

Editorial

We are committed to being a worldwide leader in innovation, sustainability and digitalization!

(Taken directly from the phrase piggy.)

Dear readers!

In a recent editorial in the German Druckmarkt magazine, entitled "Not Even Contempt Anymore," our esteemed colleague Klaus-Peter Nicolay found clear words for the current relationship between companies on the one hand and independent journalism on the other. The general tenor: In many cases, manufacturers now seem only concerned with maximum message control. Facade above all else. Independent reporting is undesirable in this way – and it's evident.

Well, it's not the case everywhere, but I must admit that I share this harsh assessment in many areas. Often, marketinglers don't even realize that by using the same, overused and flat-ironed phrases, any kind of profile is lost. Many companies can no longer be distinguished from one another based on their public relations. Yet they believe that social media is their holy grail. The paradise of yes-men – everything else can be turned off. – But why this fear of honesty, transparency, and uncomfortable questions? Do you know about the skeletons and greenwashing in your own closet, or – even worse – do you not know because marketing departments have become kingdoms of their own, long since ruling independently and ignorant of the "rest" of the company? Essentially, much of what ends up in our press boxes screams: "Our customers are so jaded, they'll believe anything anyway."

The crux of the matter: Unfortunately, at the other end of the chain, strange behavior occasionally occurs that seems to confirm this assessment: "We're only interested in your work if it's available in print." Shouldn't the content be the core of what matters? "We want something that sits on our shelves as proof. The content isn't really that important."

And what do you use to iron it?

Have a great read & stay safe!

Stefan Breitenfeld

Your

THE SILENT LEAP





🖾 AS THE ASSISTANT BECOMES MORE AUTONOMOUS AND MORE DEEPLY INTEGRATED INTO OUR DIGITAL ECOSYSTEM, THE RISKS GROW ALONGSIDE THE BENEFITS.

OpenAI's New ChatGPT Agent Capabilities and Security Risks

The newly released ChatGPT agent offers upgraded capabilities, and, with this, security challenges that traditional assistants never had to face. The agent has a heightened potential for manipulation and is more susceptible to privacy risks, leaving organizations exposed to unintended actions and possible data leakage. Organizations and individuals planning to leverage the agent's capabilities should maintain active user supervision to help manage these risks. Trend Micro's Digital Assistant Framework offers a clear way to map these new capabilities to the risks they introduce - helping the reader better assess the impact of OpenAl's latest assistant.

OpenAl's introduction of ChatGPT agent marks a quiet yet significant shift in what artificial intelligence (Al) systems can do. Unlike earlier assistants, which focused on answering questions or generating media, this new agent goes further. It can take actions on behalf of users: managing calendars, sending emails, running code, and interacting with external applications.

Simply put, this new assistant doesn't just assist—it acts.

This evolution brings clear benefits. It makes digital assistants (DAs) more versatile and capable of handling tasks across systems and apps. But it also introduces new risks, as AI begins to act autonomously, interacting directly with the services that power our digital lives.

This article focuses on two topics. First, we examine what OpenAI has released and map out the capabilities of the new agent using Trend Micro's Digital Assistant Framework, introduced in our earlier research. Then, by comparing these capabilities to those of the earlier ChatGPT assistant, we show how much has changed and what risks that leap forward introduces.

These risks are neither theoretical nor distant. OpenAl's new agent is already live, and it changes the threat landscape in ways that demand our attention.

OpenAl's ChatGPT Agent: An Assistant That Acts

The new ChatGPT agent isn't just another version of a chatbot. It's an assistant that can now act autonomously, carrying out complex, multi-step tasks from start to finish - which brings it closer to Agentic AI.

It can plan and book travel, check calendars to brief users on upcoming client meetings, and even create editable presentations. It does all these using a virtual computer that lets it navigate websites, generate and execute code, and synthesize information, seamlessly blending reasoning and action in ways that previous assistants could not.

Therefore, users are no longer passive recipients of answers; they actively collaborate with the agent, while approving key actions and taking back control when needed.

The agent understands both written and spoken input, responds with text-based outputs and visual content, and is available on portable devices such as smartphones, making it accessible whenever needed. It brings together the strengths of prior specialized tools (web interaction, deep research, and conversational fluency) into a unified system that acts on the user's behalf.

Under the hood, the agent demonstrates advanced planning and reasoning capabilities: it can adapt to unfamiliar tasks, learning along the way. It builds a working understanding of the user over time, learning prefe-

rences, and context.

And because it integrates directly with external services like email, digital calendars, and other web platforms, it operates as part of a wider digital ecosystem - not just answering questions but executing tasks across real-world applications.

Mapping ChatGPT Agent's Capabilities Using Trend Micro's Digital Assistant Framework

To recap the capabilities of OpenAl's new assistant and present them in a clear, easy-to-visualize way, we now turn to Trend Micro's Digital Assistant Framework: a tool designed to evaluate the distinctive capabilities of DAs.

The framework was first introduced in our December 2024 article. Since then, we've updated the Agency (A1) capability by splitting it into two: agency and autonomy. The levels of autonomy are defined as follows:

A2. Autonomy

The autonomy capability is defined as the DA's ability to execute decisions without human input.

- A2.0 Reactive. The DA only acts on user requests.
- A2.1 Supervised work. The DA operates under supervision, requiring explicit user confirmation.
- A2.2 Full autonomy. The DA manages tasks independently, without user oversight.

The interactive media below shows how the new ChatGPT agent maps to the framework, highlighting its key features and levels of advancement. To see the description of each capability and the current levels for the ChatGPT agent, hover or click on the pins.

Capabilities and Risks: Understanding the Leap Forward

The leap in capability brought by OpenAl's new agent doesn't come without cost. As the assistant becomes more autonomous and more deeply integrated into our digital ecosystem, the risks grow alongside the benefits.

To understand these risks clearly, we first need to look at what's changed: how the new agent builds on earlier versions of ChatGPT, and how these added capabilities open the door to new challenges, ones that traditional assistants never had to face.

Autonomy (A2) Capability: Associated Risks

Earlier versions of ChatGPT already showed some degree of agency as they chose how best to fulfil a user's request. But those assistants remained fundamentally reactive; that is, they waited for explicit instructions before taking action.

The new agent builds on that foundation but takes a clear step forward in autonomy (A2). It doesn't just act on the user's behalf— it does so proactively, managing tasks with minimal supervision rather than requiring constant direction.

As we explained in our Agentic AI research, this is precisely the kind of shift that sets apart assistants from truly agentic systems. While traditional assistants like Gemini remain reactive, the new ChatGPT agent begins to cross that threshold, taking initiative and managing tasks with minimal input.

But that increase in autonomy introduces new risks, risks that earlier versions of ChatGPT were never exposed to. Because the system now operates with less user oversight, malicious actors could manipulate its actions in ways users might not immediately notice, making it easier for the agent to work against the user's intentions.

Task Complexity (A3) Capability: Associated Risks

This danger is amplified by the complexity of tasks (A3) that the agent can perform. Unlike previous versions, which were limited to giving instructions, the new agent takes concrete actions on behalf of its user: some of which can lead to irreversible consequences, such as deleting files unintentionally, emailing the wrong person, or ordering unintended items.

To mitigate these risks, OpenAI has implemented a series of safeguards: the agent asks for explicit user confirmation before critical actions with real-world consequences, like making a purchase; requires active supervision for certain sensitive tasks, like sending out an email; and blocks high-risk operations, like bank transfers. While the agent could technically operate unsupervised, doing so would put users and organizations at serious risk.

That's because the agent can now be exploited in ways even OpenAI cannot fully anticipate. While previous versions of ChatGPT followed simpler and more predictable chains of thought, the new agent can autonomously learn new domains and reason within them. As a result, it can exhibit complex behaviours even in entirely unfamiliar scenarios.

Planning and Logical Reasoning (C1) Capability: Associated Risks

However, that same ability to plan and reason (C1) across unfamiliar domains makes the agent more vulnerable to prompt injections and other subtle manipulations that can influence its decisions. For instance, an attacker could embed a malicious prompt within a webpage the agent visits - hidden in text or metadata - steering its actions toward unintended outcomes.

That's why it can't be stressed enough that keeping the agent under user supervision remains essential to ensuring safety as agentic AI continues to evolve. Still, having a human in the loop doesn't eliminate all risks. Repeated prompts can result in consent fatigue, leading users to approve actions reflexively.

User Knowledge (C2) and Ecosystem Integration (C3) Capabilities: Associated Risks

Another advance in the agent's capabilities lies in its deeper knowledge of the user (C2). Unlike ChatGPT, which holds only static information such as language preference and location, the new agent learns continuously through interaction. It detects patterns in user behaviour and preferences, adapting over time to better meet individual needs.

At the same time, it integrates far more seamlessly with the user's digital ecosystem (C3). Earlier assistants could only interact with specific tools and often required users to manually bridge services. Now, the new ChatGPT agent can natively combine multiple sources of information in a single workflow. For example, it might scan the user's calendar for availability, check recent emails for relevant updates, and suggest follow-up actions – all without relying on external tools to bridge the gap.

At first glance, this shift might seem incremental. But the implications are far-reaching, especially when it comes to privacy. If compromised, the agent could reveal what it has learned about its user. And because the agent connects directly to the broader digital ecosystem, a breach could expose highly sensitive information from connected accounts and logged-in websites.

To address this, OpenAI has introduced tighter privacy controls: users can clear browsing history and log out of active sessions. The agent also avoids storing sensitive inputs like passwords when operating in autonomous mode. Still, as the agent grows more capable and more deeply embedded, it becomes vital for users to limit its access to what's truly necessary, striking a careful balance between convenience and control.

The image below illustrates the shift in capabilities, using our framework to compare OpenAI's new agent to ChatGPT. What stands out is how even small advances in capabilities (such as autonomy, user knowledge, and ecosystem integration) have the potential to dramatically reshape the risk landscape.

It's important to note that both also share a range of challenges, as shared in our prior research.

