Mission Statement ipw

To report on pulp and paper producers, their suppliers and their international activities, focusing on new technologies, future trends, emerging markets and on how to improve their sustainability (or the environmental impact). We report on all grades and segments: from the forest to the customer.

ipw has been the official trade publication of ZELLCHEMING, the Association of Chemical Pulp and Paper Chemists and Engineers, serving the industry since 1957.

www.ipwonline.de *www.paperazzo.de*

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TRADITION ON PAPIER

For their Bavarian wrapping paper collection „Tracht auf Papier" (engl: "Traditional garments on paper"), Heimatformat from Munich, Germany counted on fresh colors. In this series, traditional garments patterns are interpreted anew and modern elements were added. Detailed, Bavarian illustrations and playful pretzel ornaments combined with an interesting red hue characterize the decorative paper.

For this wrapping paper, the team from Heimatformat chose an eco-friendly, matte printing paper, which is made from 100% recycled paper, is FSC®-certified and was awarded the Blue Angel. With a grammage of 100 gsm, the paper is easily foldable but still tearproof. The matte surface makes for a pleasant touch and optically the paper impresses with a shiny and semigloss look.

Get the wrapping paper: www.heimatformat.de/produkt-kategorie/geschenkpapier

INSPIRATION FROM PINTEREST

Westwing founder Delia Discher (now Lachance) collected illustrations, table decoration, paper types and color arrangements on Pinterest boards, in order to create her very own personal design of wedding stationery, in cooperation with die kartenmacherei, a German online store for high-quality and individual stationery. This joint project resulted in the "Delia collection". Pampas grass, watercolors and Mediterranean flair are at the core of Delia's wedding stationery. Self-adhesive wax seals as well as hand-made drawings of the wedding location in Ibiza as templates for the finalized stationery collection are very special highlights. The confidently stylish look combined with pampas grass drawings and a Mediterranean atmosphere make the collection stand out and fit in with pampas grass as a recent décor trend. The bright illustrations are especially appealing on textured paper.

Find the collection: www.kartenmacherei.de/K/pampasgras-kollektion.html

Fotos: Heimatformat, Kartenmacherei, Metapaper, Pantone

BLACK AND WHITE

The online platform Metapaper extends their range with a new fine paper: BLACK & WHITE in 300 gsm. The board consist of a 150 gsm paper in WHITE and one of 150 gsm in BLACK which are glued onto each other and in then end make a board of 300 gsm.

The new paper was, as usual for Metapaper, developed for HP Indigo digital printing; however, it can also be used for conventional digital printing, risography and offset printing. Therefore, the paper is available in all relevant sizes: 100x70, 50x70, 48x33, 46x32 A3 und A4.

Black & White is available at www.metapaper.io

PANTONE COLOR OF THE YEAR

In 2020, Pantone keeps it classic: the color of the year 2020 is PANTONE 19-4052 Classic Blue. This popular hue stands for calm, authority and relatability – our desire for a reliable and secure foundation, from which we can work towards a new era. Timeless and constant, PANTONE 19-4052 Classic Blue convinces with a modest elegance. It reminds of the evening sky and calms but also makes people think at the same time.

Since humans perceive blue hues instinctively as calming, PANTONE 19-4052 Classic Blue represents calm, harmony and protection. It promotes a clear and focused way of thinking; thoughts can be decluttered and sorted out better. At the same time, Classic Blue also conveys optimism and joy.

More Info: www.pantone.com

PMP

First Steel Yankee dryer for FP Kaczory, Poland

In November, 2018, PMP (Paper Machinery Producer) signed a contract for a modernization of a tissue machine that includes a delivery of a new Intelli-YD® steel Yankee dryer to FP Kaczory paper mill located in Poland. It is a great pleasure for the company to announce that PM#2 is now up & running with the new equipment. The start-up took place in the 4th quarter of 2019.

Thanks to an optimized design, the PMP Yankee dryer achieves up to 15% higher drying efficiency compared to previous technologies. Intelli-YD® allows to save energy and money and ensures high durability. PMP has 18 working references of steel Yankee dryers all over the world, and the project for FP Kaczory is the first reference in Poland.

PM#2 produces tissue with a maximum operation speed of 1,500 mpm and a paper trim of 3,150 mm. This steel Yankee dryer diameter is 4,500 mm, shell length is 3,550 mm and maximum operating pressure of Intelli-YD® reaches 9.5 barg. PMP's scope of supply also included spare parts, erection and start-up supervision services.

PMP is a global provider of tissue, paper & board technology and has been supporting the pulp and paper industry for over 165 years, executing projects in 35 countries on six continents. The Company has its headquarters in Jelenia Góra, Poland, and has 7 facilities in 4 countries (Poland, USA, China, Italy). FP Kaczory is a dynamically developing company that has been operating since 1992, specialized in waste paper processing and toilet paper production in Kaczory and pulp products in a second production plant in Margonin. •

Vipap Videm Krško

New HR Director

Slovenian paper mill Vipap Videm Krško appointed Vesna Kemper new HR Director. She will be in charge of the personnel part of the restructuring in the enterprise with almost 400 employees. The company owned by the Czech group RIDG Holding wants to increase the flexibility and substitutability of current employees in order to effectively modernize production and stabilize. Kemper has to ensure that the paper mill will have enough motivated and qualified employees in the future. •

Valmet

Seventh Tissue Line Order from Hayat Kimya in Turkey

Valmet will supply the seventh tissue line delivery including an extensive automation package to Turkish tissue producer Hayat Kimya. The company has decided to invest in a second machine at their mill in Mersin, Turkey, to meet the increasing demand for their high-quality tissue products. The new line will add 70,000 tonnes of tissue to their current production of facial, toilet and towel tissue.

Hayat Kimya has followed their straight expansion plan by the installation of a new tissue machine every second year. Previously Valmet has delivered six Advantage DCT 200TS tissue production lines to Hayat Kimya's mills in Turkey, Russia and Egypt.Valmet also conducted an extensive rebuild of the customer's TM1 machine in Turkey during 2015. •

Stora Enso

New Head of Human Resources

Stora Enso has appointed Katariina Kravi as EVP, Head of Human Resources and a member of the Group Leadership Team. She will start on 1 September 2020 and be based in Helsinki. Kravi is a Finnish citizen and joins most recently from a position as Chief People and Culture Officer at Tieto Oyj, a leading Nordic software and services company. Previously she has held several HR management positions at Nokia. She has a master's degree in law.

"Katariina Kravi's experience in leading change, digital transformation and talent development, is a very good addition to our leadership team. Her background in technology and digitalisation is very valuable and will support us in our continued transformation as "The renewable materials company". I also appreciate her experience in leading teams in complex and demanding environments," says Stora Enso's President and CEO Annica Bresky.

"Stora Enso's mission to replace fossil-based materials with renewable products contributes to the circular bioeconomy, something that is important to all of us. Human Resources is a key driver in transforming any business and help define the success factors for company culture, values and individual growth," says Katariina Kravi. •

Photos: PMP, Vipap, Stora Enso, Toscotec, ANDRITZ

Toscotec

Major Rebuild of Arapepco's PM1 in Aleppo, Syria

The Arab Company For Paper Products Ltd. (Arapepco) successfully started up its PM1 at Khan Al-Asal paper mill, near Aleppo, Syria, after a major rebuild supplied by Toscotec. The paper machine features a reel trim width of 2,850 mm, 800 mpm design speed, and produces fluting and test liner in the range of 105 to 200 gsm using 100% recycled paper. Toscotec carried out a complete rebuild of PM1 from the press section to the pope reel.

Previously, the paper machine was rebuilt by Toscotec in the forming area with the installation of a TT Headbox and modification of the Fourdrinier section, as well as a dryer section rebuild.

The latest rebuild comprises the press section, dryer section and pope reel. The former included the supply of a combi plus jumbo press and a size press. For the dryer section, Toscotec provided its energy-efficient TT SteelDryers featuring 10 bar maximum operating steam pressure, and a tail threading system with air and rope. The supply also included some approach flow system equipment, TT Unirolls, as well as a completely new pope reel and a rewinder unwind stand.

The targets of the rebuild are to increase PM1 production capacity, to extend the range of products produced and to improve paper quality.

Hasan Badinjki, Chairman of Arab Company for Paper Products Ltd., says, "This project is a miracle. We implemented it during the conflict with Toscotec's support and it truly required all our efforts to get to today's result. We upgraded the machine with the latest technology and it is currently performing very well. Arapepco aims to install a top layer in 2021 to meet increasing market demand especially for white top."

Enrico Raffanti, Toscotec's P&B Technical Manager, says, "Due to the difficult country situation in Syria in the recent past, this project represented a real challenge from many points of view. We continuously supported Arapepco from our headquarters and on site, and finally we carried out a comprehensive rebuild of the existing PM1 into a state-of-the-art paper machine. Such a positive outcome is indeed a source of great satisfaction for both our work teams. I congratulate Arapepco for their strong determination to complete this project successfully."

Arapepco is a privately owned company established in 1994 by the Badinjki family. It produces paper and cardboard products including fluting, test liner paper, coloured wrapping paper and carton, grey board and formica using 100% recycled fibres. The company employs 160 staff and its production base covers an area of 24,000 square meters.

Toscotec designs and manufactures machines, systems and components for the production of Tissue and Paper & Board, from complete tissue production lines to rebuilds, modernization projects and even single components. •

ANDRITZ

Stock Preparation Line for Kookil Paper, China

ANDRITZ has received an order from Kookil Paper Limited Corporation to supply a complete 305 bdmt/d stock preparation line including approach flow system, broke handling and fiber recovery to the mill in Zhangjiagang, Jiangsu Province, China. Start-up is scheduled for the first quarter of 2021.

The new line will process NBKP (Needle Bleached Kraft Pulp) and LBKP (Leaf Bleached Kraft Pulp) market pulp bales to produce specialty paper for food packaging as well as photo and special printing paper.

The market pulp bales are dissolved in ANDRITZ FibreSolve FSV pulpers, which enable highly efficient slushing at low specific energy consumption. The innovative rotor design ensures optimum impact effect of the rotor and intensive friction within the pulp itself, however without damaging the fibers. Four ANDRITZ TwinFlo double disc refiners achieve superior fiber properties with regard to fiber length and fibrillation.

The approach flow system allows fast grade changes and will be equipped with an ANDRITZ ShortFlow deaeration system, comprising four proven ModuScreen HBE headbox screens for stock and dilution water screening, a WW Deaerator for efficient air removal as well as a vacuum pump. The deaeration system has an extremely small footprint and makes a significant contribution towards lower energy and investment costs.

The broke handling and a DiscFilter Saveall fiber recovery system complete the scope of supply. •

OBJECT OF DESIRE

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who think of others when shopping.

www.lyon-beton.com

Photos: Pearlink International

We focus on sustainability

It is our responsibility as a sustainable supplier to secure the lowest resource consumption. This is why our innovations are designed to help our customers minimize their carbon footprint.

Eco-friendly and innovative solutions increase efficiency and lead to cost reductions. We focus on sustainability to make our world better with paper.

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VOITH

Inspiring Technology
for Generations

Södra

Helping the move to a sustainable bioeconomy

With the forest industry perfectly placed to play a key role in the world's transition towards a circular bioeconomy, Swedish forest products group Södra is keen to be at the forefront of those driving the change.

As well as maintaining the emphasis on its traditional markets, Södra has been developing new applications for its operations for some time and already offers numerous sustainable solutions from green energy to building systems in wood.

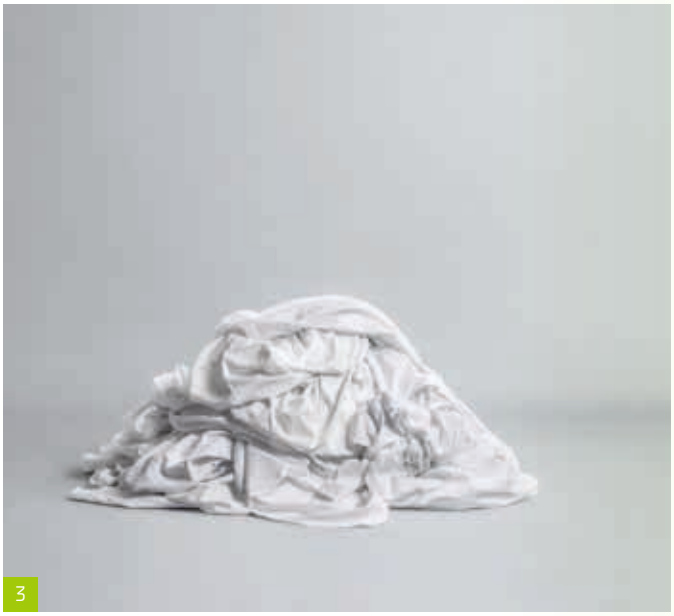
The pulp arm of the Södra Group was recently split into two separate product areas, Bioproducts and Paper Pulp, so that new markets for products from the pulp mills could receive the focus they deserve, in parallel to the concentration on existing markets for paper pulp. The Bioproducts division has certainly hit the ground running – two world firsts have been launched within the past year, one in biofuels and one for recycled textiles.

Powering the future

Södra's Mönsterås mill recently started up what, according to Södra, is the world's first commercial plant for biomethanol, a sustainable fuel made from the crude methanol recovered from the pulp production process. "The Group has an ambitious target to become free of all fossil fuels across all its operations by 2030, but we take both an internal and external view, helping to drive cleaner fuel choices both for us and externally, so this introduction of a new bioproduct is fully in line with our strategy for our own transportation," says Viktor Odenbrink, Sales Manager for Södra Cell Bioproducts.

It began with a pilot delivery of biomethanol to Emmelev A/S in Denmark last February, and shipments will now start expanding to a commercial scale. Emmelev A/S is a Danish family-owned agri-business that has developed large-scale biodiesel production from local canola (derived from rapeseed) but uses fossil methanol as a raw material in production.

"Biodiesel will play a key role in the transition to a fossil-free Denmark and we are very happy that Swedish biomethanol will now be used in production. Our biodiesel will be 100% renewable and based on locally sourced raw materials. Biodiesel produced from Danish canola and Swedish forests can secure fuel supplies for road haulage, as well as buses and construction machinery. This will be crucial for the transformation of the energy sector. We emphasise local



and regional production and consider Sweden part of our local area, and we have good relationships with Swedish companies. It therefore feels natural to be entering into an agreement with Södra," said Morten Simonsen, co-owner of Emmelev A/S.

