

Bio-based products showcase

MADE IN EUROPE
WITH EUROPE'S
NATURAL RESOURCES...
AND TECHNOLOGY!

Cepi
**BIO
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LAB**



28/09 - 1/10/2026,
House of the Austrian Economy, Brussels

20-21/10/2026:
Global Bioeconomy Summit, Dublin



GLOBAL
BIOECONOMY
SUMMIT 2026



AUTOMOTIVE
& MOBILITY



CIRCULAR
ECONOMY



COLORANTS
AND PRINTING INKS



E-COMMERCE
SOLUTIONS



FIBRE-BASED
CLOTHING



FOOD & BEVERAGE
PACKAGING



FURNITURE
& CONSTRUCTION



HEALTH & PHARMACEUTICAL
APPLICATIONS



HYGIENE
& COSMETICS



NOVEL
PACKAGING SOLUTIONS



**AUTOMOTIVE,
AVIATION & MOBILITY**



CONCEPT TIRE BY NOKIAN TYRES WITH LIGNIN-BASED RENEWABLE FUNCTIONAL FILLERS BY UPM



UPM | Finland



Caroline Schmid | caroline.schmid@upm.com

This concept tire from Nokian Tyres uses UPM BioMotion Renewable Functional Fillers (RFF) in its sidewalls, a lignin-based, fully renewable substitute for the carbon black and precipitated silica that make up around 30 per cent of a standard tire's functional fillers. Those fillers are typically CO₂-intensive to produce. RFF replaces them with a lighter-weight, wood-based alternative instead, without requiring a new tire design or production process. Nokian Tyres' initial test series found that swapping in RFF holds real potential for more sustainable tires, marking the first time UPM's renewable fillers have moved into this market segment.





**AUTOMOTIVE,
AVIATION & MOBILITY**



CELLULOSE-BASED LEATHER-LIKE MATERIALS



The Navigator Company | Portugal



Ana Nery | ana.nery@thenavigatorcompany.com

Fibres from *Eucalyptus globulus* were used to produce innovative materials that mimic leather and leather-derived products. Developed through a collaboration between The Navigator Company and AlmaScience CoLab, these materials have the potential to provide an alternative to natural and synthetic leather in the automotive industry, luxury goods, fashion and other applications.

Although the technology is still at the pilot and prototype stage, it has significant potential to be scaled up. Two patents related to the technology have been filed.





**CIRCULAR
BIOECONOMY**



EXTENDING THE VALUE OF BEVERAGE CARTONS: RECYCLED POLYAL FOR DURABLE APPLICATIONS



Lucart | Italy



Giulia Fabbri | giulia.fabbri@lucartgroup.com

Beverage cartons are made of paper fibres, polyethylene and aluminium. After use, all these materials can be recovered and transformed into new resources through Lucart's EcoNatural project.

Lucart is the first tissue manufacturer in Europe to transform post-consumer beverage cartons into two distinct market-ready outputs within its own production process: recycled cellulose fibres for tissue products and GranPlast, a recycled material made from polyethylene and aluminium that can be used to manufacture durable plastic products.

This approach maximises the value of fibre-based packaging by transforming a multi-layer material traditionally considered difficult to recycle into valuable secondary raw materials. It demonstrates how every component of a beverage carton can contribute to new applications beyond traditional paper products.

The shopping trolley basket showcased in this project contains GranPlast recycled material derived from post-consumer beverage cartons. Designed for frequent use and long service life, it provides a tangible demonstration of the durability, versatility and industrial scalability of this innovative material.

By transforming recovered beverage cartons into both tissue products and durable everyday applications, Lucart demonstrates how advanced recycling can create new value from existing resources and support a more resource-efficient circular economy.





**CIRCULAR
BIOECONOMY**



LIGNIN BIO-BASED CARBON FIBRES



Gascogne Paper | France



Alexandre Pinsolle | apinsolle@gascogneflexible.com

Lignin is one of the most abundant renewable aromatic polymers on Earth, yet most lignin generated by the pulp and paper industry is still underutilized.

The BASILICA project brought together paper producers, research centers and industrial partners in Nouvelle-Aquitaine, France, to unlock the potential of kraft and soda lignin as a sustainable raw material for high-value applications.