Conclusion

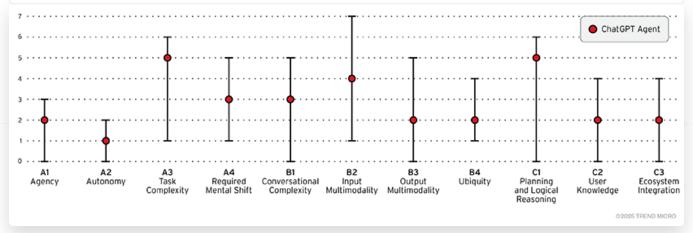
With its expanded capabilities, the new ChatGPT agent is more than an upgraded assistant –it is poised to become a trusted companion and a constant presence in the user's digital life. And while many of its advancements might appear incremental, even small gains in capability can introduce new risks, reshaping how we interact with DAs and the safeguards we must adopt to protect them.

This article has focused on the new risks introduced by OpenAI's latest agent, particularly the potential for manipulation, as the assistant becomes more autonomous and capable of handling increasingly complex tasks. Equally concerning are the emerging privacy risks, as the agent gains deeper knowledge of the user and broader access to their digital ecosystem.

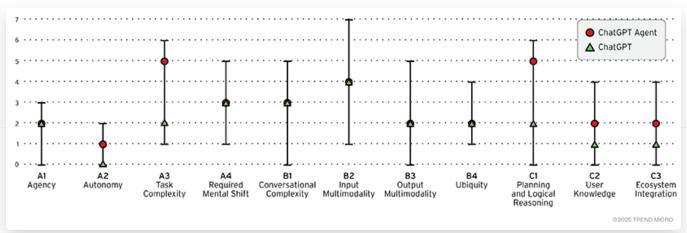
Despite the agent's increased autonomy, organizations are advised to maintain active user supervision over the tool, especially for sensitive operations. This can help in detecting irregularities that might result from manipulation and other threats.

For a stronger and more informed security approach, Trend Micro's Digital Assistant Framework proves to be a valuable tool - not only for consumer-facing tools but also for the growing class of agentic systems emerging in enterprise settings. As AI continues to evolve and become an integral part of our lives, this framework serves as an essential lens for understanding the balance between new capabilities and the risks that come with them.

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🔼 FIGURE 1: MAPPING CHATGPT AGENT'S CAPABILITIES TO TREND MICRO'S DIGITAL ASSISTANT FRAMEWORK.



☑ FIGURE 2: COMPARING CHATGPT AGENT'S CAPABILITIES TO THOSE OF THE EARLIER VERSIONS OF CHATGPT.



UNLIKE PREVIOUS VERSIONS, WHICH WERE LIMITED TO GIVING INSTRUCTIONS, THE NEW AGENT TAKES CONCRETE ACTIONS ON BEHALF OF ITS USER.

O EDITOR: SBR

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The Mask With the Little Flag



Paul Klee: The Mask with the little Flag, 1925. Paper/cardboard, 65 x 49.5 cm. Bavarian State Painting Collections – Modern Art Collection at the Pinakothek der Moderne in Munich. Acquired from a private collection in 1951. CC BY-SA 4.0.

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Lecta Launches a High Grease-Resistant Labelling Solution



WITH OVER 50 YEARS OF EXPERIENCE, THE ADESTOR BRAND HAS CEMENTED ITS POSITION IN THE SELF-ADHESIVE LABEL SECTOR.

Lecta Self-?Adhesives expands its portfolio of barrier solutions with the launch of Adestor Gloss GP PFAS-free, specifically designed to meet the demands of the food industry. Adestor Gloss GP PFAS-free, available upon request with FSC® C011032 Chain of Custody forest certification?, is a high-performance technical solution that offers excellent resistance to grease and oils. The formula does not include per- and polyfluoroalkyl substances (PFAS), in keeping with current European regulations and the increasingly rigorous environmental and health requirements of the packaging sector.

This new self-adhesive product is intended specifically for the labelling of food products such as cured meats, cheeses, ready meals, and oils—applications where an efficient barrier to greasy substances is essential to ensure both functional performance and product safety.

"At Lecta Self-Adhesives, we are fully committed to developing solutions that address today's technical challenges while contributing to environmental protection," says Roger Puente Vila-Masana, Business Development & Product Manager Director at Lecta Self-Adhesives. "With Adestor Gloss GP PFAS-free, we are taking a decisive step toward safer, more responsible labelling that meets market expectations."

The entire Adestor range is produced in accordance with the following standards: Environmental Management (ISO 14001 and EMAS), Energy Efficiency (ISO 50001), Quality (ISO 9001) and Occupational Health and Safety (ISO 45001).

www.adestor.com

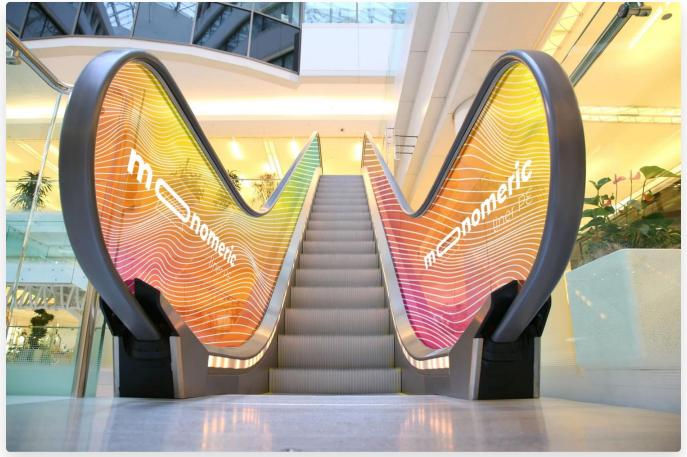


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■ Decal Dot Matrix

Digidelta Raises New Industry Standards



DECAL DOT MATRIX FEATURES A DOUBLE LAYER OF PE LINER, WHICH PROTECTS THE VINYL FROM HUMIDITY.

Digidelta, a specialist manufacturer of digital printing, decoration, visual communication, and textile materials, is delighted to announce the worldwide availability of Decal Dot Matrix, a bubble-free 100-micron self-adhesive monomeric vinyl for use in short-term indoor applications. Compatible with solvent, latex and UV printing technologies, Decal Dot Matrix has been developed in-house by Digidelta, which has more than 40 years of experience and expertise in the market. This expert-led approach allows Digidelta to retain complete control over production, ensuring all its quality materials constantly meet the high standards set by the company.

Keeping production in-house also allows Digidelta to save on outsourcing manufacturing costs. This process of smart manufacturing enables the company to pass on lower costs to its customers, presenting them with a far superior product at a more affordable price than other solutions available to the market.

A cutting-edge product, Decal Dot Matrix has been designed for short-term promotional graphics, allowing customers of all capabilities to easily install printed graphics on flat, smooth and non-porous surfaces. With durability of up to six months, it is ideal for use across public and commercial spaces, events and exhibitions,

point of sale and more - delivering greater productivity to customers with fewer resources.

The innovative bubble-free dot matrix-style adhesive means Decal Dot Matrix is fast and easy to apply and reposition for both skilled installers and those without previous experience. This special adhesive also eliminates common vinyl issues such as wrinkling and bubbling, allowing users to reposition the material several times without leaving residue and helping them to achieve a highly professional finish, even on mirror-like surfaces. In addition, once a campaign has concluded, the graphics can be cleanly removed without leaving unsightly residue or damaging the surfaces to which they are applied.

Available in widths of up to 1.6m, Decal Dot Matrix is available in both clear glossy and white matte options. Clear glossy allows for excellent levels of transparency in projects such as mirror-image indoor window graphics where the text can be read from outside. Meanwhile, the white matte option offers total opacity to differentiate spaces and provide privacy.

The product also features a double layer of PE liner, which protects the vinyl from humidity, thus eliminating issues such as waving and curling during printing, finishing and installation.

Decal Dot Matrix also fits in with Digidelta's own, long-standing commitment to the environment. The manufacturer has established not only a highly efficient production setup that benefits from both continuous improvement and investment, but also one that has sustainability in mind. To this end, it developed Decal Dot Matrix with a water-based adhesive and remain free of volatile organic compounds, making it an effective, environmentally friendly solution for customers.

In addition to the clear environmental benefits of a water-based adhesive, the specialist Dot Matrix design is superior to traditional water-based solutions in that it is much quicker to apply and offers a higher level of efficiency to all customers. To demonstrate this, Digidelta invites users to view a comparison video, measuring up the performance of Deal Dot Matrix against standard water-based applications.

Digidelta's drive for innovation does not end there, with the manufacturer having secured a range of specialist certifications to strengthen its commitment to providing customers with both reliable and trusted solutions in the long term. Accreditations include fire resistance certification B S1 / Do, in line with the European standards of ISO 13501-1 and ISO 11925-2, while its products are manufactured from European raw materials that meet both REACH and RoHS requirements.

"Decal Dot Matrix is the innovative solution that is transforming the adhesive vinyl market for short-term promotional campaigns," said Carlos Alves, Export Manager for Decal. "Designed to exceed users' expectations and needs, at a cost-effective price-point, this environmentally friendly monomeric adhesive offers easy application, repositionability and quick and clean removal, without the need for professional installers.

"We developed the dot matrix adhesive technology at our leading-edge factory in Portugal and manufacture the media on-site to provide a premium quality, eco-friendly, competitively priced solution for our valued customers."

Digidelta Decal Dot Matrix is now available worldwide.

About Digidelta®

With nearly 40 years of experience, Digidelta both represents and manufactures globally recognised brands across the digital printing, visual communication, decoration, and textile industries. Digidelta is the company behind large-format digital print media Decal, environmentally friendly film range Biond, and bio-based textured film brand AllDecor, while it is also an exclusive distributor for Mimaki. Digidelta is headquartered in Torres Nova Portugal and has offices in Lisbon and Famalicão, as well as in Barce-

lona and Madrid in Spain.