Andritz developed the patented A-Recovery+concept at Mönsterås which has a capacity of 6.3 million litres per year of biomethanol. Most of the production will be sold to the biofuel industry and as a chemical base, but it could also be used within Södra.

Shaking up fashion

Unlike paper and board, of which about half is made from recycled pulp, recycling in the textile industry has simply not been a concept, let alone a viable solution. But as concerns around climate change intensify and the world continues to demand more textiles, it has become clear that things must change. Demand for radical solutions requiring both a shift in the industry and in the consumer's buying habits are needed. No one has been able to separate polyester and cotton blended textiles – until now.

Last October, Södra announced a pioneering technology called OnceMore™ to separate polyester and cotton from discarded textiles containing polyester and cotton blends and then add the separated cotton to its dissolving pulp. Made at Mörrum, home to Södra's dissolving pulp line, the result is a textile pulp containing 3% recycled textiles today, but which Södra is aiming to increase to 50% recycled content.

This new material will then enter the textile value chain once more. It is the first large scale fibre-to-fibre recycling of cotton/polyester blends in the industry and "a world first for handling blended materials". Once separated, the polyester is incinerated and the heat used to drive the process and produce electricity. Södra is also looking at ways to recycle the polyester but this is still at lab stage.

The reaction to OnceMore™ was, as Södra states, "huge and immediate". Within hours of releasing the news, requests streamed in from all over the world. "We knew it would be big news, but we were still taken aback by the level of response. It shows what a tremendous interest there is in textile recycling," said Annica Larsson Ahlstedt, Project Manager.

"We have received many enquiries from fashion companies keen to source garments containing recycled textiles. We want to connect the entire value chain and are looking forward to working more closely with fashion companies as we move forward. At this stage, we need more partners to supply the waste textiles if we are to really scale up. We are actively engaging with others in the supply chain from hospitals and hotels to major fashion retailers – interest is huge and growing."

By the end of 2019, Mörrum had produced 400 tonnes of OnceMore™ pulp using 20 tonnes of recycled textiles. Demand is high and the entire volume has been sold. Runs will soon start to increase the recycled textile content of OnceMore™ to 20%. The target for 2020 is 300 tonnes, rising to 3,000 tonnes for 2021, so watch this space! •

1 Södra's Mönsterås mill, the world's first commercial plant for biomethanol.

2 Runs will soon start to increase the recycled textile content of OnceMore™ to 20%.

3 No one has been able to separate polyester and cotton blended textiles – until now.

Photos: Södra

1

People Power at L-PACK

Sustainable Packaging for Branders

From recycled fibre to corrugating and complete branding solutions

When Peter the Great chose Lipetsk, Russia, to make canons, based on rich deposits of iron ore, he succeeded then – but, over the centuries, more than he could have imagined. Now Lipetsk is a technology hub for metalworking, machinery, tools, engines, chemicals, and most recently, containerboard manufacture and corrugating. Petr Karanchuk, CEO of L-PACK, brought new life to Lipetsk, using Russia's own recovered fibre to produce packaging for leading brands.

Says Karanchuk, "We are a pioneer in Russia, making packaging from packaging. This means the transport box to the branded packages inside. Our customers appreciate us for our fast order processing and quality packaging. They also value the positive experience of interacting with our people who care about sustainability."

Adds Karanchuk, "We pride ourselves in continuous process improvement. Tight control of pulping recycled fibre, making paperboard and fluting all the way through to finished packages. Flexibility around their needs, continuously improving our processes, always with a smile – that's the L-PACK promise."

A huge leap ahead for L-PACK was their decision to purchase a large 4.8 width meter printing and writing machine from Europe in 2017 and converting it for the packaging segment. Starting up in March of 2019, the completely rebuilt infrastructure houses stock preparation lines for OCC and a complete special stock preparation line for Used Beverage Cartons (UBC), two paper machines, two corrugating lines and other specialty converting equipment to make a wide range of premium packages.

Nearly two decades of experience in quality production

When you visit L-PACK and tour the facility from pulping through converting, smiles are everywhere. When workers tell you that they always toast the health of Petr Karanchuk at a celebration, they are sincere. Says Karanchuk, "Our packaging solutions are not about me. Quality products and relationships are about our people and their interactions with customers. I should say strategic suppliers, also, because they are essential to our ongoing progress."

1 800 Tons per day of liner and fluting production are made from OCC and Tetra Pak UBC. The complete OCC pulping system and UBC line are from Kadant Lamort.

2+3 UBC (Used Beverage Cartons) are part of L-PACK's commitment to minimizing waste, and re-using this valuable resource for multiple value streams. L-PACK's recycling UBC is a first in Russia.

Modest beginnings, now the biggest in recycled linerboard

L-PACK, founded in 2001, produces singlewall and doublewall corrugated containerboard and a full range of grades. In addition to the standard list, the range of products includes micro corrugated board, large-scale packaging and fanfold. Their own raw materials base, cooperating with the leading suppliers of raw materials (Arkhbum, Ilim) and continuous modernization of production ensure the dynamic development of the company. Since 2002, an annual increase of volume of production has been more than 10%.

The production cycle starts with waste paper, which is used to make testliner and fluting. The paper we produce serves as raw material for corrugated containerboard. The ready sheets then go to converting machines, where they are turned into the final product – corrugated packaging.

According to Ivan Grishin, leader of paper production, "I started out with a modest job, back when we had only a small linerboard machine. Now I am mill manager, over the entire operation. My team has little papermaking experience, yet we produce at a high level, rivaling the best output from Europe. We come to work inspired, having the desire to reach new levels of performance every day. We are all about continuous improvement of our processes and output. Leading brands in Russia and neighboring confederations and countries gain from our packaging commitment to excellence."

Learning from a supplier how to partner

Adds Grishin, "Kadant Lamort has played a crucial role gearing up for our new pulping capabilities. They were in close contact well before we started up. They provided insights and onsite training, including Skype conferences every week. As a result, our twin stock preparation lines provide UBC and OCC run smoothly, overcome by stickies and contaminants. Kadant has helped us troubleshoot when a problem arises, and are ready to back us up virtually or at the mill on short notice. This includes our Tetra Pak UBC line, which is the first in Russia. Their equipment for stock preparation assures us of a high level of fibre quality, lower energy usage and top quality – even from variable quality recycled waste."

According to Elena Kasyanova, CEO assistant and translator, "I translate technical ideas from suppliers who support us, but also enthusiasm. We make L-PACK shine as a place to work and visit, because we love our work, and the challenges we face."

Karanchuk notes, "The Japanese philosophy and methodology of quality advances is in the air at our mill, because we strive daily for small gains in our processes. We deliver quality end products, of course. But our core competence is continuous improvement. Each team is encouraged to advance each day. Individuals are there for each other. This includes a small network of strategic suppliers."

L-PACK's unique way of applying the „lean production" concept has evolved from Edward Deming's quality strategy and Toyota experience. According to this strategy, each employee is engaged in the process of business optimization and losses elimination. Organization of work and staff motivation system is aimed solely on the overall final result.

Kadant OCC Line technology

The OCC line has a capacity of 800 bone-dry metric tons per day featuring the latest techno-

Photos: Kadant

1 Ivan Grishin, leader of paper production, has a hands-on approach to all tasks at L-PACK, large and small. PolyAl is shipped to partner companies who use this raw material to make a range of composite end products. Kadant Paal balers package the material, shipped to partner companies who use the PolyAl as a raw material.

2 This Jumbo P2200 LMC packaging system is the largest machine for packaging in Russia. Web – 5200 x 2200 mm* Speed – 100 items/min printing in two colors.

logy for the production of recycled corrugated container, enabling the mill to operate with low energy consumption and high capacity.

The system includes a Hydrapulper® low consistency continuous pulper, a heavy duty and high efficiency detrashing system that includes the Hydraflow continuous detrasher & trashwell design, followed by high density cleaners. It also features a coarse screening system that features removal of large & heavy debris allowing fibre free rejects, including Styrofoam, as well as high-efficiency Fibrewall® screen cylinder design to assure the best stickies removal.

Grishin comments that "L-PACK selected Kadant for this greenfield project based on proven OCC equipment technology and track record of successful rebuilds."

The former coated paper machine, imported from Sappi Holland, has been completely modernized, rebuilt and transformed to incorporate advanced containerboard manufacturing technology.

Proven multi-stream repulping technology; the Tetra Pak UBC advantage

Delivering a high yield of non-contaminated fibre and separating of plastics and aluminum is not easy. Because the traditional approach for a pulper cleaning system is limited by the size of the rejects handling system and the number of cycles possible it fell short.

L-PACK's streamlined UBC recycling system from Kadant, referred to as the LP Recycling System, includes a specially designed Helidrum® pulping system, a compact All-in-one Screen-One screening, and a novel reject treatment, where the fibre is recycled and used by the board mill, and independent „clean" streams of polymers and aluminum from post-consumer waste are ready for recycling or recovery.

Compact Liquid Packaging Recycling System benefits include:

- Aluminum and polymers value streams from the pulper – fibre free, ready to be reused.
- Producing high quality final pulp without residual aluminum or plastics.
- Extremely sustainable solution; energy savings with low temperature pulping & chemical free operation.
- No shredding to prevent potential aluminum debris in the final pulp.
- High yield of all raw materials and end products.
- Closed water loops.

"Our LP Recycling is compact and innovative, requiring no shredder or forward cleaners, reverse cleaners, dispersing or kneading devices," says Marcello Giorgi, Kadant Lamort global sales & marketing director. "A notable feature of L-PACK's OCC line is furnish with high mechanical strength, giving them a marketing advantage with their packaging board."

Continues Giorgi, "We are proud of our partnership and successful journey with L-PACK. Continuous improvements will help them stay at the top with leading branders." •

Photos: Kadant

Together: Futura's new innovation in tissue technology.

Futura

Innovations in Tissue Technology

Together is the result of Futura's technical partnership with Plusline srl and makes good Futura's promise to introduce innovations which reach as far as shelf-ready packs of tissue.

"Together" goes all the way to shelf-ready packs

Together is a highly automated, integrated system which can be installed downstream of any existing or new converting rewinder line, not necessarily produced by Futura, thus opening opportunities both for setting up new plants, and for making existing lines much more efficient.

The system includes log trimming, log cutting and integrated packaging, all in one line, guaranteeing a continuous flow of product from converting to packaging. The optimised layout lowers the risk of product damage because of reduced handling. It is ready to be viewed in action at FuturaLab.

The integration of Together in a Converting line allows tissue producers to optimize use of space. The compact layout of Together brings a drastic reduction in footprint of up to 60 sqm for each line, which also allows more lines in the same premises. Thanks to the high-level automation, reduction in components and the simplification of the production line, Together also makes management and maintenance of the line easier, reduces energy consumption and the number of operators required.

The simplification and shortening of the line, the reduction in the number of components (including the lack of choke belts), and the quality of the materials used guarantee the continuous flow of product with no deformation, and at higher speeds. The fact that it is enclosed yet accessible ensures operation and maintenance are far easier and guarantees operator safety. At the same time, users can expect better folds, and a sealed and closed pack makes for a more hygienic, better protected finished product.

JOI for the 2020s

The news regarding Futura's renowned JOI embosser includes a reduction in the size of the timing belt. Changing the timing belt is the only remaining manual operation on JOI, which is now easier and quicker thanks to the smaller belt. Embossing roll changes are of course handled by the Andromeda crane. Combined with a new storage area for embossing rolls which is fully accessible in complete safety while the line is running, it takes JOI to a new level of automation – even to the oil circulation system detachment which is managed from the control panel.

Forward with the rewinder

Automatic adjustments on Futura's Sferica rewinder set, as they say, a new standard for the industry. More than just a camera, the vision system on Sferica measures the position of the log during winding, calculates any error compared with the ideal situation and automatically resets the winding parameters.

Critical cutter innovation

Automatic blade change on the logsaw is another game changer for Futura. Combined with the unique, patented trim removal system which is critical to the success of the Together innovation, the log saw/bevel measurement system enables full operation during blade changes, maximising productivity.

Thanks to a light-based camera monitoring system to analyse the blade's condition while it's running, automatic blade grinding is only instigated as needed, requiring attention only on the side of the blade. It keeps blades in optimum condition without disrupting production and without unnecessary grinding.

"The market is always curious but cautious about innovations which represent a major departure from standard solutions," says Futura Chief Technology Officer Giovacchino Giurlani. "The fact that the validity of Together was confirmed so soon after its launch with two orders was a welcome affirmation of this cutting-edge technology. Our embossing, rewinding and cutting developments meet the same desire in the market for increased automation and we anticipate a very positive response." •

Photo: Futura

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Coverstory

The Essence of Attraction

The possibilities of hot stamping are shown on the cover "The Essence of Attraction – Unrivaled Hot Stamping" of this P3 issue. Behind the conception and design of the project is the communications company g.a.s., while the hot stamping foil was contributed by the company KURZ. *ipw + Paperazzo* is excited to present the collaboration behind the cover.

G.a.s. unternehmenskommunikation gmbh puts its focus on two things: to excite people's curiosity and to activate all senses. The agency is especially interested in creating concepts which messages can be perceived with eyes, hands, mind and heart. Therefore, it should come as no surprise that *ipw + Paperazzo* has partnered with g.a.s. for the production of the cover for the newest issue, titled "The Essence of Attraction – Unrivaled Hot Stamping".

Touching and Feeling

The agency for company communications is located in Fürth, Germany. A team of seven specialists is responsible for analogue as well as digital concepts created for medium-sized up to international corporations. When it comes to analogue concepts, g.a.s. mainly focuses on the senses of customers and consumers. Multisensory design is therefore most essential for the company – no matter whether labels for gin and wine bottles, packaging for sun screen and other beauty products or poster design. With an eye for tactile experiences, g.a.s. wants to put a focus on the missing aspects of digitalization and speak to people's desire for products that can be touched and felt.