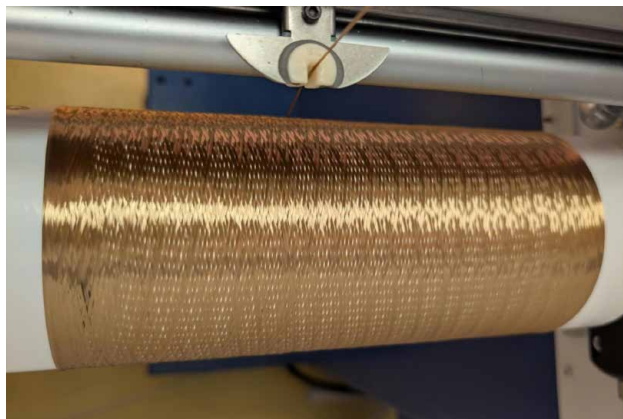
Over six years of collaborative R&D, a mobile pilot unit was developed and successfully operated at two pulp and paper mills, enabling the production of high-purity lignin directly on industrial sites. Lignin were produced and characterized, demonstrating the feasibility of an industrial lignin value chain.

A major achievement of the project was the successful conversion of pulp mill lignin into fibres precursors and the production of the bio-based carbon fibres. The results confirmed lignin's potential to partially replace fossil-based polyacrylonitrile (PAN), opening new opportunities for lower-carbon and lower-cost carbon fibres applications in mobility, construction, wind energy and advanced composites.

Beyond carbon fibres, BASILICA also demonstrated the potential of lignin as a renewable substitute for fossil-derived phenol in resin formulations and explored additional pathways for bio-based chemicals and advanced materials.

By transforming a pulp mill co-product into high-performance renewable materials, BASILICA contributes to circularity, decarbonisation and the development of a new European bioeconomy value chain based on forest resources.

Samples generated through the BASILICA project are available for R&D trials and proof-of-concept studies upon request.

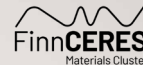


Consortium of Basilica





**CIRCULAR
BIOECONOMY**



LIGNOSPHERE: BIO-BASED ADHESIVES AND COATINGS FROM COLLOIDAL LIGNIN PARTICLES



LignoSphere Company Oy, FinnCERES (Aalto University) | Finland



Nina Pulkkis | nina.pulkkis@photino.fi

Lignin, a sidestream from pulp production, is turned into bio-based adhesives and coatings as a replacement to petrochemical raw materials.

Pulping produces over 50 million tonnes of lignin a year, most of it burned for energy. LignoSphere, a spin-off from Professor Monika Österberg's group at Aalto University and FinnCERES, converts kraft lignin into colloidal particles: uniform, water-dispersible spheres supplied as a powder that replaces synthetic phenolic compounds and other fossil-derived raw materials in coatings and adhesives. Because the particles disperse into existing formulations, manufacturers can substitute fossil carbon without redesigning their process, at cost parity, with no green premium. The patented technology has been tested with industrial partners in metal, concrete and wood coatings as well as wood adhesives on engineered wood.





**CIRCULAR
BIOECONOMY**


creapaper
THE GRASSPAPER COMPANY

OTTO GRASS FIBRE SHIPPING BOX: RENEWABLE FIBRE INNOVATION FOR CIRCULAR E-COMMERCE PACKAGING



Creapaper GmbH | Germany



Alexander Graf | alexander.graf@creapaper.de

The OTTO Paludiculture Shipping Box demonstrates how biomass from rewetted peatlands can be transformed into a valuable raw material for fibre-based packaging. The project combines peatland restoration, climate protection and sustainable packaging innovation within a single circular bioeconomy value chain.

Fibres derived from biomass cultivated on rewetted peatlands are integrated into paper-based packaging solutions, creating a new use for renewable biomass while supporting the restoration of peatland ecosystems. The resulting corrugated packaging is fully recyclable within existing paper recycling systems and can be produced using established industrial infrastructure.

Developed for large-scale e-commerce applications, the project shows how alternative fibre sources can diversify raw material supply, create additional value from paludiculture and provide renewable solutions for everyday packaging needs. The OTTO Shipping Box serves as a practical example of how climate action and industrial innovation can work together to support Europe's circular bioeconomy.





**CIRCULAR
BIOECONOMY**



PAPAIRWRAP - THE BUBBLEWRAP OF PAPER



Papair GmbH | Germany



Anke Thies | a.thies@Papair.de

PapairWrap is a paper-based bubble wrap that completely replaces plastic-based protective packaging. The material consists of a single material without plastics or adhesives and can be fully recycled in the paper recycling stream.

It is manufactured in Germany using a patented production process and is available in widths of 350 and 800 millimeters, in single- or double-layer versions. Functional surface coatings can be added as an optional feature. This provides scratch protection for sensitive surfaces and makes the packaging material water-repellent and moisture-resistant. Even the coated PapairWrap remains fully recyclable.

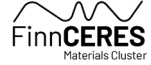
This marks the first time a paper-based solution is available that replaces plastic-based bubble wrap in terms of protective performance and application, while being fully recyclable within the existing paper recycling system.