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DOT MATRIX, PART OF THE POPULAR DECAL RANGE FROM DIGIDELTA, OFFERS A SUPERIOR QUALITY, ENVIRONMENTALLY FRIENDLY, EASY TO APPLY AND COST-EFFECTIVE SOLUTION FOR SHORT-TERM PROMOTIONAL APPLICATIONS.



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PACKAGING, PACKAGING WASTE, AND PRINTING INKS

The Impact of the PPWR



☑ NATASHA JEREMIC CONSIDERS THE IMPACT OF THE PPWR ON THE DEVELOPMENT OF PRINTING INKS FOR PACKAGING AND LABELS.

Last November, the European Parliament approved the EU Packaging and Packaging Waste Regulation (PPWR), which affects the entire packaging lifecycle, with compliance impacting packaging weight and volume, as well as reusability, and recyclability. This regulation also highlights the importance of sustainability in labels and packaging, as well as the inks used in their production.

The inks used in packaging and label printing form only a small part of packaging, but they are essential to creating shelf appeal and providing product and traceability information to consumers and brands.

Natasha Jeremic, Ink Development Manager, Domino Printing Sciences (Domino), considers the impact of the PPWR on the development of printing inks for packaging and labels and outlines the importance of PPWR-compliant inks in evolving reuse and recycling processes.

Reducing ink use

Reducing the overall weight and volume of product packaging is one of the PPWR's key objectives, with packaging designers expected to develop more compact and lightweight packaging that fulfils its protective,

informational, and promotional functions.

While less ink will be needed to print smaller packaging labels, 'Designing for a Circular Economy' (D4ACE) guidelines recommend minimising ink use to less than 5% of the total packaging weight to reduce contamination during the recycling process – a figure threshold likely to be lowered in the future.

With both volume and weight at a premium, some brands, packaging developers, and suppliers may consider replacing printed labels with direct-to-shape printing for their labelling needs. Direct-to-shape printing, utilising inkjet technology, such as the application of QR codes on bottle caps, is expected to become increasingly popular. Use of QR codes powered by GS1 can link to information stored across different online data systems. This helps to reduce the amount of ink needed for packaging and labels, whilst enabling brands to make better use of limited printable space. Consumers can simply scan the code with their mobile phone to access information that would have been traditionally included on the pack – and much more.

Supporting packaging reuse

In addition to packaging reduction, the PPWR also imposes reuse targets on different packaging categories. Details of reuse schemes with standardised containers are yet to be agreed, and while it is certain that durable identification of containers for tracking purposes will be needed, how the product will be identified, and how durable the identification will have to be, leaves space for innovation.

Packaging inks will need to be adapted to support packaging reuse, with different formulations necessary to meet the varying durability and deinkability demands. In a dedicated brand reuse scheme, branding, product, and usage information would need to be printed using inks that can withstand the high temperatures used in washing and preparing packaging for reuse. Enhanced durability would also be required for any on-pack information and QR codes that support traceability and product returns.

Conversely, variable data – including that relating to product batches, batch codes, production, and expiry dates – would need to be printed using inks that can be easily removed by de-inking – so that the packaging can be printed with new unit-specific data before reuse. Labels could also be an effective option for applying variable information to packaging, enabling convenient removal and new application of data.

Optimising for packaging recycling

The PPWR broadens current on-pack recycling information requirements to include traceability for every single part of the packaging. Materials used, the origin and percentage of recyclate, how to reuse or recycle them, and any substances of concern must now be declared on product packaging.

In addition, new packaging material requirements under PPWR demand a greater proportion of recycled content or alternative fibre-based, compostable materials. With ink performance being heavily substrate-dependent – and therefore variable – these new materials may cause challenges to converters and packaging ink developers. The permeability and ink adhesion properties will differ depending on the material, thereby affecting print quality, durability, and colour intensity in ways that will need thorough testing before use.

Ink and packaging developers will need to ensure they protect the functionality and promotional value of packaging while maintaining consumer safety and product freshness, particularly in food packaging applications. Ink developers will need to consider new functional coatings, ink formulations, and primers to guarantee the performance and safety of packaging inks when printing on new PPWR-compliant materials.

In terms of recyclability, labels, adhesives, and print will need to be removable – without leaving a trace – and de-inking will be of particular significance, as colourant pigments and large areas of UV varnish are known to render recycling processes less effective.

Work to develop processes, materials, and adhesives that will facilitate de-inking and label removal at temperatures lower than the current 65–85°C range has already begun, and efforts are likely to intensify. This will

include a strong focus on eliminating hazardous substances on EuPIA's (European Printing Ink Association) Exclusion List from packaging inks to ensure they don't enter the recycling stream, contaminating the recyclate and affecting consumer safety.

Conclusion

The implementation of PPWR necessitates a new level of collaboration between brands and suppliers of ink, packaging, and label and packaging substrates to ensure that recyclability demands can be met while satisfying brand owner requirements for eye-catching, high-quality packaging and labels.

Over the coming decades, packaging materials and recycling techniques are expected to evolve and change – and printing inks will need to adapt to these developments. The stage is now firmly set for a new age of innovation in ink development and application.



☑ IN TERMS OF RECYCLABILITY, LABELS, ADHESIVES, AND PRINT WILL NEED TO BE REMOVABLE WITHOUT LEAVING A TRACE.



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How Novacode Transformed Quality Control with EyeC



NOVACODE FACED A SERIES OF QUALITY CONTROL AND OPERATIONAL CHALLENGES THAT THREATENED BOTH EFFICIENCY AND PRODUCT

OUALITY.

Novacode faced a series of quality control and operational challenges that threatened both efficiency and product quality. Inspection processes relied heavily on manual reviews. This made it challenging to maintain 100% quality control on high-speed production lines. Furthermore, the pharma- ceutical industry demanded not only impeccable quality but also documented proof of it. Novacode was required to provide certificates of compliance for every batch, which was almost impossible to achieve using traditional inspection methods. "For a company serving the pharmaceutical industry, where packaging integrity is literally a matter of life and death, even minor defects are unacceptable," explains Przemyslaw Ruge CEO at Novacode.

Quality defects often went unnoticed, leading to customer complaints and costly product returns, which significantly increased operational costs and waste, ultimately impacting both profitability and production efficiency. "By using traditional inspection methods, it was simply impossible to ensure and verify 100% quality control of pharmaceutical labels and to issue a certificate of fitness while keeping up with the high print and rewind speeds of flexo machines."

The Search for a Solution

To address these challenges, Novacode's search for a quality control solution was driven by specific, non-negotiable require- ments: the required system needed to deliver 100% real-time inspection capability at production speeds, integrate with existing flexographic machines, and comply with ISO standards for pharmaceutical applications as well as system validation capability for regulated environments. It also needed to come with strong local support, as the team valued hands-on guidance in Polish. While other options were considered, Novacode quickly turned to EyeC. The company had already established a relationship with EyeC over several years, which is known for its reliable systems and responsive service and ultimately gave them confidence in the partnership. "We were looking for a system that could be validated, fit into our current workflows, and come with strong local support. EyeC, with its ProofRunner Web system and Quality Link solution, checked all those boxes," says Ruge.

Implementation of the EyeC ProofRunner Web and Quality Link

Novacode implemented EyeC's vision inspection systems in phases. Starting with the integration of the EyeC ProofRunner Web into their Quality Department, followed by the EyeC Quality Link for comprehensive, 100% inspec- tion of every label printed. Integrated directly into Novacode's flexographic printing machines, the systems created a seamless quality control process that operates at full production speed without compromising throughput. While the new systems weren't just a technical shift, they required significant organisational change. "In print shops, we often operate according to established patterns, tried and tested procedures. Any change in this area can be demanding. It requires time, team commitment, and an openness to a new approach," acknowledges Ruge.

The success of the implementation was largely attributed to strong support from EyeC's Polish team and buy-in from Novacode's implementation team. "The support from the EyeC Polska team was crucial. Their professionalism and individual approach ensured everything ran smoothly, while our own team played a key role by fully understanding the real benefits and embracing the change," Ruge continues.

The Inspection Process: How the Systems Work in Practice

The inspection solutions are integrated into a dedicated production line, where EyeC cameras scan each label during the printing process. Every label undergoes a full 100% inspection and is verified by the EyeC ProofRunner Web. Any errors are automatically detected and flagged, allowing only defect- free products to proceed. Operators and quality control staff oversee the entire process and address any anomalies identified by the system.

The updated process also involves equipping all flexo- graphic printing machines with EyeC vision systems, supported by trained personnel from both the Quality and Production Departments. This transition required a realignment of workflows, adjustments to inspection speed, and a broader cultural shift toward data-driven quality assurance.

While not all customers need such a thorough inspection, Novacode has made EyeC an essential part of its universal quality monitoring process. All production at Novacode now integrates EyeC vision systems for quality monitoring and verification using EyeC ProofRunner. "We adapted our processes to fully automated quality control," notes Ruge. "That was a significant operational change, but a necessary one to meet the evolving expectations of our clients and industry standards." This establishes a comprehensive quality assurance framework across all product lines.

Results and Improvements: Better Quality, Less Waste, Higher Confidence

The EyeC systems now play a key role in Novacode's production line, particularly for pharmaceutical and medical labels. Since implementation, Novacode has achieved clear and measurable improvements. Not only has quality improved, but efficiency has soared. Automating the inspection process has drastically reduced the time and labor involved. Minimizing waste and product returns has had a direct, positive impact on

the bottom line. Customers now receive verified confirmation that every label has passed the inspection, ensuring full compliance and reinforcing trust. The effects were measured through a detailed analysis of production results and KPIs from the quality department. "EyeC Quality Link has helped us minimize the risk of human error and guarantee 100% inspection of every piece of product delivered," says Ruge. The EyeC solutions also give Novacode the flexibility to maintain high standards while adapting to individual customer needs.