Longtime Collaboration

Among g.a.s. longtime collaborating partners is LEONHARD KURZ Stiftung & Co. KG. In collaboration with the company specialized in thin film technology, g.a.s. already developed beauty packaging, hot foil-embossed labels for bottles and several series of sample packaging presented at trade fairs. Among the latter are the sample packaging made with offset printing, faint metallic and translucent stamping foil created for LUXEPACK 2018 as well as products made with the KURZ-brand "BRAND" for drupa 2016 (hot foil stamping in gold made with blind embossing) and Fachpack 2018 (finished with especially delicately textured hot stamping in gold).

Photos: g.a.s. unternehmenskommunikation

1 g.a.s. unternehmenskommunikation gmbh from Fürth, Germany…

2 …is at home in the area of B2B marketing for brands and products.

3 Multisensory design is most essential for the company's projects.

Genie in a Bottle

Since both g.a.s. and KURZ are interested in product and brand experiences that excite customers' senses, g.a.s.' Managing Director Martin Appoldt decided for an especially captivating concept for this Paperazzo issue's cover, that makes for a very interesting touch and feel. The chosen motif was inspired by the metaphor of the genie in a bottle: "It stands for the variety of possibilities for design with one rather simple technique as well as for a sector which is interested in presenting the many possible packaging designs to market perfume attractively," states g.a.s.

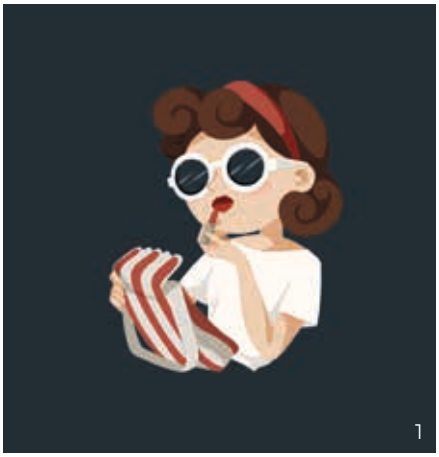
Algro Design Nature 300 gsm by Sappi was the choice of paper for the *ipw + Paperazzo* cover. "Which paper is used is decisive. It was important to us that we choose a substrate with a matte, almost porcelaneous surface, in order to show glossy as well as metallic stamping details perfectly," states g.a.s. about the choice of material.

Essential Cover

The statement on the cover says it all: hot stamping played a decisive role in the implementation of the cover design. The many possibilities to get optical effects by the use of hot stamping made it possible for g.a.s. to refrain from using ink during the printing process. In lieu of printing ink, the cover motif was created by using differently colored metallic surfaces, different gloss levels, transparent holographic effects and embossed textures. The finishing of the cover was finalized in four embossing steps: silver (KURZ ALUFIN Spezial), copper (KURZ 10 74 70N), transparent (KURZ LIGHT LINE Neon) and blind embossing. By the way, Gräfe Druckveredelung GmbH was responsible for the final technical production of the cover.

Printing the whole thing was done two-up (face and reverse printing), therefore, tools had to be produced twice. The subsequent finishing was done on an embossing cylinder machine due to the extensive embossing in the first two embossing steps. The texture was realized afterwards together with the transparent holographic embossing designs. The final effects including impressions invite to touch and feel – just the essence of haptic perception. || **Sabrina Vetter**

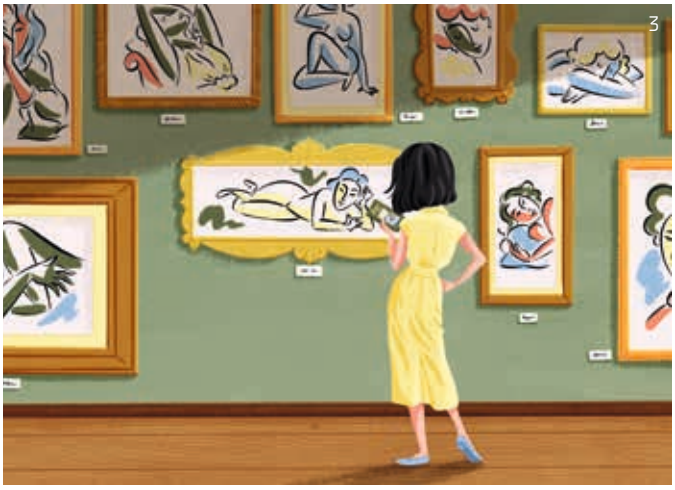
More on g.a.s.: www.gas-inter.net



Illustration

LIFE ON PAPER

Lucia Soto is looking at the world through a vintage lense. Naturally, her work is marked by a specific style that combines the old with stories from the illustrator's modern life on the move.



1 "Vintage is the watchword": Lucia Soto's works look into the Past.

2 The travel journal "Home away from Home ", inspired by a trip to Alicante, Spain.

3 Looking through a vintage lense: A trademark of Lucia Soto's work

Artwork: Lucia Soto

4 Residing in London, Lucia Soto creates artwork with a vintage focus.

5 For Lucia Soto, drawing is a lifelong passion.

Lucia Soto likes to travel through time – and it shows in her work. The London-based illustrator creates designs that not only catch the eye due to bold colours but also depict how Lucia's interest in people and their stories through time are a major influence on how her ideas comes to life. Therefore, the illustrator finds a lot of inspiration in graphics and illustrations found in fashion magazines and Hollywood films that stem from the mid-20th century. "Vintage" is the watchword when it comes to creating for Lucia.

Going Solo

After graduating from art school in Design and Plastic Arts and working as a Graphic Designer and Art Director in advertising for a few years, Lucia decided to set up her own studio, now located at Primrose Hill, London. Under these new working conditions, the illustrator was finally able to pursue her lifelong passion of drawing. This allowed Lucia to work in a variety of media including watercolour, ink, markers, colour pencils and digital drawing to create illustrations, lettering and map designs.

Vintage Love

Her designs include bespoke stationery like save the dates, wedding invitations, RSVPs, maps, seating plans, orders of service, menus and thank you cards. Additionally, Lucia creates books which she not only illustrates but also authors. One of her publications is "21 things you could be doing now (had you been born in the good old days!)". The book is a funny take on how people sometimes idealise the past with romantic notions from novels and black and white films. It is also heavily influenced by her passion for vintage.

There is also "Home away from Home" – a travel journal which was put together after Lucia visited the Spanish town she grew up in to spend some time with her family in April 2017. This illustrated travel journal tells the story of that trip and tries to answer a difficult question: where is home?

Travelling Paper

The artist, whose life is marked by movement and travel, has found a way to deal with ever-changing job and living situations in the past, and the feeling of unrest that a life on the move brings along, by creating paper dolls. In designing these new projects, Lucia was able to combine her passions for travel and vintage, while at the same time tell personal stories about how her life as an artist looks like behind the scenes.

When moving to London, Lucia found a way to deal with stress and find mental rest in a crowded space by illustrating herself as a paper doll living and working in a new home. The results were cut out paper dolls that showed Lucia doing menial activities like brushing her teeth and drinking tea in her new home, while also having the paper doll version of herself stacking book shelves and checking out the new carpet. Illustrating herself as paper dolls with a vintage twist has accompanied Lucia also on her travels, e.g. when she vacationed in Menorca, Spain, with her husband in June 2018 or when the illustrator went to Paris for a short break in August of the same year. ||

Sabrina Vetter

Check out Lucia's work: www.luciasoto.com

Screenprinting

Dirty Daniel

There are illustrators who work digitally and there are those who prefer to work with paint and paper. Daniel Haskett belongs to the second category.

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1 Not afraid of getting his hands dirty – Daniel Haskett

2 Framed screen print „Second Catch"

3 Framed screen print „Deserted Dreams"

Foto: Nick Van Tiem / Artwork: Daniel Haskett

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4 Illustrations for Carluccio's restaurant

5 Packaging Design for Carluccio's restaurant

6 Bookcover for the publishing company Lion Hudson

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From the moment Daniel, aged 21, finished his BA studies at the University of West England, he could be found drawing the likes of John Lennon, Queen Elizabeth I, and The Incredible Hulk alongside a host of other international stars. He had landed his first job at Madame Tussauds in London where he worked as a sales assistant and whiled away the hours behind his cash register drawing on the backs of till receipts with a humble BIC biro.

This all came to end after he received repeated warnings from his boss to stop drawing and keep his head up to greet the incoming tourists with a beaming smile. Daniel chose the route of paper and pen and promptly left the security of his full time job to pursue the life of a freelance illustrator, which has since occupied his life for the past 15 years.

Leaving full-time work also meant leaving London, where he could no longer afford to live and so in 2008 he jumped on a plane to Helsinki where he was able to work for clients such as The Guardian and The Folio Society. In the following summer he was accepted on to the MA Storytelling course at Konstfack in Stockholm and soon jumped on to a ferry to resume his studies with a focus on narrative picture making.

Screenprinting in Berlin

In the meantime, Daniel had been spending his summers cycling around Berlin and finally made the decision in 2010 to find a home there and has been living and working there ever since. His working life was initially focussed on editorial, publishing and advertising commissions for clients including Carluccio's restaurant, The New York Times and The Financial Times whose deadlines were often little more than 24 hours. With the desire to retain his hand drawn aesthetic, Daniel soon developed a way of working between pencil case, sketchbook and laptop that now characterises his textured, bold style with a simple and restrained colour palette.

Since 2017 Daniel has been working from the screen printing workshop SDW in Kreuzberg, where his work has moved towards the creation of limited edition screen prints, which he has exhibited in cafes and galleries throughout London and Berlin and sells in shops as well as through his online store. This change in direction has allowed him to work more closely with different types of paper and fabric as well as slowly mixing lush pigments together to find exactly the right colour. The process is a lot dirtier and more time consuming than working digitally where mistakes can be reversed with a click, but the element of surprise while printing and the feedback Daniel receives from visitors to his exhibitions are what keeps bringing him back to the printing table. ||

www.danielhaskett.com / @haskettprints
www.sdw-neukoelln.de / @sdwsiebdruck

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Design

Peruvian Geometry and Incan Art

Alejandro Gavancho gets inspired by Peru's rich history. Therefore, the country's folk art and traditional Incan patterns regularly find their way into the graphic designer's works.

Alejandro Gavancho is multitalented. Not only does he live between Leeds, UK and Lima, Peru, but the graphic designer also creates brand identities, editorial designs, stationery, packaging and graphic elements. In 2016, he was responsible for the editorial design of "Marmite City", which featured 18 stories about a place to either love or hate. For this project, Gavancho was able to work with illustrations by Luke Furniss while the binding of the book was done by hand by El Mundo Papel. The same year, he also designed an all-around package for the chocolate company Magia Piura which displayed the magical and incomparable qualities of exceptional cocoa. One year later, he moved on to the elegant and subtle side of packaging by creating the label of Bodega 45 Pisco – inspired by Peruvian retablos, small wooden "houses" that open up to reveal interior scenes played out by small dolls and figures that originate from the Peruvian Andes.

Curious for New Ideas

In 2019 Gavancho took on another project that allowed him to combine powerful aesthetic momentum with attention to detail, all reinforced by a young, fresh mind with strategic expertise. Machiyenga, a bean-to-bar chocolate from Cuzco, Peru, proved to be the ideal client as the designer is constantly on the lookout for collaborations with partners that are curious and open to new ideas and bring enthusiasm to the partnership. Innovation and flourish are what Gavancho is looking for.

Gavancho took on the art direction, branding and packaging of Machiyenga Tree to Bar. The name of the product stems from Machiguenga, an Indigenous community whose ancestors inhabited the Western part of Cuzco, known as Antisuyo during the Incan empire. The Machiguenga used Chuncho cacao as a fruit and as a com-

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mercial product, a practise that continues to this day. This very same Chuncho cacao is what Machiyenga chocolate uses to create its bars and what makes it a stand-out.

Polished and Modern

The goal set by Machiyenga for their product Machiyenga Tree to Bar was to create a brand that was premium yet native. As the chocolate was going to be sold mainly in Cuzco and its main target audience was tourists, it was important that the brand identity and packaging felt Peruvian. For Gavancho, this meant to avoid clichés of traditional Peruvian imagery and look for a rather more polished and modern aesthetic, representing today's Peru that is inspired by the mysticism of Indigenous ancestors.

For the designer, the goal was to create a product that stood out from all of the pre-existing competitors on the market – from the form all the way to the material used when printing. For the final product, the Peruvian geometry used in Incan art and architecture was reinterpreted and applied to the typography and graphic details. Also, patterns that are used in Machiguenga art were incorporated to create a design that serves as a graphic support and were applied directly to the packaging. Lastly, the print finishes were carefully chosen to complement the idea of having a unique but functional package. The foil was one of the main print finishes as it represents gold, a metal sent down by the sun God and thus considered sacred during the Incan period. ||

Sabrina Vetter

Get to know the project: www.alejandrogavancho.com/work/machiyenga/

1–4 Alejandro Gavancho is responsible for branding, design and packaging of the Peruvian Machiyenga chocolate.

Photos: Alejandro Gavancho

IMPS 2020

Progress in Board and Paper Technology

29th International Munich Paper Symposium online: 18–20 March 2020

At times, almost 400 participants from 28 countries took part in the IMPS video conference, which was held online from 18 to 20 March 2020, due to the COVID-19 pandemic. This time around, the symposium was only chaired by Prof. Stephan Kleemann. At the symposium, more than one third of all participants represented paper and board mills, demonstrating further progress taking place in the industry in their presentations. A positive signal was that more junior engineers are interested in the sector, however, the negative image of the sector in the public still persist. Environmental issues, like too much plastic waste in the oceans, should be taken as an ongoing signal that the public needs to be informed about the advantages of renewable resources that can be found in the paper industry and can help to sustain a better environment in the future.

Once more, 20 presentations about a wide range of new developments and practical experiences were selected to be held at the symposium. This year, 29 exhibitors demonstrated their innovations. Participants made use of the breaks in between presentations to have a closer look at them in slides. The main topics were ranging from rebuilds of printing paper lines to brown paper production, from innovative ideas with new concepts to improved production processes. Some were quite simple, however, with a big positive effect.

Video conference: Constructive discussions after each presentation

Under the chairmanship of Prof. Kleemann, the audience took the opportunity for partly very detailed discussions after the individual presentations. This shows that many of them struck the right tone and were met with interest.

The Author:
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Prof. Kleemann, IMPS Chairman.