Papair is also leading the EU flagship project BIOWRAP (2026 to 2031). The goal is to scale up the material for industrial production, including through the use of alternative paper fibres and the integration of the functional coating directly into the manufacturing process.





**COLORANTS
AND PRINTING INKS**



PEFF: PLANT-BASED FINISHES FOR BETTER CELLULOSIC TEXTILES



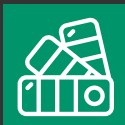
FinnCERES, (Aalto University, VTT) | Finland



Nina Pulkkis | nina.pulkkis@photino.fi

Plant-based colours and finishes improve the performance of cellulosic textiles while reducing the environmental impact of dyeing and finishing. As the textile industry moves away from fossil-based synthetics, man-made cellulosic fibres are expected to grow rapidly – but cellulose alone cannot match polyester in outdoor and active wear. PEFF develops plant-based colours and finishes that give cellulosic fabrics moisture management, UV protection, antibacterial and odour-control properties, using extracts from agricultural and food side streams such as onion and berry skins, coffee, tea and tree bark. The project also develops screen-printing methods to cut the water, energy and dye lost in conventional wet processing, which accounts for a fifth of industrial freshwater pollution. A FinnCERES project run by Aalto University and VTT.





COLORANTS
AND PRINTING INKS

SHIMBER



SHIMBER: SHIMMERING BIO-BASED COATINGS FROM WOOD



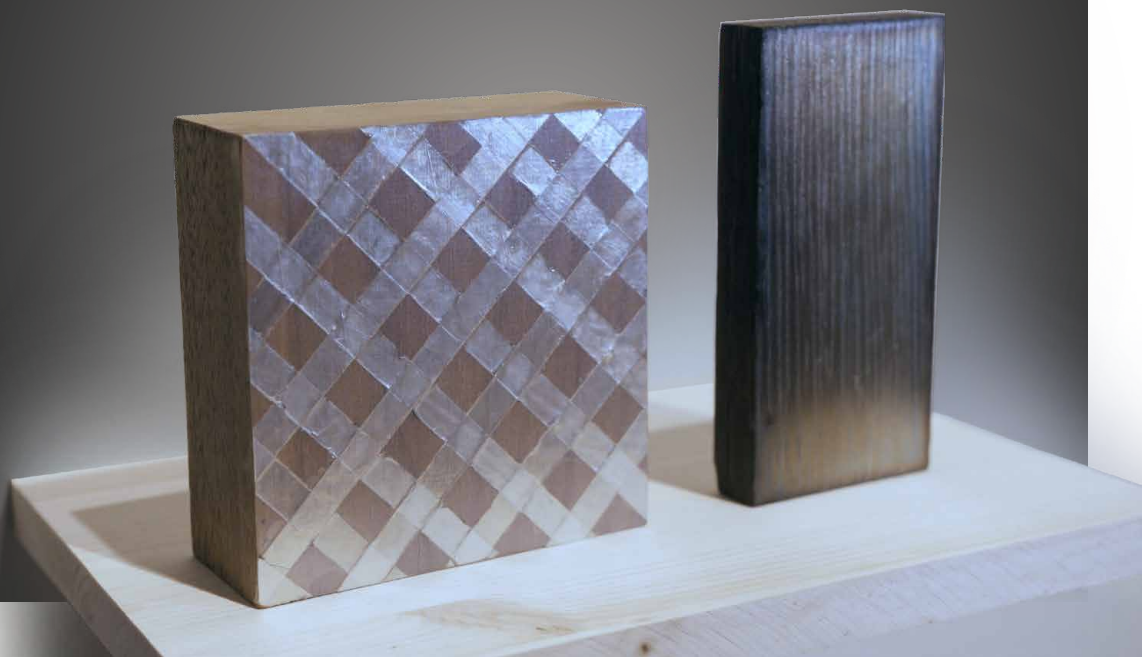
Shimber Oy, FinnCERES (Aalto University) | Finland



Nina Pulkkis | nina.pulkkis@photino.fi

Shimmering coatings made from wood-based materials create bio-based, microplastic-free surfaces for design, fashion, and architecture.

The shimmer in cosmetics, packaging and fashion normally comes from mined mica or plastic glitter — the latter now restricted under EU rules on intentionally added microplastics. The Aalto University spin-off Shimber produces the same effect with no pigment at all. A thin coating of cellulose nanoparticles extracted from wood pulp self-assembles into a helical nanostructure that creates iridescent colour the way butterfly wings and peacock feathers do, shifting with the viewing angle. The coating is bio-based, biodegradable, microplastic-free and material-agnostic, applied to wood, metal, plastics and textiles. Born from the Shimmering Wood project at Aalto University within FinnCERES.