Conclusion and Next Steps

With EyeC systems in place, Novacode has transformed its approach to quality control, boosting accuracy, efficiency, and customer confidence. "It's not just about meeting requirements," says CEO Przemyslaw Ruge. "It's about setting new standards."

Encouraged by these results, Novacode is now exploring further innovations, including AI-driven solutions to optimize other areas of production. As continuous training and process adaptation remain central to upholding the company's high- quality standards, the partnership with EyeC continues to play a key role in this journey. "EyeC's reliability, industry experience, and strong technical support made them an easy choice - and a long-term partner I would highly recommend," Ruge concludes.

About Novacode Sp. z o.o.

Founded in 2004, Novacode Sp. z o.o. has established itself as a reknown manufacturer of self-adhesive labels in Poland, serving a diverse range of industries, including pharmaceuticals, cosmetics, automotive, white goods, and logistics. With around 160 employees spread across three locations, the company specializes in producing complex and technically challenging labels, where accuracy and reliability are paramount. Recognizing the critical role that packaging plays in ensuring product safety and enhancing brand reputation, flawless quality control is crucial. Committed to delivering high-quality, Novacode continuously seeks advanced technological solutions to meet the ever-evolving demands of its customers.

https://novacode.pl



WHILE OTHER OPTIONS WERE CONSIDERED, NOVACODE QUICKLY TURNED TO EYEC.



☑ "IT'S NOT JUST ABOUT MEETING REQUIREMENTS," SAYS CEO PRZEMYSLAW RUGE. "IT'S ABOUT SETTING NEW STANDARDS."



■ VIBRANT AND VERSATILE

Mimaki Introduces Entry-Level TS200-1600 Dye Sublimation Printer



THE NEW TS200-1600 IS AN AFFORDABLE DYE SUBLIMATION PRINTER DELIVERING FAST PRODUCTION SPEED AND HIGH QUALITY FOR START-UPS AND BUSINESSES LOOKING TO DIVERSIFY THEIR OFFERING.

Mimaki Europe has announced the TS200-1600, its latest sublimation transfer inkjet printer, which will make its international debut at The Sign Show / The Print Show in Birmingham, UK (23–25 September 2025). Building on the success of the TS100, the new TS200-1600 delivers fast production speeds, high-quality and versatile applications at an affordable price point, making it an ideal solution for small shops, start-ups, and businesses looking to expand into customised goods and short-run textile production.

Powered by the same core technology behind Mimaki's 330 Series, the TS200-1600 ensures smoother gradients, vivid colours, and outstanding accuracy without compromising on speed. Its extended eight-colour ink set includes the addition of orange and violet inks for richer tones and improved colour gamut, as well as newly developed fluorescent pink and yellow inks for vibrant, eye-catching applications, such as sportswear, custom promotional items, home décor and soft signage.

The printer runs on Mimaki's OEKO-TEX[®] ECO-PASSPORT certified Sb411 inks, ensuring high-density prints that are both durable and environmentally responsible. The certification allows print providers to meet sustainability requirements demanded by global textile brands and eco-conscious consumers.

To maximise uptime and reduce waste, the TS200-1600 incorporates 2L degassed ink packs that prevent air bubbles and ensure consistent print quality. The improved ink supply system also allows operators to easily shake the inks without removing them from the printer, simplifying maintenance while maintaining reliable performance. Combined with Mimaki's user-friendly RasterLink7 RIP software and PICT, Mimaki's free cloud-based monitoring tool, users can streamline print management and production processes.

"The TS200-1600 represents the next step in our entry-level dye sublimation line," comments Arjen Evertse, Director Sales at Mimaki Europe. "It brings professional-level quality and colour brilliance to customers entering the dye sublimation market, while offering a user-friendly, cost-efficient solution for short runs, proofing, and personalised applications. With its eco-friendly inks and Mimaki's core technologies, it also supports a more sustainable production process."

With its compact footprint, environmentally friendly and safe inks, and support for a wide range of polyester fabrics and coated substrates, the TS200-1600 is positioned as an accessible yet powerful solution for businesses aiming to capture new opportunities within rigid substrate applications for custom goods and gifts, as well as in the on-demand textile market.

The new printer will also be showcased at All2Print (Romania, 30 September-3 October), Viscom Italia (Italy, 1-3 October), Sign Istanbul (Türkiye, 2-5 October), and Grafima (Serbia, 8-11 October).

About Mimaki

Mimaki is a manufacturer of wide-format inkjet printers and cutting machines for the sign/graphics, industrial and textile/apparel markets. Mimaki develops the complete product range for each group; hardware, software and the associated consumable items, such as inks and cutting blades. Mimaki excels in offering innovative, high quality and high reliability products, based upon its aqueous, latex, solvent and UV-curable inkjet technology. In order to meet a wide range of applications in the market, Mimaki pursues the development of advanced on-demand digital printing solutions. Mimaki Engineering Co. Ltd., (President: Kazuaki Ikeda) Nagano (Japan), is publicly listed on the Tokyo Stock Exchange, Inc.

www.mimakieurope.com

Mimaki

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■ THE POWER OF PARTNERSHIP





Tecnau and Knight Abbey's Game Changing Success Story

Knight Printing was established in 1980 in Biloxi, Mississippi. In 1989, the company expanded by acquiring Abbey Printing in Gulfport, leading to the merger that created Knight Abbey Printing. Today, Knight Abbey stands as the largest manufacturer in Biloxi and a well-known name in the printing and direct mail industry across the United States.

Current president and owner, Tonya Spiers, grew up immersed in the business, spending weekends helping her father and learning the printing trade. Now at the helm, Tonya continues to drive the company forward, constantly exploring innovative hardware and software solutions to enhance operations.



Knight Abbey prints direct mail for over 100 casinos across the country, and the company recently added six more casinos to its client list. In addition, it produces thousands of political direct mail pieces every year along with servicing financial institutions, colleges, and other markets. Last year the company printed 16 million plus postcards and approximately 10 million mailers along with millions of other materials.

Before moving to roll-fed production inkjet printing, every print job included several steps, resulting in numerous hours to complete. Even after an interim move to cut sheet inkjet, the company still could not handle the additional work that clients wanted Knight Abbey to produ-

ce. "No" is not a word we like to say to our clients," stated Tonya. Driven by her passion for innovation and technology, she sought out a faster, more efficient solution, ultimately leading to the adoption of roll-to-roll inkjet printing.

Ms. Spiers had very specific requirements, especially when it came to the gaming industry. "Casinos love ink so it was critical that we produced pieces that were fully covered in ink with no white edge," explained Tonya. She conducted extensive research and discovered that at the time only Tecnau offered a solution with a roll-fed guillotine cutter, providing a clean cut on all four sides of a printed piece – rotary cutting leaves a tell-tale white edge on pieces, especially evident on papers from 9PT and heavier. "Finding a company that offered the guillotine cut was a big deal for us. In fact, it was the number one reason for selecting Tecnau," stated Spiers. In 2023, the company transitioned both its mailer and postcard finishing lines to Tecnau finishing systems highlighted by the TC 7000 TS Guillotine Cutter.

The Tecnau Revolution 50 Roll-to-Roll works efficiently with the company's Canon ProStream 1800 production inkjet press. The Tecnau solution rewinds rolls at speeds up to 820 feet per minute (250 m/min), offering investment protection for Knight Abbey's future needs. Its proven reliability provides operators extended run times with minimal intervention.

The Tecnau Revolution 50 Roll-to-Roll features next generation controls for compatibility with the "Internet of Things" (IoT). The system includes natural-language error reporting on the user screen and onboard diagnostics to help keep the system up and running. It even offers IoT options for remote monitoring and diagnostics, automatic software updates, and preventive maintenance aids.

The Tecnau TC 7000 TS Guillotine Cutter is equipped with a cross blade cartridge that offers a single or double knife, enabling single cut or strip removal. It also has a side trimming cartridge with longitudinal circular knives supporting 1-up, 2-up, or 3-up modes, which provides side strip and/or central cut and strip removal for a broad range of applications for color inkjet presses, such as the Canon ProStream 1800.



The company's postcard line includes the Tecnau equipment along with a shingling conveyor. However, for the mailer line the Tecnau equipment is integrated with the Heidelberg Stahlfolder TH 66. "Knight Abbey has been a traditional Heidelberg shop, so it was important that the Tecnau equipment work well with the Heidelberg solution," said Tonya. "After any initial challenges were worked out, I like to say the integration became smooth, complementing each other as naturally as peanut butter and jelly."

The roll-to-roll solution was a whole new world to Knight Abbey, making it critical that Tecnau be a good vendor partner. "We do not have a

lot of layers in our company; therefore, we look to our partners to be an extension of our team," explained Tonya.

Tecnau brought in staff to train all the company's team members together on the production floor. Knight Abbey is a hybrid shop with employees from various generations, ranging from Baby Boomers to Generation Z; therefore, their learning styles and interests varied. However, Tecnau's training addressed all of their questions.

Tonya is a big believer in Management Information System (MIS) analytics for accountability and efficiency, and as a catalyst for growing the business every year. "In the beginning especially, I shared production numbers with the plant employees, which excited them. I would let them know that make-ready time was reduced from approximately one hour to 15 minutes. Self-mailers that took 36 hours to produce were now completed in six hours with roll-fed inkjet," declared Spiers. "The team knew they were making an impact, but they did not know these amazing numbers."

Once the Knight Abbey and Tecnau teams grew more familiar with each other and aligned on expectations, the relationship has evolved into something truly exceptional. "With the Tecnau equipment, employees now have the right tools and feel accomplished at the end of every day," proclaimed Tonya.

About Tecnau

Tecnau offers a complete product portfolio dedicated to paper handling, monitoring, processing and finishing for the digital printing industry. We are devoted to providing integrated solutions to support the broadest array of applications for Transactional Printing, TransPromo, Direct Mail, Publishing, Graphic Arts, Book on Demand and Short Run. Global service and around-the-clock support help ensure our reputation as the industry's reliability leader. Our products increase productivity, cut labor and paper costs, and even make new applications possible - Tecnau solutions truly empower digital print to help you do more with less.

www.tecnau.com



■ DETAIL OF THE TECNAU CUTREADY SOLUTION GUILLOTINE CUTTER MODULE.