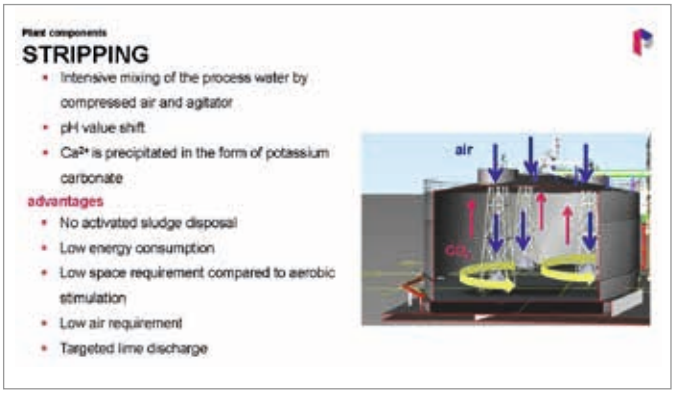

Fig. 1: Progroup – Plant Components.

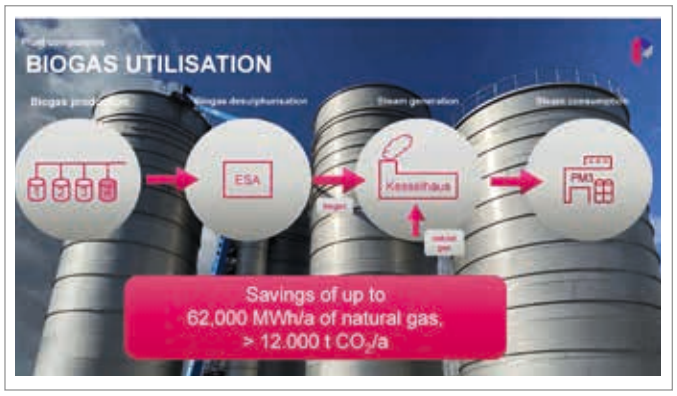

Fig. 2: Progroup – Biogas Utilisation.

Fig. 3: Felix Schoeller Group – Cultural Differences Between Germany and China (1).

Fig. 4: Felix Schoeller Group – Cultural Differences Between Germany and China (2).

Fig. 5: Smurfit Kappa – Aethon Project Goals.

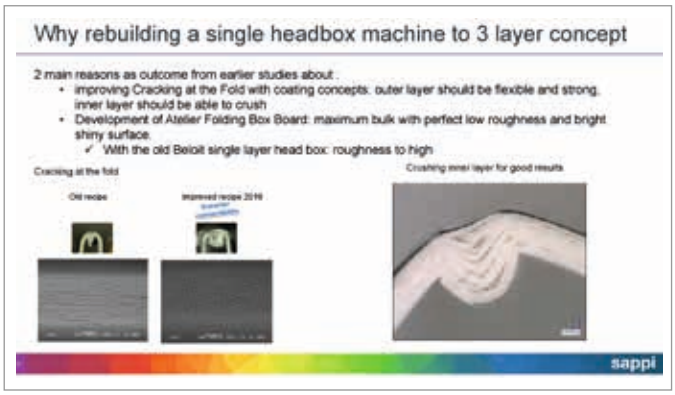

Fig. 6: Sappi – Three Layer Headbox.

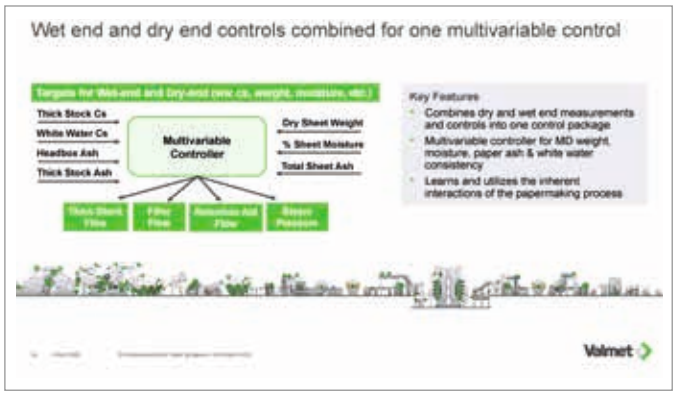

Fig. 7: Valmet – Wet and Dry End Controls.

Progroup opened the proceedings

The first lecture, presented by student employee Julian Schmid from Progroup AG, Sandersdorf-Brehna in the German Federal State Saxony-Anhalt, was about the successful aspects of the Proaqua Plus System for waste water freedom (fig. 1 and 2).

Emanuele Martorana spoke about the joint venture of the German Felix Schoeller Group in China. While working as a German company in China proved to be a challenge, it was still a good experience to produce specialty paper in China. However, there is still a long way to go (fig. 3 and 4). The next presentation was a joint project by Smurfit Kappa and Voith called Aethon on PM 1 in Roermond, Netherlands, using a shoe blade gap former from Voith without suction rolls (fig. 5).

T.A.J. Boersma from Sappi, Maastricht, Netherlands, spoke about successful results with the company's three layer headbox on PM 6 (fig.6). Valmet put the application of the company's Industrial Internet for advanced process monitoring on PM 1 of Greenpac Mill in Niagara Falls, NY, USA in focus. The Valmet Performance Center (fig. 7) supported the mill with process optimization to save up to $1 million.

A systematic approach to anticipate web break prediction

Jürgen Käser from Voith Paper, Heidenheim, Germany, reported about a joint project with Heinzel Paper, Laakirchen Papier AG, Austria. With a systematic approach, they anticipate web break prediction. Peter Ortner from Andritz Pulp & Paper, Graz, Austria, spoke about the advantages of their vertical screw thickener versus the traditional horizontal system (fig. 8). Thomas Riehle from August Koehler SE, Oberkirch, Germany talked about innovations in cleaning; something which is very important to prevent misprints with thin printing papers, since each grade of pulp contains a different load of sand. Toni Mäcklin repor-

Infographics: Figures 1 to 14 as noted / Photos: private

ted about the new Valmet concept Celleco Twister which improves the stock cleaning by 50% power reduction. Armin Vetter from Schoellershammer GmbH & Co. KG, Düren, Germany and Sebastian Schuster from Voith Paper informed the audience about how they recognize autonomous stock preparation on PM 6.

The team from Valmet Automation reported about a team project which they titled "Cornerstone of paper and board making efficiency: retention and drainage control". The combination of wet end and dry end controls will offer one multivariable control, according to the team.

Gene Plavinik and Glenn Emory from Heat Technologies Inc. HTI, Atlanta, Georgia, USA, introduced the company's patented ultrasonic thermal technology. They offer customer-made installations and lab trails at Atlanta to investigate further needs. Edge drying of kraft paper offers less energy-consumption and will increase saleable web width (fig. 9).

In regards to packaging papers, replacing fibres by curtain coating was the presented topic by Félix Rocha from Grupo Gondi, a paper packaging company in Mexico, and by Erich Kollmar from Bellmer GmbH, Niefern, Germany. Trials on the Bellmer pilot TurboCurtain Coater were the basis for the layout. After erection, the curtain coater including the Slide Head from TS Troller, the German partner of Bellmer, had successful results in paper quality, and fibre savings in the rebuilt paper machine Pm#2 of EMG (fig. 10).

Manuel Fuzy from Enzymatic Deinking Technologies B.V. EDT in Norcross, USA, reported about a reduction of hornification of kraft pulp by using an enzymatic solution. A collaboration with Mercer, Germany, by using the patented pRefinase in detailed lab investigations, offered benefits of increased strength and better drying efficiency of market pulp. As next step, EDT and Mercer will conduct a full-scale trial in the Stendal mill to confirm the strength gains with Refinase as well as to realise and measure other potential benefits, such as improved drainability and reduced steam consumption.

The next article, presented by Philipp Ziegler from Voith, demonstrated once more the innovation capabilities of the manufacturers for paper production lines. With Pluralis, a new conical refiner design, the company offers an improved efficiency via internal recirculation. References in Finland, Sweden and China have confirmed this.

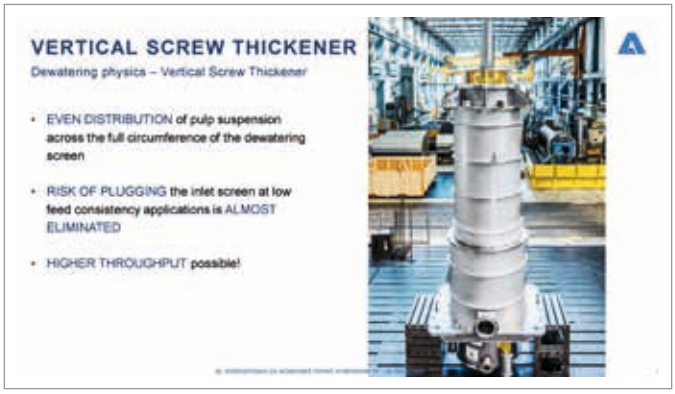

Fig. 8: ANDRITZ – Vertical Screw Thickener.

Fig. 9: Heat Technologies – Edge Drying of Kraft Paper.

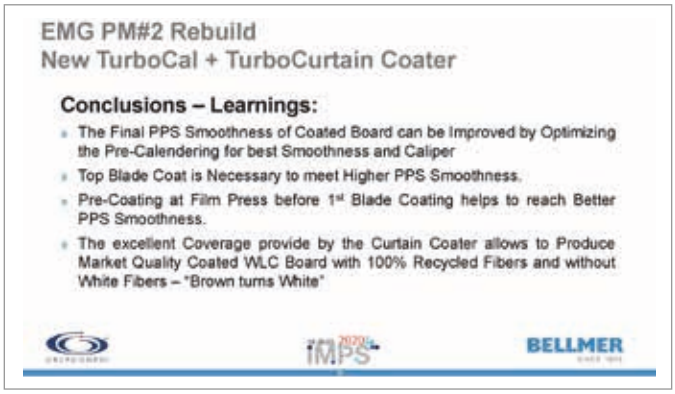

Fig. 10: Bellmer – New TurboCal + TurboCurtain Coater.

New online condition monitoring free of maintenance for older paper-machines

The traditional online condition monitoring offers an additional value, especially for old paper production lines. The philosophy of ENDIIO, a German-Austrian company based in Freiburg and Vienna, offers a specialised networking and data

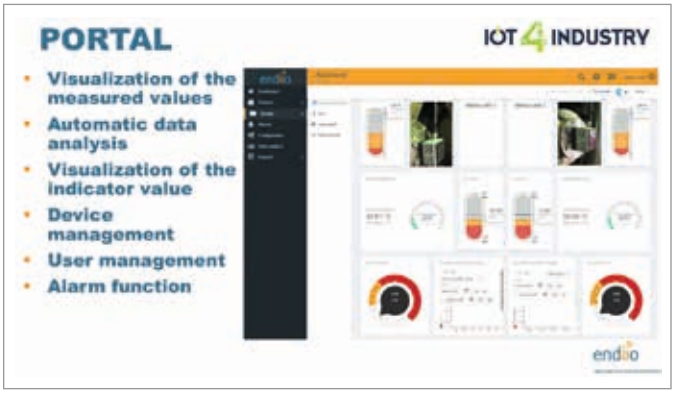

Fig. 11: ENDIIO – IoT Portal.

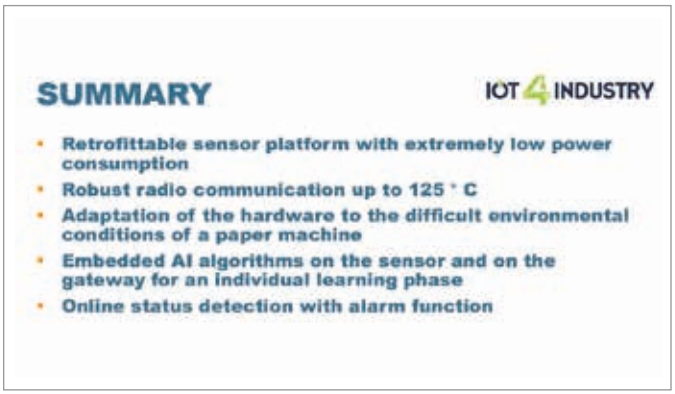

Fig. 12: ENDIIO – IoT Summary.

Fig. 13: Siemens – Virtual Twin vs Digital Twin.

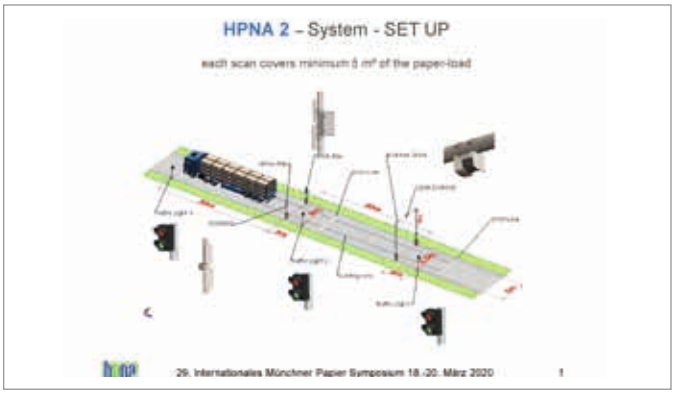

Fig. 14: HPNA – System Set-Up.

Infographics: Figures 1 to 14 as noted

analysis. Tolgay Ungan informed about the company's patented low power radio technology. Without expensive detailed cabling, required reading device, and battery exchange, the system operates free of maintenance (fig. 11 and 12).

Engelbert Schrapp from Siemens reported about first implementations of virtual twins in the fibre industry. He described the advantages of digital twins versus virtual twins (fig. 13). Albrecht Miletzky from Hamburger Containerboard in Pitten, Austria, and Hasso Jungklaus from Voith spoke in a joint presentation about an improved performance with a new ceramic press roll coating versus granite rolls in the wet press of PM 4 at Pitten. A further joint presentation came from Bernhard Scheuringer of the Austrian VTA group and Arne Nath of the Südwasser GmbH, Erlangen, Germany. The duo spoke about an example at the waste water treatment plant in Piding which uses ultrasonic sludge treatment for optimized dewatering. Piding, close to Salzburg, Austria, is in the recreation area of the Bavarian Alps and will be an interesting reference for the pulp and paper industry because of the high requirements in respect to waste water treatment.