COLORANTS AND PRINTING INKS



TREE2INK: RENEWABLE BLACK INK FROM WOOD



FinnCERES, (Aalto University, VTT) | Finland



Nina Pulkkis | nina.pulkkis@photino.fi

A fully renewable black ink made from wood-based carbon and cellulose, offering a bio-based alternative for printing and dyeing.

Black pigment is everywhere — in inks, coatings, plastics and textiles — and almost all of it is fossil-derived carbon black. Tree2Ink replaces it with wood. Lignin, an abundant side stream of pulp production, is converted into carbon by a chemical route running below 200 °C, instead of the 800-1000 °C required for conventional pyrolysis, and is then combined with cellulose nanofibres as a transparent binder in a single ball-milling step. The result is a fully renewable black pigment and ink for printing, dyeing and material colouring, with surface chemistry that makes it compatible with many matrices. Developed at Aalto University and VTT within FinnCERES.





**E-COMMERCE
SOLUTIONS**



BIOFIBERFORCE THE 100% RECYCLABLE REINFORCED GUMMED TAP



Gascogne Flexible | France



Alexandre Pinsolle | apinsolle@gascogneflexible.com

Biofiberforce is a reinforced gummed tape using natural fibre strength instead of polyester/fiberglass mesh, making fully recyclable in standard paper waste - a high performance, ecofriendly carton sealing solution.





**E-COMMERCE
SOLUTIONS**



GASCOSEAL: THE ECO-FRIENDLY HEAT-SEAL SOLUTION BASED ON MARITIME PINE KRAFT



Gascogne Papier | France



Alexandre Pinsolle | apinsolle@gascogneflexible.com

As packaging chains seek to improve circularity, eliminating recycling disruptors has become a primary focus of the industry. Traditional polyethylene (PE)-coated papers have long presented a significant challenge in the repulping process, since the plastic layer is difficult to separate from the paper fibres. Gascogne Papier addresses this issue head on with Gascoseal: a coated, heat-sealable paper developed

specifically to replace PE-laminated structures with a fully recyclable alternative. Produced from a high-strength unbleached kraft base made from renewable maritime pine, the final coated Gascoseal paper delivers excellent mechanical properties, optimal sealing performance, and good recyclability in standard paper recycling circuits.

Gascoseal is available in a range of basis weights from 55 g/m² to 95 g/m². This adaptable range makes it suitable for a wide variety of food and industrial applications, including dry food packaging, e-commerce, hardware packaging and plastic components such as toys and assembly parts





**E-COMMERCE
SOLUTIONS**



UPM OPTICUT: PRINT AND APPLY PERFORMANCE MADE EASY FOR E-COMMERCE & LOGISTICS



UPM Adhesive Materials | Finland



Anna Sube | anna.sube@upm.com

UPM OptiCut delivers print and apply performance made easy through adhesive technologies purpose-built for linerless labels in high-volume logistics and e-commerce operations. High-volume fulfillment centers rely on labeling systems that must operate continuously, accurately, and with minimal downtime, and UPM OptiCut's adhesives are engineered specifically for print and apply in packaging and logistics environments, supporting efficient printing, cutting, and application. By minimizing adhesive build-up and maintaining consistent dispensing performance on common logistics substrates such as corrugated cardboard, UPM OptiCut helps reduce maintenance requirements, improve printer uptime, and support efficient labelling in automated supply chains. Beyond the adhesive engineering itself, UPM OptiCut's face material is a phenol-free thermal paper made from FSC™-certified (FSC C012530) pulp, meaning the label is fibre-based, with no release liner at all, eliminating a source of material waste at the point of use entirely. The product is CarbonNeutral certified across its entire life cycle, from cradle to grave, with unavoidable emissions compensated through verified carbon credits under the CarbonNeutral Protocol. Together, these qualities show how a high-volume, everyday material, the shipping label, can meet the demanding, high-speed reliability requirements of modern e-commerce logistics while remaining wood-fibre based and carbon neutral with UPM OptiCut.