DETAIL OF THE TECNAU CUTREADY SOLUTION LOOSE WEB EXITING THE UNWINDER AND ENTERING THE CUTTER MODULE.



TECNAU CUTREADY LINE FEEDING HEIDELBERG STAHLFOLDER TH 66.



TECNAU REVOLUTION 50 ROLL-TO-ROLL, UNWINDER U50 AND REWINDER R50, IN LINE WITH CANON PROSTREAM 1800.



☑ TONYA SPIERS, PRESIDENT/OWNER OF KNIGHT ABBEY, WITH TECNAU CUTREADY SOLUTION IN THE BACKGROUND.



FLEXCEL NX TECHNOLOGY

Köstlin Expands its Flexo Production Capabilities



UV EXPOSURE UNIT WITH SHINE LED LAMPS.

Increasing efficiency and productivity, reducing costs, and improving customer service were the key drivers for Köstlin Prepress Services in Ditzingen, southwest Germany, when it recently made another investment in Flexcel NX Technology from Miraclon. The company supplies flexo printing plates to packaging printers who mainly produce flexible packaging.

Köstlin experienced significant growth during 2024, which Managing Director Marc Talmon Gros attributes to brands launching new products and designs, as well as new customers with a highly diversified SKU portfolio who appreciate the benefits of the central repro service offered by Köstlin.

Flexcel NX Technology fully utilized

Köstlin has relied on Flexcel NX Technology from Miraclon for more than 12 years, and supplies customers with both solvent-based Flexcel NXH plates and water-wash Flexcel NX Ultra plates. These plates, which are produced on a Flexcel NX Wide 4260 imaging system, now account for over 75% of the company's total flexo plate production. "Last year, Flexcel NX plate production increased by more than 10%, while plates from

other manufacturers have stagnated," explains Marc Talmon Gros. According to him, one reason for this growth is because "Flexcel NX plates are still regarded as the gold standard for printers producing flexible packaging at a high, demanding production level and where they need to maximize efficiency and productivity without impacting quality or cost."

The advantages of switching to the larger format Flexcel NX Ultra Solution

In November 2024, Köstlin invested in a Flexcel NX Ultra 42 Processing System, replacing the smaller NX Ultra 35 System it installed several years ago. This now allows Köstlin to produce Flexcel NX Ultra plates up to 1,067 x 1,524 mm in size.

"With 50% more surface area, the Flexcel NX Ultra 42 Processing System enables us to make much better use of the plate material. For example, when we are producing a bag for garden soil, previously only one color of the motif would fit on a plate, and around 35 to 40% of the surface area would be unused. We can now better optimize plate layout to minimize wastage," says Marc Talmon Gros. He is also very satisfied with the productivity of the system: "With the larger format unit, we can easily produce 16 Flexcel NX Ultra plates in an 8-hour shift. I also expect us to reduce our solvent consumption even further. This year, we plan to increase the share of Flexcel NX Ultra Plates from 20% to over 30% of the total Flexcel Plates portfolio."

Marc Talmon Gros says their use of PureFlexo™ Printing for both Flexcel NXH and Flexcel NX Ultra plates is also continuously increasing. "Over the last year and a half, we have reprinted our standard test form with Flexcel plates for the majority of our customers, and PureFlexo Printing with its multi-form surface patterning has proven to be the most suitable for controlling ink transfer and dot gain for most of them," explains Marc Talmon Gros. Köstlin now produces almost 70% of its Flexcel NX plates with PureFlexo Printing.

Shine LED Lamp Kit investment to increase exposure productivity

Kostlin at the same time also invested in a Shine LED Lamp Kit, innovated by Miraclon, to convert its large-format fluorescent exposure unit. The replacement of the UV fluorescent tubes with Shine LED lamps was carried out by a local electrician and took less than a day.

"It was a relatively low investment with little conversion work, which has brought us great benefits," adds Marc Talmon Gros. "The lower energy consumption, significantly longer service life and constant output of LED are, of course, clear advantages over conventional UV fluorescent tubes."

However, he sees the most important advantage in the productivity gains made possible by the Shine LED investment: "Compared to the previous fluorescent tubes and our other fluorescent exposure frame, which works with scanning LED imaging, we save around ten minutes per plate. That's incredible! On top of that, the Shine LED lamps don't need to be warmed up like the fluorescent tubes for us to start exposure. This may only save us 10-12 minutes, but that's every day. Given our increasing productivity with Flexcel NX platemaking, this investment enables us to avoid a potential bottleneck which was sure to happen with fluorescent exposure."

The Köstlin Managing Director values his company's collaboration with Miraclon: "We find the partnership and the professional support we receive from Miraclon to be very positive. What's great is that in recent years we've been able to consistently grab the attention of the market with new technology from Miraclon and secure additional business without overwhelming our customers with the changes. That's a win-win situation - for us and for our customers."

About Köstlin Prepress Services

As a family business with around 50 employees, Köstlin Prepress Services specializes in repro and pre-

press services as well as platemaking for all major packaging printing processes. Founded in 1978, Köstlin's customers include numerous packaging printers and international brand owners. Its production program is dominated by high-quality prepress services for flexible packaging with over 70% of its orders coming from the very demanding food and cosmetics sectors. Köstlin has been using Flexcel NX Technology since 2013 and began using the Flexcel NX Ultra Solution in August 2020.

www.kostlin.de

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MARC TALMON GROS AND HIS TEAM.



EDITOR: SBR

© IMAGES: KÖSTLIN PREPRESS SERVICES

EMPOWERING GROWTH

How MPS Technology Supports ETPA's Packaging Vision



MPS EF NEXT GENERATION MULTI-SUBSTRATE FLEXO PRESS.

In the dynamic world of labels and packaging, success hinges on precision, flexibility, and foresight. These are the qualities that define the powerful, long-standing partnership between MPS, the premium Dutch press manufacturer, and ETPA Packaging, a reknown labels and packaging converter based in Komotini, Greece.

High-Performance Presses Enabling Flexible Production

MPS presses are renowned for their print quality and adaptability, which are key to ETPA's diversified portfolio—from self-adhesive labels and flexible packaging for food and beverage applications to blisters for the pharmaceutical sector and lamitubes for the cosmetic world. With fast job changeovers, consistent registration, and minimal waste, MPS technology allows ETPA to remain both competitive and sustainable.

"At ETPA, we handle a wide variety of substrates and run lengths. The MPS EF model allows us to do that without compromise," says John Drenogiannis, CEO of ETPA. "It's not just about print quality -it's about production efficiency, and MPS delivers that. We're particularly proud users of the EF7A press model, the most automated label press on the market."

Service Support That Keeps Production Moving

In addition to best-in-class equipment, MPS and ETPA share a proactive service approach. Through predic-

tive maintenance tools and remote diagnostics, potential issues are addressed before they disrupt operations.

"We don't wait for things to go wrong," says Davide Pomati, Regional Sales Director at MPS. "Our approach is built around prevention and speed. With ETPA, we've developed a strong support rhythm that keeps them running at full potential."

Local Expertise That Makes a Difference

An essential part of this partnership's success is the local support from Max's, MPS's trusted agent in Greece, led by Dimitris Sirmatakis. Their expertise and responsiveness are an added value for both companies.

"Dimitris, Costas, and their team are more than a representative - they're a true partner," says Davide Pomati. "Always close and aligned with our goals," adds John Drenogiannis, "their support makes a real difference."

Innovation-Driven Synergy for Sustainable Growth

This partnership also thrives on shared values - especially around sustainability and future-readiness. MPS's focus on automation and performance optimization aligns seamlessly with ETPA's mission to deliver sustainable, high-impact packaging.

"We look for partners who are thinking ahead," notes Drenogiannis. "MPS doesn't just provide machines; they provide solutions that grow with us." Together - with the technical leadership of MPS, the production excellence of ETPA, and the hands-on support from Max's - this partnership represents a model of how global innovation and local expertise can come together to drive lasting success in labels and packaging.

About ETPA Packaging

ETPA Packaging is the largest Greek company in the field of adhesive labels and one of the most important in the field of flexible packaging materials. The company's main concern is the production of printed packaging materials with guaranteed quality, as well as the support of customers with new ideas and original proposals that will add value to the final product.

etpapackaging.com

About MPS

As a reputable manufacturer of high quality and highly automated flexo, offset and hybrid printing presses in the label and packaging industry, MPS looks beyond the machine through intensive cooperation with its customers. Founded in 1996, innovation and continuous improvement are in our DNA. By connecting with MPS as a performance partner, customers ensure the best in reliability and productivity from their printing press.

www.mps-printing.com



FROM LEFT TO RIGHT: THEOCHARIS DIMITRAKOPOULOS- PRODUCTION MANAGER OF ETPA; DAVIDE POMATI- REGIONAL SALES DIRECTOR OF MPS SYSTEMS; STELIOS AMPRAZIS- PLANT MANAGER OF ETPA; DIMITRIS SIRMATAKIS- MAX'S, MPS AGENT.



MPS SERVICE.

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DS Smith Increases Digitalization



FROM LEFT TO RIGHT: FRANÇOIS DUBOIN (DS SMITH), WITH ALEXANDRE DE KALBERMATTEN AND SZYMON OCHOCIŃSKI (BOBST), OB-SERVE THE PERFORMANCE IMPACT OF BOBST CONNECT AT DS SMITH'S BELCHATOW FACILITY IN POLAND.

DS Smith, an International Paper company and an international provider of fiber-based and sustainable packaging solutions, has implemented the BOBST Connect digital platform to enhance operations by bringing data and digital services together into one fully connected platform. These services are currently being utilized across DS Smith facilities in the EMEA (Europe, the Middle East, and Africa) region.