The last presentation of IMPS 2020 was given by Kurt Mitterböck, owner of the Hungarian company Dunacontrol. With the new stationary HPN2 system, the company offers accurate moisture measuring of waste paper bales on unloaded full trucks (fig. 14).

Summary

All in all, this year's symposium confirmed once again that there is further progress in pulp, paper and board technology, especially under the aspect of partly very innovative components, which allow for more consistency in production under improved supervision. Therefore, high expectations are justified in regards to what IMPS 2021 will have to offer from 10 to 12 March next year - including all exhibitors and their innovation potential, hopefully without any restrictions due to COVID-19. •

PTS-Symposium 2020

Progress Based on Legal Requirements

Paper and Board in Food Contact

Eventmanager Dr. Antje Harling (PTS)

Eventmanager Dr. Markus Kleebauer (PTS)

Under the leadership of Dr. Antje Harling and Dr. Markus Kleebauer, two specialists in the field of paper and board, the PTS-symposium, held 4 to 5 March 2020 in Dresden, one year after the last one, demonstrated that there has been a progress in this field. Mr Kleebauer introduced the program with its well known experts. Mrs Harling introduced the security rules for the symposium and gave a link between COVID-19 and its relevance for FCM safety. Also, the COVID-19 pandemic, which was in its early stages on the European continent when the symposium took place, was already taken into account during the event in respect to protection and safety guidelines for the benefit of all 70 participants from Germany, Austria and Switzerland.

The presentations were divided in six blocks:

1. Requirements, surveillance and security
2. Mineral oil
3. Biodegradability
4. Legal requirements
5. Hygiene
6. Ingredients & Analytics

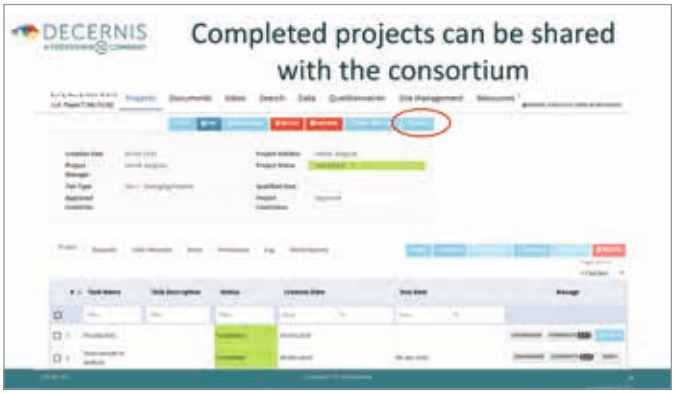

Fig. 1: Decernis – Completed projects can be shared with the consortium.

Fig. 2: Decernis – Inbox for requests and shared content.

The first block started with a presentation by Katharina Adler from the Federal Ministry for Food and Agriculture, Berlin/Germany. She talked about current developments in the German and European FCM regulations. In the meantime, the council of Europe has worked out a very detailed concept for fcm in general as well as for paper and board as specific recommendation. For more details of these drafts please visit: https://www.edqm.eu/en/food-contact-materials. Saskia Both from the State Office for Consumer Protection in Saarland/Germany described how they control the legal tasks for food in contact with packaging. Henrik Jungclas, from Decernis – an organisation that delivers global systems solutions and expertise to support compliance, safety, and risk management for research and systems for global compliance and is headquartered in Washington/DC – spoke about pulp and paper chain information systems (PP-VS) (fig. 1 and 2).

Mineral oil free printing inks for newspapers

Almut Reichart from UBA and Philipp Stolper from FOGRA, the Research Institute

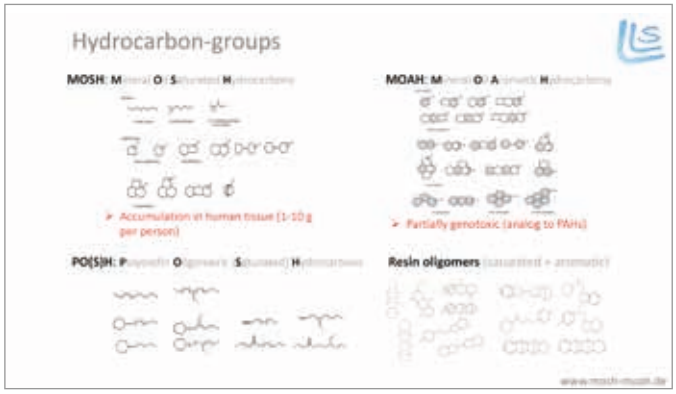

Fig. 3: MOSH-MOAH – Hydrocarbon groups.

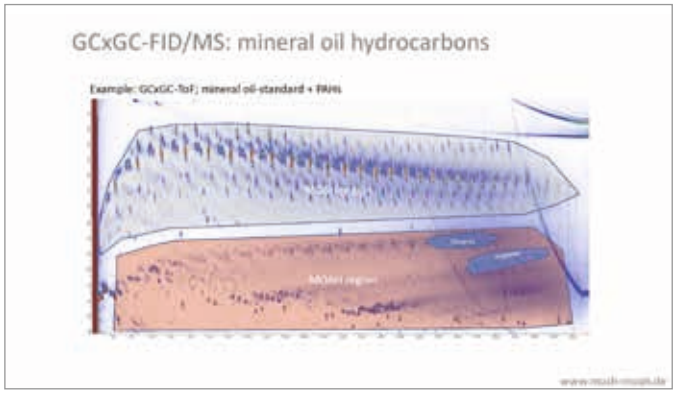

Fig. 4: MOSH-MOAH – GCxGC-FID/MS: Mineral oil hydrocarbons.

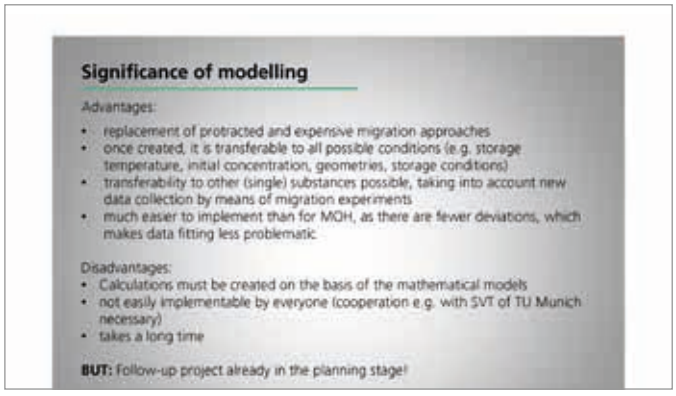

Fig. 5: Fraunhofer IVV – Significance of modelling.

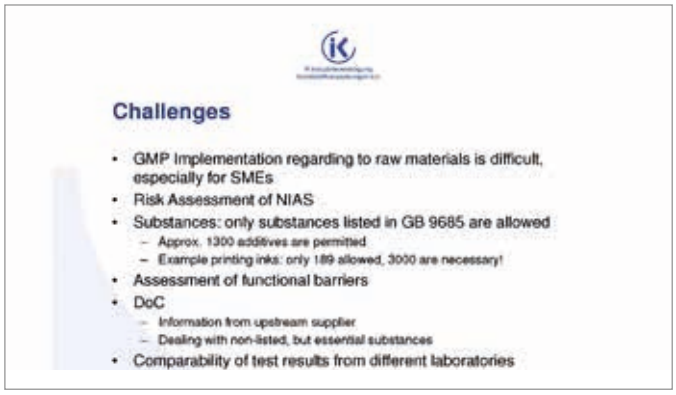

Fig. 6: IK Industrievereinigung Kunststoffverpackungen e.V. – Challenges. (Slide from Handout as the presentation was not given live.)

of Media Technologies located in Munich/Germany, opened the second block with their presentation on the status quo in regards to mineral oil free printing inks for newsprint. Despite the progress in the past years, it appeared that these inks are still not ready for use. Sebastian Säger of the Lab Lommatzsch & Jäger, Köln/Germany, informed about the situation of MOSH, MOAH, POSH & Co. In the beginning, he described the chemical composition of the different hydrocarbons and resin oligomers (fig. 3). To analyse a potential penetration of packaging materials in contact with food, there is also a mixture of those products possible (fig. 4). Romy Fengler from Fraunhofer Institute, Freising/Germany, spoke about the company's project about predicting migration of mineral oil components (MOH) from packaging. The best way for progress in this investigation will be modelling (fig. 5). Also, with this method, a short analysis is possible. However, the presented calculation models still require additional work in another project which is already in the planning phase.

Further research is needed for progress in the area of biodegradability

The third block "Biodegradability" was started with a presentation by Ralph Derra from the Forschungs- und Untersuchungs Gesellschaft ISEGA, Aschaffenburg/Germany. He described the potential biologi-

Infographics: Figures 1 to 8 as noted / Photos: private

Fig. 7: BfR – Regulation and future planning with perfluorinated chemicals.

Fig. 8: Alpha MOS – Heracles Neo electronic nose.

cal compostability of packaging. The institute works in this field since 1990 and, since 1998, it is accepted by DIN CERTCO as and authorised testing laboratory. Derra described a wide range of the company's investigations with an emphasis on the need of further research in the future. Franca Werhahn from Meyer Rechtsanwalts GmbH, Munich, Germany talked about FCM Fraud with false commercial claims with the focus on (ECO-) labelling. Both presentations showed the complexity of biodegradability. In the future, methodical work within a legal framework will be needed to realize further progress.

Joelle Nussbaum from the BAV Institut GmbH, Offenburg/Germany, started the sessions of day 2 with her talk about hygiene. She described the importance of microbiology and hygiene within the production process of paper and board. The institute offers consulting and training for the paper industry in this regard.

Elisa Mayrhofer from the Austrian Research Institute for Chemistry and Technique OFI in Vienna/Austria described the application of bioassays as supplement for conformity work. Lydia Richter from the Chemisches und Veterinäruntersuchungsamt CVUA, Stuttgart/Germany, reported about the inspection office's investigations into paper-based materials in contact with food and how they plan to work in regards to legal requirements to meet the needs of the future. Sebastian Zellmer from the Bundesinstitut für Risikobewertung BfR Berlin/Germany spoke about actual regulation and future planning with perfluorinated chemicals (fig. 7). Antje Kersten from the Technical University Darmstadt/DE reported about the release of aluminum in paper and cardboard for food packaging with support of INFOR. Jens Hannibal from WINOPAL Forschungsbedarf GmbH, Elze/Germany, spoke about the importance of smelling, tasting and feeling. Their equipment Heracles Neo (fig.8) offers software to analyze smelling in a wide range.

Summary

The PTS Symposium 2020 offered a wide range of information about results from research work. It also put a spotlight on the complicated situation to get a legal acceptance for paper and board in food contact. It made clear that there is some progress compared to the Symposium 2019. However, it also demonstrated the complex situation which needs to be faced in order to carve out the benefits of paper and board based on renewable resources made for food contact. •

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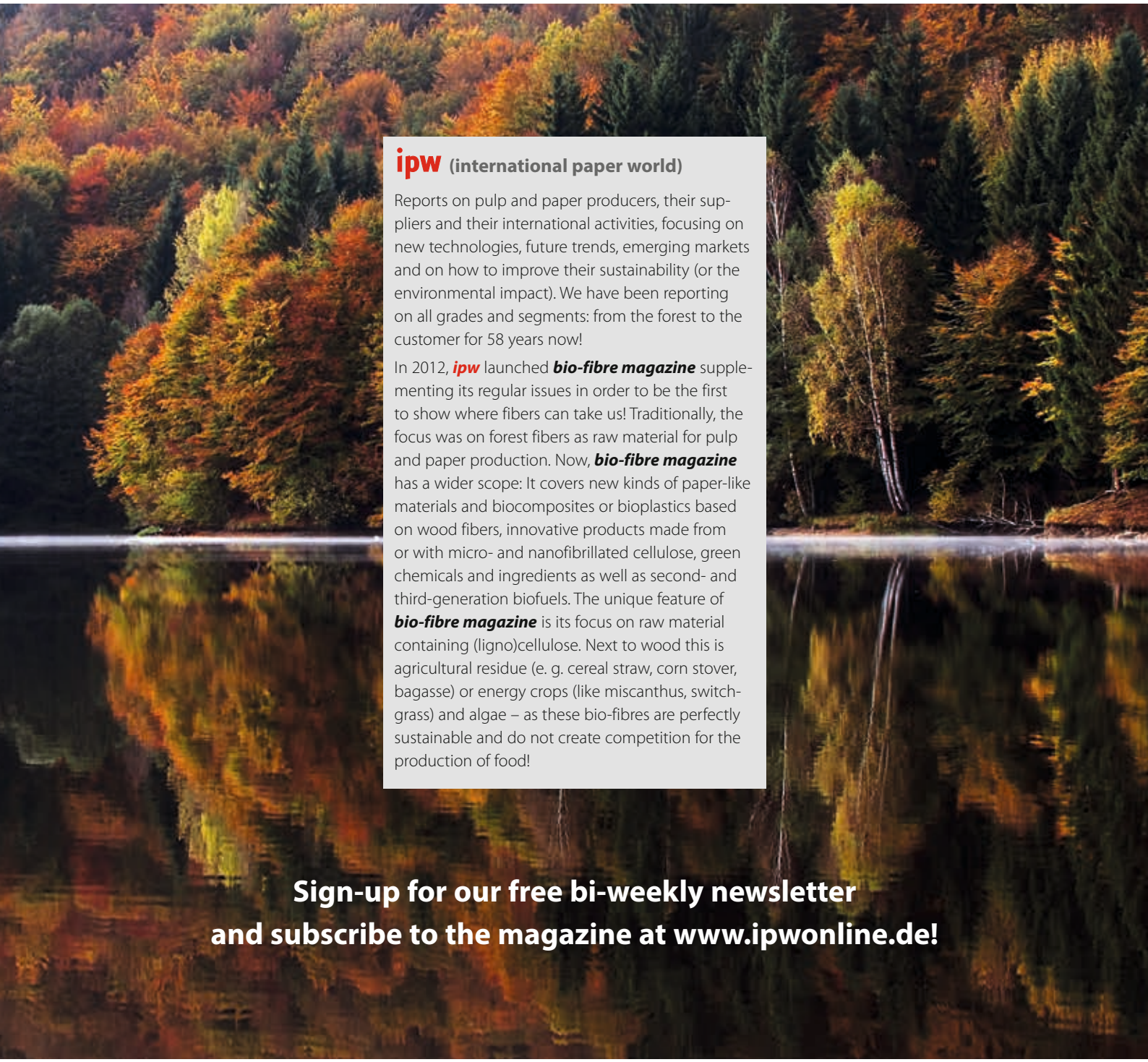
Infographics: Figures 1 to 8 as noted / Photos: private

bio-fibre magazine



ipw (international paper world)

Reports on pulp and paper producers, their suppliers and their international activities, focusing on new technologies, future trends, emerging markets and on how to improve their sustainability (or the environmental impact). We have been reporting on all grades and segments: from the forest to the customer for 58 years now!