FIBRE-BASED CLOTHING



PARTIALLY WOOD-BASED FLEECE JACKET BY VAUDE AND UPM



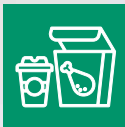
UPM | Finland



Caroline Schmid | caroline.schmid@upm.com

This fleece jacket replaces one conventional crude oil-based component of its polyester with UPM BioPura BioMEG, a bio-based monoethylene glycol made from wood. In standard polyester resin for fleece, monoethylene glycol makes up 30 percent of the material and normally comes from crude oil. UPM BioPura BioMEG replaces that share entirely with a wood-based alternative that is molecularly identical to its fossil counterpart, so it's a drop-in solution for existing polyester production lines without the need for any process changes and recycles the same way as conventional polyester. About 60 percent of materials used in the fashion industry rely on fossil-based polymers, and high-performance outerwear depends on synthetic fibres more than most segments. The jacket shows that a wood-based input can replace fossil feedstock in that demanding application while keeping full compatibility with the industry's production and recycling systems already in place.





FOOD & BEVERAGE PACKAGING



BOARD & PAPER

AZURA TOMATO PACKAGING



MM Group | Austria



Elisabeth Stocker | Elisabeth.Stocker@mm.group

Azura Tomato Box is an innovative, fully fibre-based packaging solution for fruit and vegetables weighing up to 1.5 kg. Developed as a top-load cartonboard pack with a cellulose window, it provides excellent product visibility while eliminating the need for plastic components.

The project was driven by the requirements of the French AGEC legislation, which restricts the use of plastic packaging for many fruit and vegetable applications. By replacing conventional plastic trays with a completely plastic-free cartonboard solution, the Azura Tomato Box offers a compliant and future-oriented alternative for fresh produce packaging.

The integrated cellulose window allows consumers to see the product while maintaining the benefits of a mono-material fibre-based packaging concept. At the same time, the large printable surface creates strong branding and communication opportunities, helping products stand out at the point of sale.

The packaging combines functionality, product protection and visual appeal. Its top-load design ensures efficient packing and handling throughout the supply chain, while the lightweight cartonboard structure reduces material use compared with traditional plastic-based solutions.

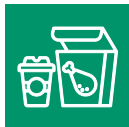
By substituting plastic trays with a 100% plastic-free alternative, the Azura Tomato Box demonstrates how renewable, fibre-based materials can meet both regulatory requirements and consumer expectations without compromising performance or product presentation.

Awarded by the World Packaging Organisation (WPO)

Production Site: MM Packaging (Plant: MM Packaging France)

Cartonboard Quality: ALASKA® STRONG from MM Board & Paper
(Mill: MM Kotkamills)





**FOOD & BEVERAGE
PACKAGING**



CONFECTIONERY MARKET – BARRIER PAPERS ALLOWS MORE SUSTAINABILITY IN TWISTING APPLICATIONS



Sappi and ACMA | Italy, Germany



Jessica Ching | jessica.ching@sappi.com

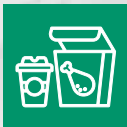
Sappi and ACMA showcase a joint solution for one of the most challenging applications in confectionery packaging: double twist wrapping. Their collaboration demonstrates how close cooperation between a paper manufacturer and a machine builder can enable the transition from conventional packaging materials to recyclable paper without compromising production efficiency, product protection, visual appeal or machine performance.

Having aligned material properties and machine requirements from the earliest developmental stages, Sappi's Guard Twist barrier paper has been optimised to run reliably on ACMA's wrapping technologies; and ACMA offers new paper-ready machines and upgraded solutions for existing production lines. Technologies such as the servo-driven material gate enable converters to process paper-based materials on current equipment, allowing companies to adopt sustainable packaging at their own pace.

Developed specifically for demanding twist wrapping applications, Sappi Guard Twist paper combines reliable runnability, excellent printability and high visual quality. A specialised coating provides increased gloss while preventing cracking during twisting, eliminating the need for wax coatings or the usage of plastic films. The paper is also fully recyclable through standard paper recycling streams.

Joint development and extensive testing have accelerated validation under realistic production conditions, reducing implementation risks for customers. As regulatory requirements and market demand continue to drive the shift towards recyclable packaging, Sappi and ACMA aim to provide a practical, industrially proven solution. Both companies will continue refining materials and machine technologies, demonstrating how integrated development can deliver sustainable packaging solutions that meet the highest performance standards.





**FOOD & BEVERAGE
PACKAGING**



FLEXIBLE FOOD PACKAGING CO-CREATED BY UPM AND FELIX SCHOELLER



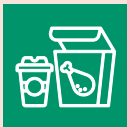
UPM Specialty Materials Oy | Finland, Germany



Janita Partanen | janita.partanen@upm.com

UPM Specialty Materials and Felix Schoeller have co-developed a customizable fibre-based flexible food packaging solution for applications such as chocolate and snack bars. Built on UPM Solide™ Lucent packaging paper and Felix Schoeller's barrier technology, the solution combines tailored barrier performance (e.g., oxygen, moisture and grease protection) with excellent printability and converting performance on high-speed production lines. Designed to support the industry's shift away from fossil-based packaging, the recyclable, food-safe concept helps brand owners meet evolving EU recyclability requirements while maintaining product protection and packaging functionality.