DS Smith has collaborated with BOBST for over five decades, beginning in 1971 with the installation of a BOBST flatbed die-cutter at its packaging facility in Toury, France. This long-standing strategic partnership in the procurement of specialized converting equipment means that two-thirds of DS Smith's converting machinery is manufactured by BOBST. As part of this collaboration, DS Smith has also adopted BOBST Connect technology at its corrugated cardboard packaging facility in Belchatow, Poland.

Digitalizing processes

As a cloud-based digital platform, BOBST Connect is designed to bridge the gap between machines and the digital world, enhancing packaging productivity. At the core of key operations, the technology integrates data and digital services with built-in expertise, such as BOBST machine insights. This platform supports DS Smith's packaging production by providing a comprehensive overview and a streamlined data flow, from PDF format to the final product.

BOBST Connect is designed to enable the ongoing digitalization of operations and provide solutions for process management, production data, and insights. These tools facilitate improved planning, better-informed decision making, more effective interventions, and continuous optimization. BOBST Connect also offers capabilities to leverage unique data insights both on-site in DS Smith facilities and remotely. By adopting this data-driven and interconnected operational strategy, DS Smith is supported in consistently delivering high-quality products, on schedule, in full, and tailored to every customer.

Sustainable functionalities

As a dynamic and modular solution, BOBST Connect is continually evolving with new functionalities. These include an Energy Monitoring feature designed to measure energy consumption, provide real-time cost analysis, identify areas for efficiency improvement, optimize energy costs, and reduce carbon emissions.

François Duboin, Technical Excellence Director, DS Smith Packaging EMEA, says: "We have used the BOBST Connect platform since its inception, and the system has been onboarded on our most recently installed converting lines. Having already seen benefits in terms of performance, we are excited to experience and have access to the wealth of data and the advances in efficiency and productivity that the platform helps us to unlock. We are rapidly increasing our knowledge of the power of data and its potential for use across our footprint in Europe."

"We continue to expand our digitalization tools in our manufacturing processes and BOBST Connect contributes towards the optimization of our assets and observation of our energy reductions, as we pave the way for an industry-wide transition to a circular economy," he concludes.

Both DS Smith and BOBST share a strategy and a vision for the packaging industry rooted in a sustainable future and circular economy, and BOBST's vision is built on the four key pillars of connectivity, digitalization, automation, and sustainability.

Szymon Ochocinski, Digital Performance Solutions Manager at BOBST, comments: "BOBST and DS Smith have built a strong partnership over the decades and the goal has always been to develop equipment and technology to the highest specification possible. DS Smith is a key innovator in the packaging industry and an invaluable partner in connecting and digitalizing the value chain to drive efficiencies and sustainability for all stakeholders. We are delighted to be supporting an industry-wide transition to a circular economy with BOBST Connect."

DS Smith plays a key role in the value chain across a variety of sectors including e-commerce, FMCG (Fast-Moving Consumer Goods), food and beverage, healthcare and pharmaceuticals, agriculture, automotive, and industrials.

"Through its purpose of Redefining Packaging for a Changing World and its Now & Next Sustainability Strategy, the company is committed to leading the transition to a circular economy, and delivering innovative, sustainable packaging solutions for its customers and society at large, alongside replacing problematic plastics, reducing the carbon footprint in supply chains, and providing recycling and reuse solutions."



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■ UNCOATED FINE PAPER





ROTATRIM, CONSTAT, ENVAPOST, AND SCRIPT, PRODUCED AT THE MEREBANK MILL IN SOUTH AFRICA, ARE AMONG MONDI'S PRODUCTS NOW CRADLE TO CRADLE CERTIFIED® BRONZE.

Mondi Pioneers Cradle to Cradle Certified® Certification in South Africa

Mondi proudly announces that its uncoated fine paper portfolio of office paper and reels produced at its Merebank mill in South Africa has achieved Cradle to Cradle Certified[®] at the Bronze level.

This milestone marks a first for South Africa, making Mondi the only company in the country to earn this globally respected certification for paper products, reinforcing its commitment to circularity, equitable production and environmental stewardship. The certified products include Rotatrim, Mondi's well-known premium multifunctional office paper brand which also recently launched a new look to highlight its a commitment to local design and improved product performance. Other certified products include a wide range of uncoated woodfree reels such as Constat, Envapost and Script.

Cradle to Cradle Certified[®] is a globally recognised multi-attribute certification verifying that products are designed and manufactured in a prosperous, circular economy to maximise health and wellbeing for people and planet. The Full Scope certification covers all aspects from sourcing to production and certifies that our products are manufactured and used in line with circular economy principles. The programme assesses five categories of sustainability performance: Material Health, Product Circularity, Clean Air and Climate Protection, Water and Soil Stewardship, and Social Fairness.

"This important sustainability milestone reflects our ongoing efforts to deliver circular-driven solutions and contributes to the Group's ambitious Mondi Action Plan 2030 (MAP2030) sustainability commitments," said Donovan Naidoo, Operations Director at Mondi Merebank. "It also reinforces the trust our customers place in Mondi to reliably meet their evolving sustainability requirements with certified, high-quality paper solutions," adds Donovan.

Mondi's uncoated fine paper mill brand portfolio produced in Slovakia and Austria was also the first in Europe to receive Cradle to Cradle Certified® certification, reinforcing the company's global leadership in sustainable paper production.

Cradle to Cradle Certified[®] is a registered trademark of the Cradle to Cradle Products Innovation Institute.

About Mondi Uncoated Fine Paper

Uncoated Fine Paper is a business unit of Mondi Group. At its operating sites, Mondi Uncoated Fine Paper produces pulp and environmentally sound office and professional printing papers tailored to the latest professional digital and offset print technologies. The company complies with the strictest international certification standards to support sustainable production processes through the responsible management of forest, water and air resources. As part of the Mondi Action Plan 2030 (MAP2030), Mondi is the first to offer an extensive uncoated fine paper portfolio that is Cradle to Cradle Certified® Bronze for meeting the high standards and demanding requirements of this certification scheme, marking the step from a linear to a circular economy.

Its renowned brands such as Color Copy, PERGRAPHICA[®], NAUTILUS[®], IQ, MAESTRO[®], BIO TOP 3[®], DNS[®] or ROTATRIM are used in office environments on laser or inkjet printers and by professional printers on digital or offset presses to create brochures, transactional material, folders, invitations, business cards, letterheads or other high-impact communication. Converters appreciate the excellent printability and smooth handling of Mondi's professional printing papers.

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full scope

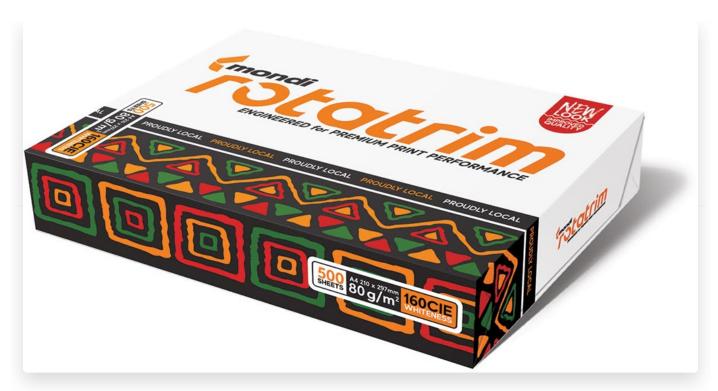


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New C-Bar Vertecs Screen Basket From Voith



Paper manufacturers now have access to optimized screening technology in stock preparation. Full-line supplier Voith has developed the C-bar Vertecs, a new screen basket that sets new standards in terms of separation efficiency, throughput, energy efficiency and operational reliability. The technology is already being used successfully at heinzelpaper in Laakirchen, Austria.

The C-bar Vertecs went into operation there as part of a trial comparison. Following installation and several hours of operation, Oliver Hunstein, responsible for process and plant technology at heinzelpaper, drew initial conclusions: "Compared to all other screening profiles that we've used so far, sticky removal has on average significantly improved. Losses in fine screening have been minimized, enabling us to achieve a higher yield."

Previously, when choosing the right basket, paper manufacturers had to decide whether to focus on better pulp quality, higher throughput or increased operational reliability. With the C-bar Vertecs, these trade-offs are no longer necessary. A new profile geometry has made this possible: Regardless of which performance

aspect paper manufacturers prioritize, C-bar Vertecs outperforms all previously known solutions in all relevant parameters. Depending on the individual focus, production volume can be increased by at least 20 percent, and sticky and dirt spot separation can be improved by up to 50 percent.

"We have extended the operating window for fine screening and reduced the vulnerability of the screens to plugging. This means that the screening process can now also handle more difficult-to-screen raw materials with a higher thickening factor in a stable manner," reports Hunstein.

At the same time, the specific energy consumption per ton is reduced. With a throughput increase of 25 percent, for example, the rotor speed remains unaffected, while the pressure difference at the screen with installed C-bar Vertecs is at a lower level. This allows energy savings of over 20 percent to be achieved without any problems.

The C-bar Vertecs is based on proven Voith C-bar technology, known in the paper industry for over 35 years as the leading solution for slot screen baskets. It is characterized by an overlapping profile with a constant and stable slot width, which enables particularly consistent screening results over the entire service life.

The C-bar Vertecs screen basket is also being used by other paper manufacturers in the EMEA and North America regions. It is suitable for different types of recovered paper and is already being utilized in a wide variety of process stages such as coarse screening, fractionation, fine screening and reject screening. "In addition, the C-bar Vertecs can be installed in Voith's BlueLine screens as well as older Voith machine generations and third-party machines," says Axel Dreyer, Global Product Manager Screening Wear Parts at Voith Paper.

About heinzelpaper

The heinzelpaper site combines the plants in Laakirchen and Steyrermühl in Upper Austria, which are only a few kilometers apart. As part of the Heinzel Group, heinzelpaper stands for a strong combination of tradition, innovation and sustainability in paper production.

The Laakirchen plant specializes in the production of environmentally friendly, lightweight corrugated base papers based on recycled paper for the European market. These are produced on the paper machine PM10 – and, since April 2025, on the new PM11.