In 2012, ***ipw*** launched ***bio-fibre magazine*** supplementing its regular issues in order to be the first to show where fibers can take us! Traditionally, the focus was on forest fibers as raw material for pulp and paper production. Now, ***bio-fibre magazine*** has a wider scope: It covers new kinds of paper-like materials and biocomposites or bioplastics based on wood fibers, innovative products made from or with micro- and nanofibrillated cellulose, green chemicals and ingredients as well as second- and third-generation biofuels. The unique feature of ***bio-fibre magazine*** is its focus on raw material containing (ligno)cellulose. Next to wood this is agricultural residue (e. g. cereal straw, corn stover, bagasse) or energy crops (like miscanthus, switchgrass) and algae – as these bio-fibres are perfectly sustainable and do not create competition for the production of food!

Sign-up for our free bi-weekly newsletter and subscribe to the magazine at www.ipwonline.de!

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3D Paper

The Evolution of Papermorphosis

It was back in early 2017, when *ipw* reported about Papermorphosis, a novel and purely mechanical treatment for customized stretch properties in paper (see ipw 1–2/2017, pp. 20). Now, the story has gone even further.

The underlying technology, owned and patented by Gruppo X di X Gruppo srl, Venice, Italy, has been generated not only in order to find a sustainable alternative for 3D packaging materials as a replacement for not renewable resources such as plastics, but also to improve existing paper grades when it comes to processability during converting, to make the best out of the poorest fibres when it comes to recycling grades, or simply to reproduce standard grades, saving cost in raw materials or refining.

In the past, Gruppo X had developed the mechanically different Mould Paper Technology for stretching paper made of highly refined long virgin fibres, to be produced on-line a paper machine, which was licensed to BillerudKorsnäs for Europe and is on the market under the tradename FibreForm.

The mechanically different and novel Papermorphosis Technology (MD unit) was initially experimentally tested for proof of concept at the Cariolaro Paper mill in Italy, before the mill changed ownership.

For continueing focused customer trials, Gruppo X built some pilot equipment and installed it at RISE Bioeconomy (the former Innventia AB) in Stockholm, Sweden, in summer 2015. The basic idea was that RISE would produce customer papers on its paper pilot FEX which would then have been processed on Papermorphosis for focused increases of stretch both in machine direction (MD) and cross direction (CD) from high to medium elongation values or simply for small adjustments.

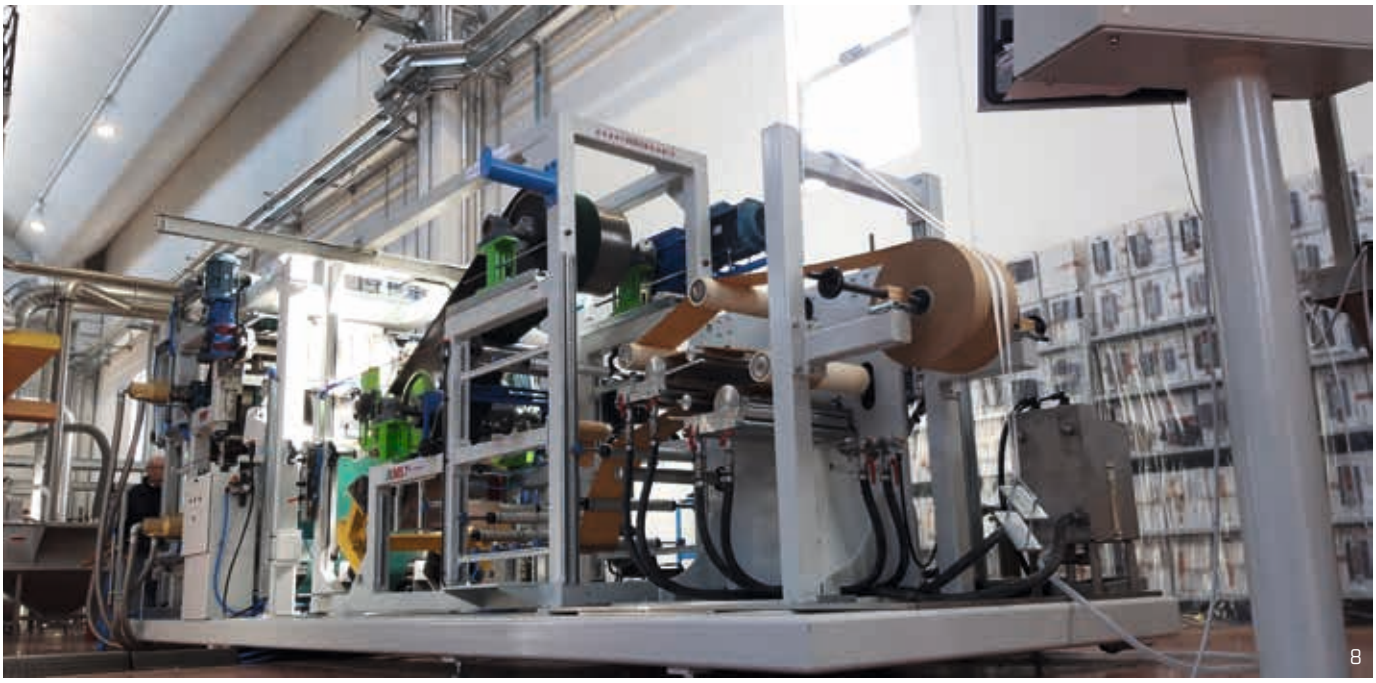
Many customer trials with different paper grades have been successfully carried out on Gruppo X's equipment at RISE, from long virgin fibre to all short fibres and their mixtures, from recycling grades to bagasse.

The MD unit off-line a paper machine

As a lot of paper makers wanted to test their original standard grades instead, many treatments have been carried out, just remoistening their papers, treating them with the MD unit, and drying them completely.

It worked perfectly for

- long and short virgin fibre (i.e. eucalyptus),
- various fibre blends,
- recycling grades and
- bagasse.



1–4 Deformation / stretch examples.
5–6 Stretchable thin metal layer, alu side / Stretchable thin metal layer, paper side.
7 3D deformed flute.
8 Papermorphosis off-line unit.

In autumn 2019, the pilot unit was taken back to Italy for a rebuild as a fully integrated off-line unit with rewetting downstream and drying upstream the treatment for stretch.

A treatment for stretch in paper off-line a paper machine opens an important opportunity not only for paper producers, since off-line treatments are well known in the industry as i.e. off-line coating.

Moreover, now this becomes a smart tool also for converters as they can buy any paper of their choice and treat it inhouse for desired stretch properties of needed applications.

But if one refers to „stretchable paper", what does it mean? Examples (see also images) include:

- Stretch for packaging, i.e. small adjustments in stretch for better runnability in converting or high stretch for 3D packaging.
- Stretch for deco foil, casting or automotive, i.e. high stretch for 3D macro and micro structures; Paper Wood/MDF.
- Stretch for technical applications, i.e. high or low stretch properties for scotch and electric isolation papers; stretch, softness and "fluffiness" for tissue-like papers, produced without tissue technology.
- Novel corrugates out of stretchable paper, keeping 1 sqm = 1 sqm, i.e. high stretch for novel 3D distancing layers as an alternative to traditional flutings, also with diagonal performance; 3D micro structures or reproduction of traditional flutings/waves out of stretchable paper.

Longitudinal corrugate without losing web width

Talking about novel corrugates, the Papermorphosis MD unit offers another interesting feature by just changing a cylinder: a novel longitudinal flute; waves along the machine direction which are stable and would theoretically not even need a liner as they can be rolled up.

Even more important is the fact that the MD corrugate (nicknamed WELLIXX) does not need stretchable paper but derives from standard grades. The mechanical process maintains the width of the ingoing web.

As Gruppo X underlines, Papermorphosis technology can of course be retrofitted in existing paper machines. However, the possibility of an off-line unit gives freedom also to converters to use a novel and versatile tool for imparting tailor-made stretch properties to all paper grades, going along with increased TEA values, meaning that before a paper will break under tear, it has the possibility to "give in", to extend, to stretch.

Stretch not only for paper

Alu-foil provides the best barrier properties i.e. for pharmaceuticals. 45 µm to 90 µm are common for 3D deformations. Alu-foil stretches by getting thinner.

Recent trials have shown that – with a technology originally derived from paper – even thin alu-foil (9 µm to 14 µm) and its combinations with packaging paper can be transformed to an alu-foil layer with high stretch properties, reducing specific weight per sqm for cost saving as well as sustainability.

Commercial and licensing update

Gruppo X is a technology developing company, licensing its proper patents. That said, they are pleased to announce a collaboration with Domtar, USA, as they state: "Domtar, the largest integrated manufacturer of uncoated freesheet paper in North America, and Gruppo X di X Gruppo srl, a technology and innovation company based in Italy, have entered into a strategic collaboration to industrially develop Gruppo X's patented Papermorphosis technology, which holds the potential to expand the use of products made from sustainable wood fibre that people rely on every day."

The pilot unit in Italy is available for customer trials. •
www.gruppox.it

Photos: Gruppo X

maik brummundt.de

design + illustration

[what goes around comes around]

Joint Statement

The EU Forest Sector's Role in Ensuring Sustainable Forest Management and Conserving Biodiversity

For the sustainable development and resilience of EU forests, including biodiversity conservation, the following issues raised by the European forest and the forest-based sectors need to be considered in the upcoming EU Biodiversity Strategy.

1. SFM is the ABC of biodiversity conservation in forests

Sustainable Forest Management (SFM), with its variety of practices adapted to local circumstances, should be seen as an opportunity to safeguard biodiversity, taking into consideration the impact of climate change while ensuring that other multiple ecosystem services provided by forests can be delivered in a balanced way.

The future Biodiversity Strategy should further promote SFM, whose definition, principles and detailed criteria have been agreed as part of the Forest Europe process (Helsinki Resolution H1 [1993]), which is under continuous development, and are already an integral part of national legislations and voluntary certification systems.

2. Are more restrictions the best way to preserve forests?

Any type of protection should take into account the current requirements of subparagraph 3 of article 2 of the Habitats Directive according to which the economic, social and cultural requirements, and regional and local characteristics need to be respected when interpreting the species and habitats protection provisions.

Placing more restrictive measures, e.g. through strict protection, is a high-risk solution considering future climate change projections and the ever more common adverse events engendering negative effects on forests. In addition, it would encumber forest owners and managers with unbearable burdens which would, in turn, only result in a counterproductive impact on the delivery of the multiple services that society expects from EU forests, including the climate change mitigation aspect which should be further considered in the Strategy.

A dynamic approach to nature conservation as part of SFM is key to the successful implementation of the Biodiversity Strategy. It should focus on well-defined protection objectives which are based on verified data, rather than risk adverse results due to large-scale restrictions. Impact assessment, improved implementation of existing measures on already-designated sites, voluntary approaches, better knowledge as well as effective financial tools, along with the involvement of motivated forest owners and managers, are indispensable solutions to reach the stated objectives.

3. The future EU Forest Strategy should pave the way

The EU Forest Strategy should be used as the main framework to coordinate all policies related to forestry, including the aspects related to biodiversity, while having due regard to the prevailing roles of Member States' forest policies and laws and the subsidiarity principle. We call on EU decision-makers to develop a holistic, multi-dimensional and inclusive EU Forest Strategy post-2020, with SFM principles at its core, which will ensure an effective and balanced further development of the EU instruments related to forests.

In this context, any guidelines related to forest management practices must be part of and developed under, not alongside, the new EU Forest Strategy. These should also be produced and agreed on through strong collaboration between the European Commission and Member States and with the involvement of forest owners and managers as well as other relevant stakeholders.

We would like to emphasize that the EU can rely on its remarkable forestry sector and the people who make sustainable forest management happen. Because they are the custodians of forest biodiversity, they must be at the heart of the EU Biodiversity Strategy. •

Photo: CEPI

Smithers Market Report

Sustainability drives boom in demand for paper and board coatings

Functional and barrier coatings applied to paper and board packaging materials exceeded 3 million tonnes in 2018 for the first time. Research the Smithers report – The Future of Functional and Barrier Coatings for Paper and Board to 2024 – shows that this demand reached a projected 3.30 million tonnes in 2019, with a global value of $7.18 billion.

The short- and medium-term impact of the COVID-19 coronavirus on the paper and packaging industry is still hard to define, but other drivers in the broader industry will continue to push for new and innovative solutions. The principle one is the desire for greater sustainability in packaging, and in particular imparting water, oil and greaseproof barriers to allow fibre-based formats to replace plastics.

Market overview

Thermoplastic polymers are the mostly widely used functional coating form paper and board, and together with high-barrier polymers they make up two-thirds of the total market by volume in 2018. Both these materials, along with aluminium materials, are forecasted to increase their market share through the first half of the 2020s. As this happens, more established silicones, wax and fluorochemicals will decline in popularity.

End-use applications

Food and beverage packaging accounts for some 80% of demand for coating on paper and board packaging and future increase is closely linked to shift in demand for these formats. This will be informed directly by consumer pressure for convenience packaging and on-the-go eating, brand owner commitments to demonstrating the environmental credentials, and single-use plastic legislation.

Over 30% of the volume of functional and barrier coatings consumed in paper and board packaging applications in 2018 was used in liquid and beverage packaging configurations, and this market share is likely to be retained into the future.

Non-food packaging applications – currently a fifth of the global total – are expected to increase their market share slightly across the next five years. This will happen mostly for healthcare and

personal care products. Within the food segment there is liable to be especially strong demand for coated paperboards in baked goods, fresh foods, and non-liquid dairy goods.