**FOOD & BEVERAGE
PACKAGING**



GASCOGREEN® FLUOR FREE: THE NEW PFAS-FREE AND RECYCLABLE PET FOOD BAGS RANGE



Gascogne sacs | France



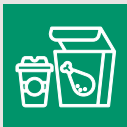
Alexandre Pinsolle | apinsolle@gascogneflexible.com

Gascogreen® Fluor Free is an innovative, high-performance paper bag range designed to meet evolving European packaging regulations and rising environmental demands in the Pet Food market. Developed for both small, medium and large capacities—from SOS flat-bottom to Pinch-bottom formats—it combines high mechanical load capacity with advanced functional barrier options (against grease, water vapor, oxygen, and MOSH/MOAH) while avoiding fluorinated chemistries.

Made with over 90% fibre content coming from PEFC/FSC-certified papers, those ready-to-use technical packaging solutions are perfectly suitable for European standard recycling mills.

Gascogreen® Fluor Free provides the right balance between product and environmental performance





**FOOD & BEVERAGE
PACKAGING**



GASCOGREEN® FUNCTIONAL BARRIER, RECYCLABLE PAPERS FOR FOOD PACKAGING



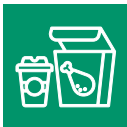
Gascogne Flexible | France



Alexandre Pinsolle | apinsolle@gascogneflexible.com

Gascogreen is an innovative range of heat seal paper-based materials, specially designed for food applications. Recyclable in the paper stream and chlorine-free, it offers a sustainable alternative to traditional plastic or foil laminates, while maintaining excellent barrier performance against moisture, oxygen and mineral oil.





FOOD & BEVERAGE PACKAGING

HEINDL ADVENT CALENDAR



MM Group | Austria



Elisabeth Stocker | Elisabeth.Stocker@mm.group

The Carton Cavity System (CCS), developed by MM Packaging, is an innovative fibre-based alternative to conventional plastic trays. Designed as a scalable packaging platform, CCS consists entirely of cartonboard and provides a mono-material, fully recyclable solution for a wide range of FMCG applications.

In the Heindl Advent Calendar, CCS replaces the traditional plastic insert with a cartonboard cavity structure that securely holds 24 chocolates while maintaining an attractive premium presentation. By replacing plastic with renewable, fibre-based material, the solution supports the transition towards a more circular packaging economy and simplifies recycling for consumers.

The system combines sustainability with operational efficiency. All inserts are delivered flat and nested, reducing transport emissions, storage requirements, and handling complexity throughout the supply chain. CCS is fully compatible with existing manufacturing processes and can be adapted to different cavity numbers, shapes, and depths, offering exceptional flexibility for brands and converters.



BOARD & PAPER

Beyond functionality, CCS enables high-quality printing and finishing, making it ideal for seasonal packaging, promotional campaigns, and premium consumer products. In the Heindl application, the solution delivers strong shelf appeal, reliable product protection, and a carbon footprint reduction of 144 kg CO₂ per 1,000 units compared with the previous plastic-based solution.

By combining renewable fibre-based materials, recyclability, logistical efficiency, and premium design, CCS demonstrates how innovative cartonboard solutions can replace plastic while creating value across the entire packaging lifecycle. It is a scalable example of how the bioeconomy can drive both circularity and commercial performance.

Production Site: MM Packaging (Plant: MM Premium Vienna)

Cartonboard Quality: ALASKA® STRONG from MM Board & Paper
(Mill: MM Kotkamills)



FOOD & BEVERAGE PACKAGING

HOLMEN

HOLMEN ELEVATE



Holmen AB | Sweden

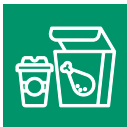


Henric Dernegård | henric.dernegard@holmen.com

Produce containerboard with low grammage from TMP-pulp. Holmen Elevate is a lightweight containerboard designed to combine low grammage with the strength properties required for its targeted packaging applications. Its reduced material weight enables higher packaging production per tonne of board, while also contributing to lower transportation costs and associated emissions. Lighter packaging can additionally improve the working environment for people involved in its handling.

Produced from 100% virgin fibre, Holmen Elevate is approved for direct food contact without the need for additional barriers, including for fatty foods. This provides an alternative for applications where recycled paper may not be suitable for direct food contact and helps meet relevant regional food-safety requirements.