At the Steyrermühl plant, the paper machine PM6, which belongs to the group's sister company heinzelpöls, produces high-quality kraft papers that cover a wide range of packaging and specialty papers for a variety of customer requirements.

The two traditional plants were founded in 1867 and 1868, respectively, and today employ a total of around 700 people at the heinzelpaper site.



■ Koehler Paper Award 2025

Award for Outstanding Achievements in Process Engineering and Paper Technology



FROM LEFT TO RIGHT: SIMON KETTERER, HEAD OF HUMAN RESOURCES CONSULTING AND SUPPORT, MANUEL EBMEYER, FABIAN NOSS,
THOMAS PETER, HEAD OF PRODUCTION AT KOEHLER PAPER KEHL.

For the fourth time, Koehler Paper, part of the Koehler Group, has presented the Koehler Paper Award to outstanding graduates of the Munich University of Applied Sciences. The honors went to a master's graduate in the "Paper Technology" program and a bachelor's graduate in the "Paper and Biofiber Process Engineering"

program. Both received prize money of €1,000 and a certificate made of handmade Koehler paper.

Award for Top Graduates

With this award, the company recognizes excellent academic achievements in areas of key importance to the paper processing industry. The goal is to promote committed young talent at an early stage and strengthen the exchange between science and practice.

The prize for the master's program went to Fabian Noss, who distinguished himself through outstanding achievements in the areas of chemical technology, coating, and specialty papers, and was named top graduate in the subjects of minerals, coatings, and specialty papers. Manuel Ebmeyer, who achieved the best results in biopolymer chemistry, biogenic fibers, and surface finishing, was honored in the bachelor's program.

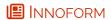
Young Talent as a Success Factor

The ceremony took place as part of the official graduation ceremony at the Munich University of Applied Sciences. The awards were presented by Simon Ketterer, Head of Human Resources Consulting and Support, and Thomas Peter, Head of Production at the Koehler Paper site in Kehl. "The Koehler Paper Award expresses our conviction that young scientists are a crucial success factor for the future of the paper industry," said Thomas Peter. "We are pleased to support young talents on their path into the industry and to actively shape the transfer of knowledge between academia and industry," added Simon Ketterer.



EDITOR: SBR

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Barrier Laminates – Expert Meeting 2025



MAGE SOURCE: INNOFORM COACHING GBR.

The biennially conference at the SKZ-Modellfabrik Würzburg on 1 and 2 July 2025 offered a comprehensive insight into current developments and trends in barrier laminates. The focus was on new material solutions and innovative manufacturing processes for monomaterials. In addition, the performance of modern films was impressively demonstrated and precise measurement methods for permeation measurement were presented.

All those working on the future of barrier laminate films found access to the latest developments at this conference. The event provided valuable input on current trends in film extrusion and sustainable packaging concepts with innovatively produced polyolefin films. The two-day event also offered a first-class exchange with experts from the packaging industry. Karsten Schröder moderated the programme. Here is a brief summary of the presentations.

In his presentation, Dr Thomas Gröner from TG Pack Solutions demonstrated the effects of the Packaging & Packaging Waste Regulation PPWR on barrier packaging. Firstly, he addressed the responsibility of producers and manufacturers. The producer manufactures the packaging and is responsible for its conformity, while the manufacturer places packaged products on the market and is responsible to the authorities. Key challenges arise from the general requirement for packaging to be recyclable from 2030 and the fulfilment of minimum recyclate content requirements for plastic packaging. Multi-material laminates are particularly problematic as they often cannot be sorted or recycled. Manufacturers must therefore focus more on monomaterial solutions, recycling-orientated design and improved separability.

In his presentation, Florian Reiter from Borealis showed how the properties of monoaxially oriented polyole-fin films can be significantly improved through targeted material selection and process control. High oxygen barriers of up to $< 0.5 \, \mathrm{cm}^3/(\mathrm{m}^2 \, \mathrm{bar}^* \mathrm{d})$ can be achieved with orientated films in the machine direction (MDO) and their sealing window can be extended to 130 - 170°C with reduced shrinkage in the sealing areas. Monoaxially oriented PE composite films achieve higher mechanical strength and thermal stability with improved process efficiency when processing the films. Such solutions, which are found in Design for Recycling (DfR),

require co-operation along the entire process chain.

As part of his presentation, Hendrik Steen (Windmöller & Hölscher) presented innovative concepts for retrofitting MDO units for more efficient barrier film production. 5-layer PE blown film lines are particularly suitable for such a retrofit. For less complex applications, the MDO process can also be applied to three-layer laminates. To produce high-quality EVOH/PA barrier films, however, the use of 7- or 9-layer systems is recommended. An essential prerequisite for the successful integration of an MDO unit is that both the design of the existing extruder and the die head as well as the spatial conditions in the plant tower enable efficient production. With the implementation of OPTIFIL P-MDO automation, the edge trim of the films can be reduced by up to 50 % - a major step towards significant material savings. Overall, the MDO retrofit also helps to increase production efficiency. The production of MDO PE films is a sustainable alternative to conventional PET/PE laminates and opens up new market opportunities and additional sales potential in this field.

The presentation by Dr Benedikt Hauer from the Fraunhofer Institute for Physical Measurement Techniques IPM dealt with the metrological requirements for the inline quality control of ultra-thin inorganic barrier layers (< 50 nm) on polymer substrates. These ultra-thin oxide layers are used to prevent oxygen diffusion through the packaging. The measuring principle for the necessary quality control is based on infrared reflection spectroscopy, in particular the analysis of characteristic Si-O and Al-O vibration bands. This was demonstrated using a practical example of inspection during production in an industrial batch coating system. In roll-to-roll systems, thin-film interference, strip flutter and vacuum conditions represent significant challenges for measurement. This is solved by compact, calibrated infrared sensors with short measurement times, high parallelisation capability and spectral filter technology for determining coating thickness in real time.

Norbert Runn from Polytype Converting presented sustainable production targets with innovative technologies. The PGS® pressurised doctor blade coating system, developed jointly with BASF, enables maximum precision in coating and significantly reduces material losses as well as return and investment costs. Together with Mitsui Chemical, multi-layer suitable barrier coating media were developed, which are particularly suitable for paper-based coatings, in addition to existing solutions for film-based packaging materials. With multi-layer curtain coating, several coating layers are applied in one position. Calendering technology is an energy-efficient and resource-saving process and can be used in a variety of ways, for example for the solvent-free lamination of packaging films and for cooling melted PET film.

Marco Schmidt from Bobst Meerbusch presented the oneBARRIER concept as a sustainable solution for flexible paper-based packaging with a high barrier effect. The combination of primer and barrier layers such as AlOX or AluBond (metallisation), supplemented by a heat-seal coating, creates an effective oxygen and water vapour barrier that can replace metallised polyester and even aluminium foil structures. It remains effective even after the packaging material has been folded, as the folding test proves. The barrier material is recyclable in accordance with CEPI, Aticelca and PTS standards and achieves up to 95 % recyclability. Examples of applications include packaging for food and household products that are both recyclable and functional.

In a joint presentation, Thomas Lunz (Mondi Functional Paper & Films) and Marissa Schwinn (Traceless Materials) showed which possibilities recyclable barrier papers already offer today and what can be expected in the future. Mondi has all the technologies, including extrusion and dispersion coatings as well as metallisation. The barrier papers fulfil both functional and high mechanical requirements and, depending on the regional system, can be recycled in the paper or light packaging stream. For example, unbreakable barrier alternatives to aluminium laminates can be realised, traceless materials develops home-compostable, innovative biomaterials with a negative carbon footprint made from plant-based residues from the agricultural industry. The biopolymers used are considered plastic-free. In collaboration with Mondi, a paper coating is being developed that offers water vapour and oxygen barriers as well as heat sealability - without impairing the paper recycling process.

In his presentation "Less is more - sustainability, life cycle assessment and consumer behaviour", Dr Phil Ro-

senow from the Fraunhofer Institute for Process Engineering and Packaging IVV emphasised that sustainability in packaging is not achieved by simply saving on materials. Underpackaging increases food losses, while overpackaging causes unnecessary environmental impacts. Food losses have a greater environmental impact than packaging. A function-driven life cycle analysis (LCA) takes into account the protective function, shelf life and consumer behaviour. Using the example of minced beef, he showed that optimised barrier design extends shelf life and reduces climate impact. Sustainable packaging balances material use and protective effect, which is currently being investigated at the institute in further case studies for crisps, yoghurt and fruit.

In his presentation "Using bacterial cultures as a natural oxygen absorber for sausage products packaged in mono-PET", Andreas Dietrich, Weber Food Technology, pointed out that the oxygen in sausage packaging comes from the packaging process, the product and the inadequate barrier effect of mono-PET. The consequences are photo-oxidation, loss of colour under the influence of cold white LED light, loss of freshness and faster spoilage. Cultures such as Bactoferm® Rubis act as natural oxygen absorbers. They bind O_2 metabolically, stabilise colour, extend shelf life and enable "clean label" packaging without synthetic additives a sustainable solution for modern, recycling-friendly packaging materials with a reduced barrier.

Dr Ferdinand Somorowsky (Fraunhofer ISC) presented a fibre-based stand-up pouch with a barrier function based on bioORMOCER® hybrid polymers developed in the EU project InnPressMe. These are materials that combine ceramic barrier properties with polymer flexibility. Paper, PLA-X dispersions and bioORMOCER® were processed using conventional methods. The bags consist of over 85 % bio-based materials, are recyclable, biodegradable and achieve barrier values of OTR 2-4 cm³/(m² d bar) and WVTR up to 6 g/(m² d). Compared to conventional plastic bags, they offer significant ecological advantages with comparable functionality and suitability for food packaging.