Material choice

Approximately 28% of the total paper and board packaging produced worldwide used a functional or barrier coating. This ranges from 100% of liquid paperboard to only around 7% of the global total for corrugated.

Cartonboard applications accounted for nearly a third of the market volume in 2018, and together with liquid packaging applications made up 58% of the total, with corrugated representing a further 26% of total volumes.

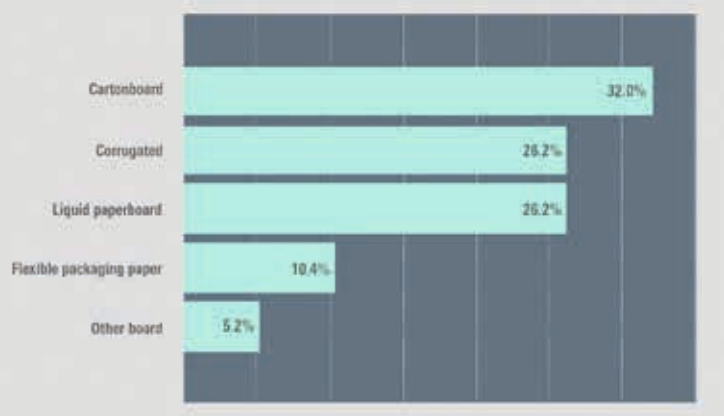
Sustainability

Consumers readily perceive paper and board as easy to recycle and a sustainable material. As brand owners and food service companies want to show a commitment to the environment, substituting paper packaging for plastic creates a demonstrable way to do this; and importantly it is one the consumer can touch and feel. Many FMCG companies now have sustainability goals related to packaging, typically with a 2025 deadline. This is being bolstered further by legislation, in particular the EU's Single-use Plastics Directive.

Measures to promote sustainability will create opportunities for functional and barrier coatings in four principle areas:

- The increasing use of recovered fibres in the production of paper and board has clear environmental advantages. It does, however, cause a deterioration in some paperboard properties, which in turn creates an opportunity for coatings that provide increased surface strength, improved porosity and printability. In food applications, there is also a need for functional barriers to protect against the migration of mineral oil components originally for newsprint inks present in recovered pulp.

- Water-based coatings are growing in popularity as replacements for wax and polycoated materials to enable greater levels of recyclability at end of life, with cupstock a particular focus.



Distribution of coating volumes across pack types, 2018

- Biodegradability and compostability of coated paper packaging is also an area of focus. Compostability is regarded by some commentators as an unhelpful term that many consumers misunderstand, because it refers to industrial composting – which requires turning, moisture control and monitoring in a dedicated facility. Biodegradability in contrast refers to materials degrading relatively quickly and in ordinary conditions. From an environmental perspective this is seen as a better end point, and is fostering greater interest in the development of solutions like biopolymer coatings.

- There is a growing trend to change from solvent-based to water-based coatings to reduce the emissions of volatile organic compounds (VOCs) and provide safer working environments for operatives during production processes. Much developmental work is underway to progress commercially viable water-based functional and barrier coatings for paper and board packaging applications in an effort to find alternatives to extruded plastics, especially polyethylene and PET, paraffin-based wax, silicones and fluorochemicals.

The Future of Functional and Barrier Coatings for Paper and Board to 2024 provides comprehensive analysis of the market and technological drivers behind the ongoing expansion of this sector. This research is quantified as an exclusive data set segmenting the market by coating type, application technology, end-use sector, national and geographic market.

The report is available to purchase now from the Smithers website. • **John Nelson**

Photos: Smithers

Sun Chemical

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Driving the need for sustainable packaging

Demonstrating Sun Chemical's focus on sustainability, Nicolas Betin, Director of Product Strategy EMEA, Packaging Inks & Materials, Sun Chemical, considers the trends driving the need for more sustainable packaging and how, through product development, Sun Chemical is responding to that need.

The development of sustainable packaging solutions is not a new phenomenon, but has accelerated in the past ten years as awareness of environmental issues has dramatically increased, as has the demand for cutting and recycling household waste, especially plastic packaging, as well as reducing carbon emissions and other pollutants. As a result, the EU and individual governments across Europe have taken steps to address these issues, either through tightening regulations or, for example, introducing taxes or complete bans on single-use plastic. At the same time, the whole packaging supply chain has had to rethink its approach to product development and better use of resources (to reduce the amount/layers of unnecessary packaging).

Responding to changing consumer attitudes, brand owners have played an important role in the push for more sustainable packaging by committing to being more environmentally friendly by adopting a responsible packaging policy, which includes the design and production of packaging for a circular economy. Sustainability has also become a greater priority for suppliers to the packaging industry and as a member of CEFLEX, for example, Sun Chemical is working closely with the organisation to advance its sustainability and circular economy roadmap for flexible packaging in Europe.

Sun Chemical and our parent company DIC (which has been included in the Dow Jones Sustainability Indices for the past five years) are also strongly supporting the United Nations' Sustainable Development Goals. To that end, there are three areas in which Sun Chemical is making a positive impact:

1 Examples of bio-renewable packaging.

2 Nicolas Betin, Director of Product Strategy EMEA

1. Climate change and resource conservation – by developing and promoting more eco-friendly products that are made of renewable resources, use less energy to print, contribute to reducing packaging weight, and provide responses to plastics littering both on earth as in the oceans.

2. Sustainable use of resources – by developing products that are made of recyclable resources and that contribute to making recyclable or compostable packaging in order to reduce waste.

3. Food safety and health – by continuing to reduce VOC's and improve the safety of food packaging. Food safety is the fundamental requirement for packaging and no food brand owners will compromise on food safety. Similarly, we cannot compromise between sustainability and food safety – we need to do both to the highest standard.

More specifically, Sun Chemical continues to focus on product development to support our customers in the following five areas:

1. Reducing packaging
Many new products now being brought to market in Europe have less packaging, whether primary or secondary. Targeting single use plastics, the European SUP Directive „…promotes circular approaches that give priority to sustainable and non-toxic re-usable products and re-use systems rather than to single-use products, aiming first and foremost to reduce the quantity of waste generated." In flexible packaging, our barrier varnishes and adhesives are contributing to reducing the number of filmic layers and the weight of packaging. Elsewhere in the industry, for example, L'Oréal announced at the end of last year that, in collaboration with Albéa, it had developed the first paper-based cosmetic tube, replacing the majority of the plastic currently used in their tubes with "new bio-based and certified paper-like material".

2. Switching from plastic to paper
To support our customers, we are working on paper solutions that incorporate Direct Food Contact (DFC) barrier varnishes to replace plastic. In the past, some of these substrates may have had a liner of plastic film glued onto a corrugated or cardboard tray/box if, for example, a supermarket wanted to display fresh or processed foods for sale. But, of course, if one wants to recycle that tray/box, the film needs to be separated from the board first before it can be re-pulped. Using our DFC barrier varnishes as an alternative, our customers have been able to validate that they can eliminate either the PET film or the PE coating (polyethylene) and still recycle the board use through the standard paper stream. Paper bags and cup manufacturer CEE Packaging Solutions have successfully commercialised their „Earth cup", a paper cup coated with one of our SunStar DFC barrier varnishes that allows the cups to be recyclable though standard paper stream and be Compost Home certified.

Instead of using full petrochemical-based inks, other customers are also turning to our water-based inks, which are based on bio-renewable resources, and are using them as a way to further reduce the carbon footprint of their packaging as it will contain fewer petrochemical-derived polymers. These new inks are also suitable for paper packaging composting and for recycling though a standard paper stream.

Photos: Sun Chemical

Packaging Inks & Materials, Sun Chemical

3. Bio-renewability
Increasing the use of bio-renewable resources in our business activities is a key development area of Sun Chemical's sustainability initiative to support circularity. When there is an intuitive fit between renewable packaging inks, adhesives, coatings materials and paper packaging or biopolymeric compostable flexible packaging, the improved carbon footprint also will support plastic flexible packaging in its challenge to recycle production waste and end of life products (e.g. compatibility with filmic polymers, de-inking).

Many of our product ranges already include some renewable resources, such as wood-based resins in flexible packaging and sheetfed inks and varnishes, and we've also developed alternative solvent-free offerings – for example, water-based inks for films and solvent-free adhesives. Using carbon dating to determine the bio-based content of our products, we have put programmes in place to further increase the bio-renewable content of our water-based, solvent-based and energy-curing inks, as well as in coatings and adhesives.

With patented technology based on plant-derived resins, we have developed water-based coatings and inks, such as SunVisto Aquagreen, with high bio-renewable content. Introduced in Europe by packaging specialists and converters, such as CEE Packaging Solutions (takeaway bags for fast food chains), variant versions are now addressing paper and corrugated applications, with various qualifications in progress and commercial inroads being made. Developed for biopolymeric compostable flexible packaging lamination, our SunLam SFC100 is a certified industrial compostable, solvent-free adhesive that contains up to 74% renewable content. Similarly, we designed our hybrid SunSpectro SolvaGreen inks with a high bio-renewable content for biopolymeric compostable flexible packaging printing.

4. Compostability
In a move to reduce plastic waste, Italy has been considering the addition of a €0.50 per kilo tax on plastic for packaging, pushing companies to think about compostable biopolymers rather than plastic. Based on PLA (polylactic acid), wood, corn or potato, these biopolymers will therefore need compostable inks and laminating adhesives, which is something we're currently working on. Nevertheless, whereas paper is both re-pulpable and home compostable (popular in France and Germany), these flexible packaging biopolymeric solutions will require industrial composting.

At Sun Chemical we've also developed DFC inks for use with our compostable DFC barrier varnishes. These DFC inks - our water-based AquaSafe inks, which have been successfully used on paper drinking straws - can be printed flexo on paper or corrugated board. The combination of DFC and compostable inks and barrier coatings means that converters can safely print on the inside of food packaging without using a plastic film to protect the food from the packaging.

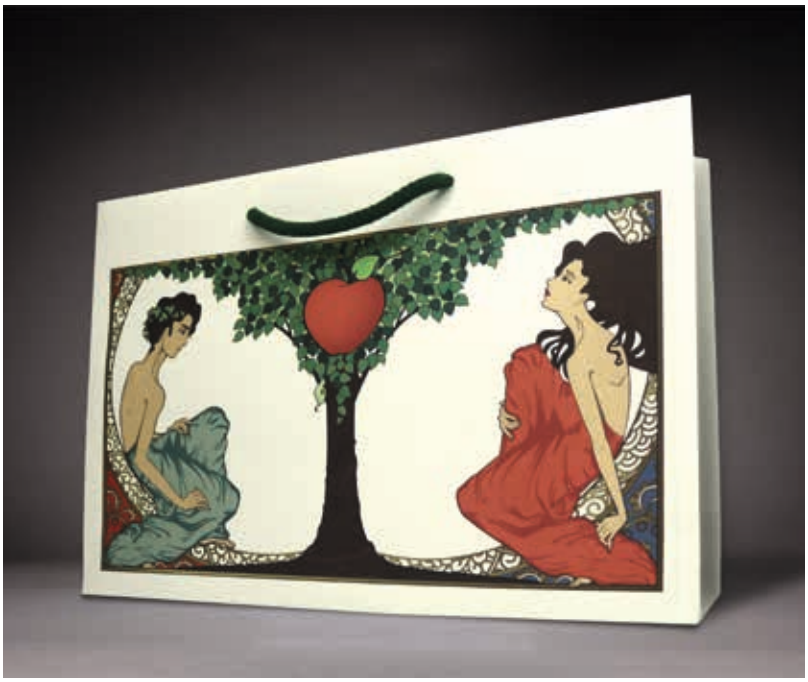
5. Recyclability
As mentioned earlier, Sun Chemical is working closely with CEFLEX, whose members include all the main brand owners, converters, and suppliers. CEFLEX is setting guidance on how flexible packaging can be recycled in lines with the circular economy principle. A particular focus is on polyolefin-based packaging material due to its share in the flexible packaging waste stream. Whereas, ten years ago, the technology was not sufficiently advanced, today it's possible to use an AlOx or metalized barrier in combination with barrier coatings and barrier adhesives to create polyolefin flexible packaging with the same type of safety properties as previous multi-material packaging. Plastic will still be required in cases where sensitive food needs to be protected from, for example, oxygen or mould, and we are doing a lot of work in this area to develop inks, coatings and adhesives that are either „washable" or polyolefin compatible, so that flexible packaging that can be more easily recycled while remaining food safe.

As one of the world's largest suppliers of inks and coatings, Sun Chemical is committed to sustainability, both in our own operations and in our product development, especially around supporting the social imperatives of ensuring food safety and reducing food loss and packaging waste/litter. As our CEO has stated, our approach to sustainability guides the way we develop, manufacture, and distribute products, as well as how we work with our suppliers and customers. And through the continued expansion of our portfolio, we will help our customers to achieve their own sustainability goals. • **Nicolas Betin**

Photo: Sun Chemical

Bags by Riedle

Reusable Bags from Apple Pomace



Riedle Nature made from apple paper – temptingly beautiful.

Apple paper made from fruit residue has now found its way into the portfolio of Bags by Riedle. The apple paper carrier bag especially impresses with ist ecological assessment.

The apple appears in many well-known stories as a symbol of temptation, power and immortality. Whether as a nickname for New York, the Beatles' record label or the famous computer manufacturer's company name, the apple always manages to be associated with the extraordinary. It even occupies a leading position among fruit juices. According to the Association of the German Fruit Juice Industry, apple juice is the most popular fruit juice in Germany. No wonder that Bags by Riedle – which specialises in paper bags and is based in the Heilbronn-Franken area – also has its eye on the apple.

Quality Standards

The Managing Director of the owner-managed family business, Volker Riedle, made a sustainable commitment, so to speak, back when the company was founded. "From nature, into nature" has always been his credo, which ultimately led to his unwavering focus on paper as a recyclable material all these years. "That's why we are now the quality leader for reusable paper carrier bags, and anyone who consistently focuses on the ecological assessment of their most important advertising media should not really put any other material into circulation anymore," says Riedle, who, as a paper and printing technician, has already produced many similar innovations in his industry.

Therefore, it comes as no surprise that the busy paper pioneer has discovered apple paper for his tried and tested paper carrier bags. Carefully analysed and processed accordingly, the apple processing residues have proven rich in primary materials such as cellulose and hemicellulose: ideal for the production of paper and at the same time meeting the raw material quality requirements for Riedle's reusable paper bags.