**FOOD & BEVERAGE
PACKAGING**



METSÄ FRESHPACK - FOOD PACKAGING PAPER MADE OF FOSSIL-FREE RAW MATERIALS



Metsä Greaseproof Papers | Finland



Ninja Mielonen | ninja.mielonen@metsagroup.com

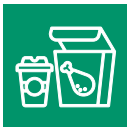
Metsä Greaseproof Papers has developed a food-packaging paper for quick-service restaurants and other food-service applications. Metsä FreshPack is designed to meet the growing demand for sustainable, safe and high-performance food-packaging solutions.

Metsä FreshPack combines medium grease and moisture resistance with reliable food safety, helping to preserve the flavour, texture and appearance of food. Its fit-for-purpose barrier properties make it suitable for packaging quick-service restaurant products. The paper can be used for wrapping, bags and pouches, and offers excellent convertibility, printability, brightness and opacity for effective brand communication.

The product is made entirely from fossil-free raw materials, including fresh fibre-based pulp, natural polymers and minerals. It is fully recyclable in the paper recycling stream and has passed a biodegradability screening test. Compostability certification is currently in progress.

Metsä FreshPack contains no acrylate-based plastic chemistry, PFAS or other petrochemical-based raw materials. Its 100% fossil-free content is certified by DIN CERTCO.





**FOOD & BEVERAGE
PACKAGING**



Metsä



Muoto™

MUOTO™ – INNOVATIVE MOULDED FIBRE PACKAGING SOLUTION MADE FROM RENEWABLE MATERIALS



Metsä Group | Finland



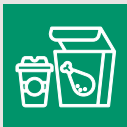
Julia Jouvençon | julia.jouvencon@metsagroup.com

Developed by Metsä, Muoto is a fibre-based packaging solution produced from Metsä's own wood fibres. The products can be shaped to meet a variety of customer needs.

Muoto products are made directly from wet wood pulp, without any intermediate steps. Muoto combines stiffness and functionality with a light weight, making it suitable for applications such as demanding serving and food packaging.

The investment will be made in Äänekoski for a value of approximately EUR 25 million, and the nominal capacity of the production line will be more than 100 million products per year.





**FOOD & BEVERAGE
PACKAGING**



OLEANE FF: THE 100% PFAS-FREE, RECYCLABLE GREASEPROOF RANGE BY GASCOGNE PAPIER



Gascogne Paper | France

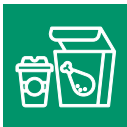


Alexandre Pinsolle | apinsolle@gascogneflexible.com

With the EU Packaging and Packaging Waste Regulation (PPWR) fast approaching, alongside the strict ban on fluorinated food contact materials taking effect on August 12, 2026, the industry demands immediate, reliable alternatives. Gascogne Papier answered this call with the launch of the Oléane FF range of greaseproof, machine-glazed (MG) unbleached papers. Manufactured in Southwestern France from locally sourced, renewable Landes pine, the fully recyclable Oléane FF range is engineered to meet distinct market needs across two performance levels, both of which are available in 38 g/m² and 60 g/m² basis weights.

To cover diverse market needs, the range is split into two distinct performance levels tailored to specific contact times and applications. Oléane 4 FF serves as the ideal entry-level barrier, 100% biobased, for short-term grease resistance, making it perfectly suited for fast-food wraps and quick-service food packaging. For more demanding environments, Oléane 5 FF offers premium long-term grease resistance. This higher-grade barrier is designed for prolonged contact and is highly effective for food trays, heavy-duty food packaging and specialised industrial applications such as paint protection masking.





FOOD & BEVERAGE PACKAGING



PACKOKCOMPOST - HOME COMPOSTABLE MOLDED FIBRE COFFEE CAPSULES



The Navigator Company, S.A. | Portugal



Ana Nery | ana.nery@thenavigatorcompany.com

The PackOkCompost project has developed a breakthrough coffee capsule technology that provides a truly sustainable alternative to traditional aluminum and plastic capsules, combining outstanding home compostability with brewing performance and shelf life equivalent to the best incumbent solutions across all major systems.

Our solution is built on a comprehensive intellectual property platform that captures the critical functional parameters of coffee capsule systems and includes dedicated implementations for the leading formats, including Nespresso®, Dolce Gusto®, and K-Cup®. This enables broad market applicability through a single, scalable technology platform.

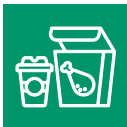
Unlike recently introduced compostable systems such as Dolce Gusto Neo®, CoffeeB®, K-Cup K-Round®, and Lavazza Tabli®, our capsules maintain full compatibility with existing filling lines and brewing machines, eliminating the capital investments, operational disruption, and consumer adaptation typically associated with the introduction of new beverage formats.