In his presentation, Dr Philipp Okle from Amcor Flexibles Kreuzlingen AG showed the advantages of SiOx barriers for PP/PE-based, high-barrier and sterilisable packaging. They are a sustainable alternative to AlOx and aluminium. SiOx offers better transparency, mechanical stability and recyclability. Compared to AlOx, SiOx barriers have a lower defect density of typical barrier defects and higher processing robustness. Applications range from baby food to pet food. Life cycle analyses (LCA) and recycling studies confirm that packaging with a SiOx barrier reduces the carbon footprint by up to 60 % compared to conventional PET/aluminium/PP solutions and therefore fulfils key requirements of the Packaging & Packaging Waste Regulation (PPWR).

In her presentation, Dr Ulrike Helmstedt from the Leibnitz Institute for Surface Modification explained how UV radiation opens up new ways of producing transparent, flexible barrier coatings. VUV conversion (vacuum ultraviolet radiation) can be used to produce ceramic oxide layers (e. g. SiOx, AlOx) at ambient temperature and normal pressure - without a vacuum process. In this way, sensitive substrates (e. g. PET) can be coated cost-effectively. This opens up prospects for sustainable, thermoformable and conductive barrier systems. Nanocomposite barriers produced with UV-initiated polymerisation use special fillers to extend the diffusion paths for gases (tortuosity principle). UV-curable resins also enable thicker, VOC-free protective coatings without hot air drying.

In his presentation, Christoph Zerwas from Ametek, Business Unit Mocon, showed new approaches to barrier measurement for flexible packaging. They are becoming increasingly important, particularly in view of the growing variety of materials and increasing requirements for accuracy and reproducibility. The classic preparation of a permeation measurement with cutting and subsequent gluing with epoxy resin is time-consuming, error-prone and also critical to health. The new clamping solution using an adapter replaces gluing, saves up to 90 % preparation time, halves the measurement scatter and increases measurement reliability. This makes measurement significantly more efficient and sustainable - while reducing waste and operating errors at the same time.

In his presentation "Leak testing as a supplement to permeation measurements", Alexander Tovar from Inficon GmbH pointed out that permeation can only be measured correctly if the packaging is completely sea-

led. However, the tightness of packaging is not an absolute condition, but is defined by verifiable leakage rates or O₂ concentrations. The selection of suitable test methods is based on these specifications. There are numerous measurement methods - from sensory tests to high-precision differential pressure and gas measurement methods. The pressure rise test in a flexible film chamber is particularly impressive due to its non-destructive, fast and reproducible results. For 100 % control in production, partially automated in-line systems are used to ensure high quality and process reliability.

Dr Kristina Eißenberger from the Albstadt-Sigmaringen University of Applied Sciences presented recyclable metallised multilayer films with an innovative protein barrier layer. Metallisation of the protein-based layer significantly improves the oxygen barrier, which increases product protection. At the same time, separable material structures enable single-origin recycling of the individual layers. The process allows enzymatic degradation of the protein coating, resulting in high-quality recyclates. These can be reused in closed material cycles. The aim is to create sustainable, bio-based packaging with a high level of functionality in the future, which enables a real circular economy through customised end-of-life solutions.

Karsten Schröder concluded the conference with a concise summary of all the presentations. It is time to think about packaging independently of the material. Depending on the application for which a packaging material is better suited, this may be paper, but for another application it may be (laminated) film or possibly even biomaterial. It is important to use the most suitable material in each case and not to think ideologically in one direction. This is what the PPWR demands and the big slogan is "Minimise"! In its compactness, the conference showed that minimal packaging is not a trend, but the future. Innovation, dialogue and collaboration are driving sustainable solutions and shaping the packaging world of tomorrow.

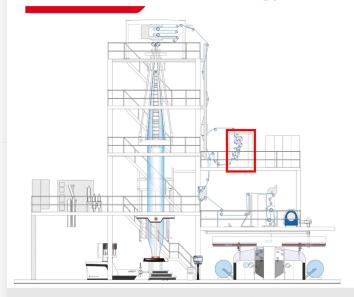
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Design for Recycling is imperative for circularity of flexible packaging



🔼 EXAMPLES OF OPTIMISED PACKAGING DESIGN BY DFR. (SOURCE: BOREALIS POLYOLEFINE GMBH)

Requirements for retrofitting existing blown film lines with MDO technology



"Hot part" (extruder / die):

- ✓ Ideally 5 layer PE line
- ✓ Three layer doable for more "simple" products

For Barrier (EVOH / PA):

- √ 7 and / or 9 layer (with thin barrier layers)
- ✓ Space requirements (inline process): MDO integrated in existing tower, preferable at upper level in tower
 - ✓ Offline process possible



🔼 THE DESIGN OF THE EXISTING EXTRUDERS MUST BE SUITABLE FOR RETROFITTING. (SOURCE: WINDMÖLLER & HÖLSCHER SE & CO. KG)

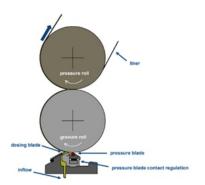
UNMATCHED BENEFITS OF PGS®

Together with BASF we have developed the NEXT GENERATION of Pressurized Gravure Coating Systems: PGS®.



"Compared with all other pressurized gravure coating systems worldwide, the PGS® new generation has taken over the leadership."







Coating uniformity close to Curtain Coating



Almost no return-flow – you coat what you pump



Almost no foaming from recirculation or system related flows



No additional flow tanks/vessels, no extra pumps, piping etc.



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THE PGS PRESSURISED DOCTOR BLADE COATING SYSTEM HAS EXTREMELY LOW COATING TOLERANCES. (SOURCE: BASF SE)

High-barrier paper – Performance Barrier properties AlOx & AluBond

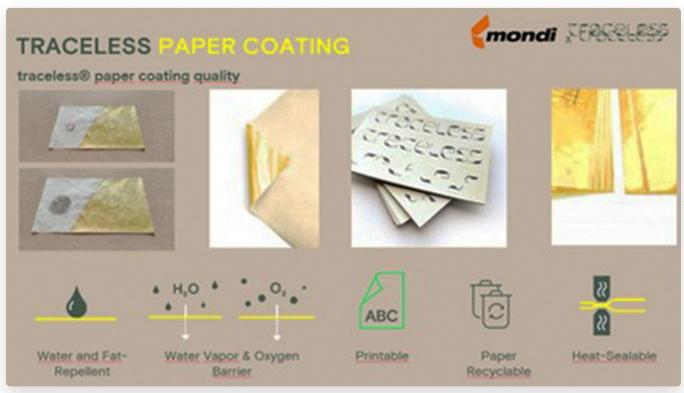
Structure	OTR cm³/(m² d)	WVTR g/(m² d)
Paper	> 400 000	600 – 750
Paper/primer	≤ 0.1	130 – 180
Paper/primer/AluBond	≤ 0.1	< 0.5
Paper/primer/AluBond/Heat seal	≤ 0.1	< 0.5
Paper/primer/AlOx	≤ 0.1	1 - 4
Paper/primer/AlOx/Heat seal	≤ 0.1	1 - 4

Barrier:

OTR 23 °C, 50 % RH WVTR 37.8 °C, **75 % RH**



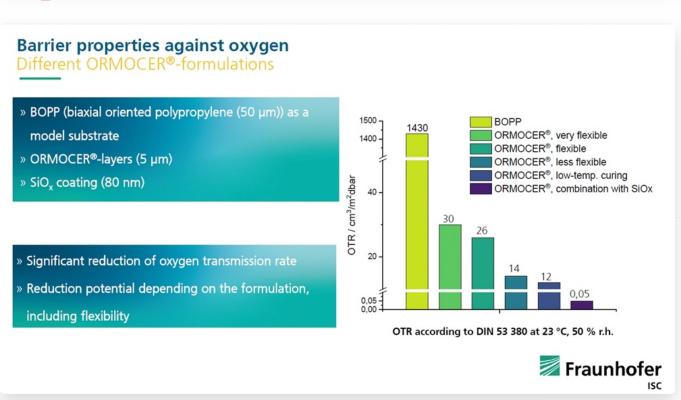
XYGEN AND WATER VAPOUR BARRIER OF DIFFERENT BARRIER LAYERS. (SOURCE: BOBST MEERBUSCH GMBH)



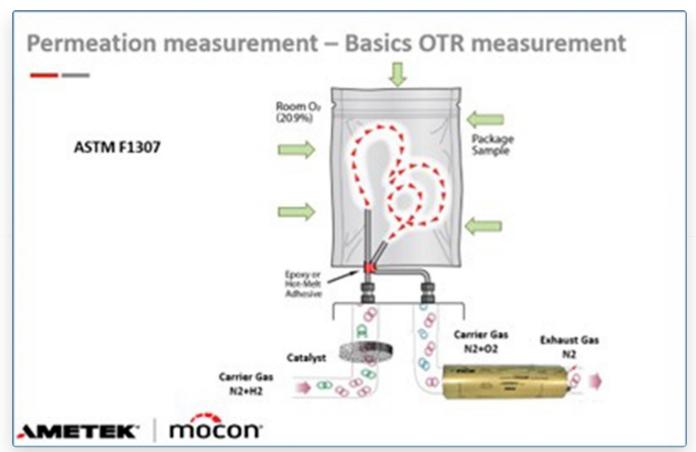
PROPERTIES OF PAPER COATED WITH TRACELESS. (SOURCE: TRACELESS MATERIALS GMBH)



🔼 COLOUR STABILITY AND FRESHNESS RETENTION WITH BACTOFERM® RUBIS. (SOURCE: WEBER FOOD TECHNOLOGY SE & CO. KG)



☑ BARRIER PROPERTIES OF VARIOUS ORMOCER® FORMULATIONS. (SOURCE: FRAUNHOFER INSTITUTE FOR SILICATE RESEARCH ISC)



☑ SCHEMATIC STRUCTURE OF A PERMEATION MEASUREMENT OF FLEXIBLE PACKAGING. (SOURCE: AMETEK GMBH, BUSINESS UNIT MOCON)

AUTHOR: DIETER FINNA (DFI)

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