Reuse in a Special Way

In apple paper, up to 15% of the usual tree cellulose is replaced by apple pomace. Because of the risk of fungal contamination, these fruit juice residues cannot be spread in fields or used as animal feed. Instead of costly disposal, this valuable raw material can now be reused in a very special way.

The apple paper is characterised by its ivory tone, elegance and excellent processing properties. It has a very pleasant, velvety warm feel. There are no limits on the creation of motifs for the bag design. It can be printed on just as perfectly as any other natural paper, and also finishing with hot or blind embossing is possible as usual. The combination with a 100% cotton cord has proven to be the perfect solution for the handle.

Long delivery routes sometimes have a devastating effect on a product's overall ecological assessment. That's why Bags by Riedle produces exclusively in Germany and the EU. Volker Riedle has always refused to use Asian imports throughout his company's 25-year history. He is convinced that "sustainability is worth it". This decision has hardly ever been more important than right now. •

Photo: Bags by Riedle

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Anniversary

Celebrating Five Years

Since its starting out, PaperWise has given a second life to around 9 million kg of agricultural waste. The waste is made into paper and board which is, in turn, used for printed products and packaging.

In 2020, PaperWise celebrates its fifth birthday. The Dutch company produces paper with stems and leaves from crops such as rice, wheat, barley, cereals, corn, hemp, and sugar cane that are left on the field after the plants are processed. The environmental impact of the eco-friendly and socially accepted paper PaperWise is around 47 % lower than of paper made from trees and 29 % lower than the impact of recycled paper. PaperWise is produced in plants in India and South America. For a better production, the company puts their focus on investing in education, infrastructure and health care, and the production process relies on safety, zero waste and environmental protection.

Teachings on Waste

Usually, 80 % of the material from processing agricultural crops remains unused. This means that there are billions of tonnes of agricultural waste each year worldwide. The largest part of this waste is still simply burned. In Western parts of the world, this is done in biomass heating plants, in other parts of the world, waste is burned outside. This way, valuable raw materials are lost, CO_2 emissions are released unnecessarily, soil is spoiled and smoke causes toxic smog. "Once students learn in schools that there is paper made from agricultural waste, then we have achieved our goal and finally know that the paper industry has changed for the better for good," states founder Peter van Rosmalen about the sustainability mission of PaperWise.

Ready for More

Paper Wise acts according to the Sustainable Development Goals of the United Nations. "The switch in people's heads needs to be flipped," explain company founders van Rosmalen and Nick op den Buijsch. "Our world has to suffer far too much. The ecosystem is dysfunctional, raw materials get scarcer and scarcer, and there are more than 3 billion people living below the poverty line. This is unacceptable to us."

This is why, after five years of successful work, PaperWise is ready for the next step. In order to maximize the gain for the environment, the company is focused on gathering research of international scientists, experts and leading innovative companies for a new project. This new endeavor aims for developing new technologies to turn agricultural waste into pulp. "Currently, this is done with a chemical process which is toxic for the en-

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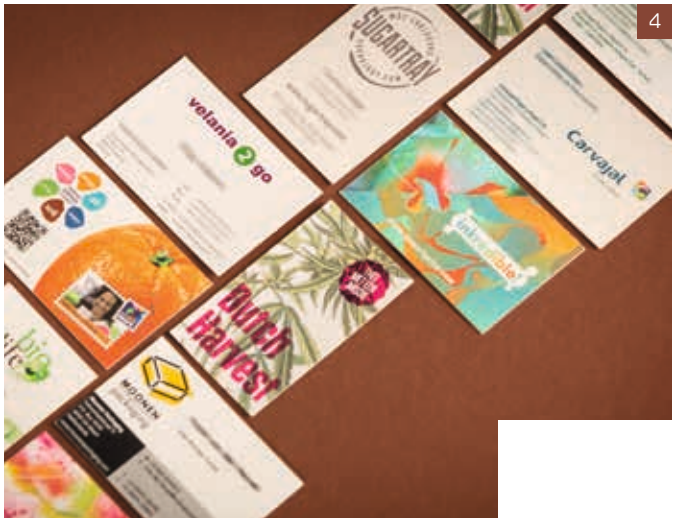

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1 Peter van Rosmalen, founder of PaperWise.

2–4 Examples of printed matter, produced with PaperWise.

vironment. We want to make this process wholly eco-friendly," says co-founder op den Buijsch.

Secondary Raw Material

The European paper and board market reaches the amount of 100 billion Euros and makes up 20% of the worldwide market. Currently, 50% of the demand comes from forests and the other 50% from recycled paper. Natural forests dwindle by thousands of football fields each year. This has a negative impact on biodiversity, CO_2 reservoirs and air quality.

By turning plant waste into premium paper and high-quality board, PaperWise could save 26,500 trees from felling in the past five years. This means that 25,5 km2 of forest terrains or the size of 3,600 football fields could be saved on the whole.

Wood as a primary raw material as delivered by forestries has a growth time of 10–80 years. Agricultural waste is a secondary raw material which is produced anyways each year. Using the latter as material for paper and board makes agricultural plants useful as food and as raw material for production, which both stem from the very same source and agricultural area. This is not only a plus in regards to ecological thinking but also makes it possible to develop a system, in which farmers get a revenue from selling goods as well as waste.

A Necessity for Growth

Growth is not only important for PaperWise in regards to word-of-mouth. The company also openly admits that making money is not only the goal but also a must: "This might sound awkward but sustainable companies can only continue to exist if they make money without subsidies. Growth is essential in order to financially support such innovations and make money from our work. We want to contribute to create a world, in which waste doesn't exist anymore and each waste material is made into a raw material for a new product. Only in cooperation can we change the paper industry and be wise with waste," adds op den Buijsch. || **Sabrina Vetter**

PaperWise's website: www.paperwise.eu

Photos: PaperWise

Hallmark & James Cropper: Sustainable greeting cards from Coffee-to-go cups.

Greeting Cards

Cards Upcycled

Remember CupCycling™? Paper innovator James Cropper's process – a world's first – designed to upcycle coffee cups and turning them into beautiful paper?

In their fight of creating new value for 2.5 billion take-away cups that are estimated to be thrown away in the UK, the company is joined by a new ally. Hallmark Cards revealed in 2019 that it developed a new artistic card range that contains fibre from James Cropper's CupCycling™ facility.

Less Wasteful

Both family businesses act with care and innovation at the heart of all they do, with Hallmark explicitly pointing out that being less wasteful is a key consideration for them when producing cards. Therefore, the two companies were able to join forces with the CupCycling™ Greetings Card Range to work towards a world that's less wasteful, more beautiful and can create a moment to show people care with a card.

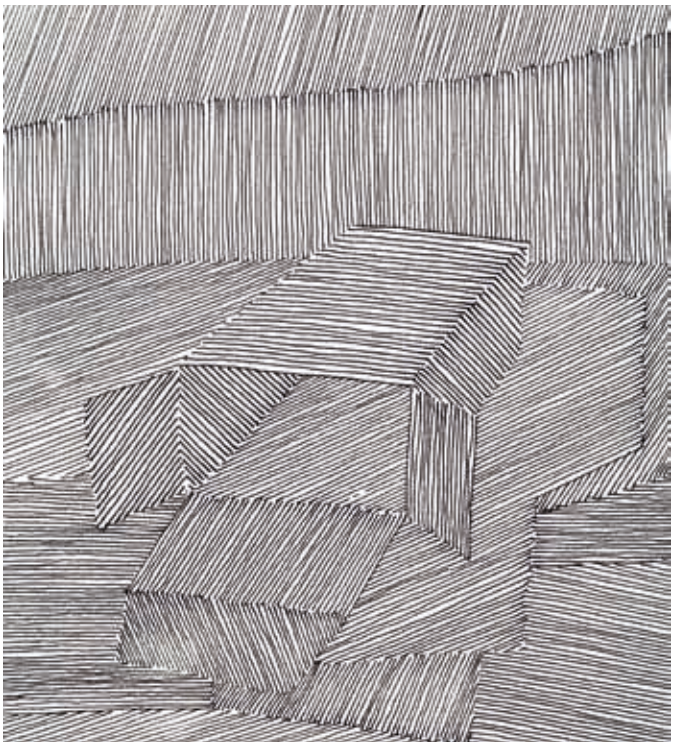
"Every card in the new Hallmark collection has a compelling story to tell; the raw material that was once used to carry a morning latte has been given a second life, bringing a smile to someone's face in the form of a beautiful greetings card. As the creators of CupCycling™ – the world's first process designed to upcycle coffee cups – we are proud to be working with Hallmark on what is an outstanding example of circular design – it goes to show that the sky is the limit in terms of creating new value from coffee cup waste," says Steve Adams, Managing Director at James Cropper.

Show to Care

The CupCycling™ Greetings Card Range is made from responsibly sourced paper pulp, all created, designed and printed in the UK and consists of 44 cards, allowing shoppers to choose the perfect card to express how much they care for other people and for the environment. Each capsule collection has been developed with its own style and identity and is supplied with POS to create extra impact in store. All the cards and envelopes in the collection are 100% recyclable.

Alison Murnane, Hallmark Cards, adds: "We already make Hallmark cards from responsibly sourced paper, and so we were delighted to work with James Cropper to help drive forward another sustainable way to make an impact by taking some of the today's waste and turning it into a beautiful card that creates a lasting moment for tomorrow." •

Photos: James Cropper / Hallmark



Inspiration along the line, created by Peter Boerboom and Tim Proetel.

Creation

Drawing the Line

With their newest book, Peter Boerboom und Tim Proetel invite their readers into the world of lines. This doesn't only ring true for the book's contents but also its cover.

Whether even, uneven, in waves or interrupted – the line is an elementary form of expression of each drawing. A line's richness is shown in forms and materials, density, individual character and in what it stands for. A line can depict something mimetic, formulate a thought, give expression to an emotion, and it can reference itself. To celebrate a line's richness, Peter Boerboom and Tim Proetel let themselves be guided by lines, experiment with the possibilities of their emergence and test out how they become forms in their book "Linien überall" (engl. "Lines everywhere").

Creative Origins

In regards to art, readers are in good hands with Boerboom and Proetel. Boerboom is co-founder of the artists group "Department für öffentliche Erscheinungen". Beforehand, he studied at the Academy of Fine Arts, Munich, for eight years as well graphic design at the Fachhochschule für Gestaltung, also located in the Bavarian capital. Today, he realizes art and photography projects together with Carola Vogt.

Meanwhile, Proetel is seminar leader for art at the Wittelsbacher-Gymnasium Munich and additionally is art advisor at ISB (Staatsinstitut für Schulqualität und Bildungsforschung). He studied together with Boerboom at the Academy of Fine Arts, Munich under the guidance of Prof. Sauerbruch.

The World of Lines

With vivid examples, Boerboom and Proetel invite readers into the world of lines and to get inspired by it. The book puts images consisting of a multitude of lines, techniques and several tools at the center – rounded off by short explanations in regards to the design and a selection of quotes by artists. Therefore, "Linien überall" is not a simple instruction manual but rather an art and inspirational book for everyone who likes to draw and sketch – and want to discover lines from a different point of view.

Distinctive Cover

"Linien überall" is Boerboom's and Proetel's sixth book released by Haupt Verlag. Their newest release impresses especially with its spot varnish cover that picks up in its design on the theme of "lines". Pages on the inside as well as the endpapers are made from FLY 05 150gsm in Special White. Surbalin Seda Weiss by Peyer was used as paper for the cover. Four-color print and UV spot varnish on the front cover round off the book's design. • **Sabrina Vetter**

Website of the authors:
www.zeichenbuecher.de/

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Paper Model Factory

Development Space for Future Paper Production

Why do several companies in the paper industry start the "Paper Model Factory" project?
We are all asked to make our processes more sustainable in order to protect our livelihoods. To do this, energy consumption and CO_2 emissions must be consistently reduced. For us as an energy-intensive industry, coping with this task is both a social obligation and an economic necessity. Based on this knowledge, some paper manufacturers, universities, institutes and suppliers met for the first time in autumn 2018, convinced that these challenges can only be mastered with disruptive approaches in research and development. Our goal is to fundamentally rethink paper production in whole or in part with a model factory and to show ways of making it climate-neutral, with all processes being included.

Which processes in paper production are particularly energy-intensive?
In principle, a paper machine is a large drying system. The water used to transport the paper fibres must be removed at the end. This takes a lot of energy. Loss of heat and steam as well as non-closed energy cycles are essential reasons for high energy consumption and direct as well as indirect CO_2 emissions. Here we have to think from scratch.

What are the biggest challenges on the way to climate-neutral paper production?
Through years of work, we know where to start. However, the paper industry is capital intensive and has long investment cycles. So we have to consider how far new solutions can deviate from today's production base so that companies are not economically overstrained. At the same time, rising energy and CO_2 costs are pulling away substantial funds that are lacking for investments in climate-neutral production technology. With the paper model factory, we want to show our willingness to address the climate policy challenges and make our contribution to an ecological realignment of the economy. We will have to campaign for politics to support us in this effort.

Should patentable solutions be developed in the model factory, or will the knowledge later be available across the industry?
Both. The paper model factory offers a platform to carry out research projects for completely new developments in all aspects. The partners involved will of course benefit directly from this know-how. At the same time, publicly funded research projects are also implemented in the paper model factory. These are per se subject to publication requirements and thus benefit the entire paper and supplier industry.

Who is scientifically accompanying the project?
So far, the TU Darmstadt, the TU Dresden and the Paper Technology Foundation have been working very intensively in the paper model factory. Together they form the scientific backbone. We have also established contacts with other universities, as we would like to have know-how from other areas of expertise, such as digitization and artificial intelligence. We will also need input from the areas of materials science and bioeconomy.

When should the operation start and which locations are up for debate?
The paper model factory is developed in three phases. The first step will be research using digital simulation. To this end, the working group plans to put together a first team of digital and process experts in mid-2020. The second phase includes the first practical research projects on individual units or on a small test machine in an existing property. This step is scheduled for the fourth quarter of 2020. The construction of a new research center with a technology carrier for disruptive approaches in paper production is planned for 2023. Various applicants are currently presenting their concepts in the working group. The decision for a location should be made in early May. ||

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