For multi-beverage platforms such as Dolce Gusto®, K-Cup®, and Caffitaly®, the technology is also suitable for soluble beverage applications, including hot chocolate, tea, cappuccino, latte, and other specialty drinks, while maintaining the same high standards of product performance and consumer experience.

Being fully home compostable, our molded fibre capsules provide a simple and consumer-friendly end-of-life solution. In contrast, aluminum and plastic capsules, even when technically recyclable, depend on complex and costly collection schemes as well as dedicated recycling infrastructure to achieve effective material recovery. These requirements create significant barriers to circularity and contribute to the low real-world recycling rates typically observed for conventional coffee capsules.

By combining home compostability, best-in-class brewing performance, compatibility with existing manufacturing and brewing infrastructure, and broad applicability across multiple capsule formats, PackOkCompost offers a highly scalable pathway to decarbonizing the global single-serve beverage market.



FOOD & BEVERAGE PACKAGING



BOARD & PAPER

PAYSAN BRETON LA BAGUETTE CHEESE



MM Group | Austria



Elisabeth Stocker | Elisabeth.Stocker@mm.group

By redesigning the packaging for its “La Baguette” cheese, the Laïta Cooperative, in partnership with MM Packaging, demonstrates how eco-design can deliver environmental, regulatory, and commercial benefits.

The project was driven by a clear objective: to simplify the packaging and reduce its environmental impact. A former wood-and-cardboard multi-material solution was replaced with a lightweight mono-material cardboard pack, creating a packaging concept that is fully aligned with circular economy principles.

By using a renewable fibre-based material and a well-established paper and board recycling stream, the new pack can be efficiently collected, sorted, and recycled across Europe. The packaging is 100% recyclable and designed to comply with current and future PPWR requirements, making recycling easier for consumers while significantly lowering the product’s environmental footprint.

A 50% reduction in packaging weight highlights the project’s ambitious source-reduction approach. In addition to reducing material use, the lighter and more compact design delivers efficiencies throughout the value chain, including storage, handling, and transportation.

Despite its simplified structure, the new packaging continues to provide excellent product protection and strong shelf appeal. The project demonstrates how fibre-based packaging solutions can replace more complex packaging formats while combining circularity, functionality, and consumer appeal.

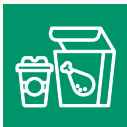
Fully aligned with Laïta’s CSR ambitions, the new pack is a practical example of how bio-based, recyclable packaging can support the transition towards a more circular economy.

Nominated for the European Carton Excellence Award 2026

Production Site: MM Packaging (Plant: MM Packaging France)

Cartonboard Quality: ALASKA® STRONG from MM Board & Paper (Mill: MM Kotkamills)





RETHINKING THE CONE: HOW SAPPI AND HUHTAMAKI ARE TAKING ALUMINUM OUT OF THE ICE CREAM AISLE



Sappi | Germany



Jessica Ching | jessica.ching@sappi.com

This mono-material paper innovation by Sappi and Huhtamaki is based on Guard Duo, Sappi's barrier paper. Unlike conventional paper, it provides the grease and moisture resistance required to replace aluminum while remaining recyclable.

Creating an all-paper cone sleeve involved overcoming several technical challenges. The packaging needed to be printable, sealable, and durable enough for high-speed production while protecting the product during long-term frozen storage at -18°C . It also had to allow consumers to open the package easily. Early tests showed that a single-sided barrier coating was insufficient because stacked sleeves require grease resistance on both sides. Additional improvements to the base paper ensured dimensional stability, durability, and consistent processing.

Extensive shelf-life tests were carried out under real and accelerated frozen storage conditions in cooperation with brand owners and cone manufacturers. Continuous feedback between Sappi, Huhtamaki, and their customers enabled the material to be refined throughout the development process. Huhtamaki also had to adapt its manufacturing process. One major challenge was replacing aluminum's "dead fold" property, which allows it to stay bent after crimping. Since paper naturally springs back, the company developed a solution that keeps the sleeves securely closed without compromising performance.

First commercial products expected to reach the European market by 2027. The project demonstrates how close collaboration, technical expertise, and customer-focused innovation can help create more sustainable packaging solutions without sacrificing functionality or product quality.





**FOOD & BEVERAGE
PACKAGING**



UPM ASEDO BARRIER PAPER



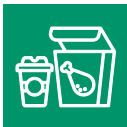
UPM Specialty Materials Oy | Finland



Janita Partanen | janita.partanen@upm.com

UPM Asendo is a natural looking recyclable and compostable C1S barrier paper safe for direct contact with food. With its medium grease and moisture resistance and a mineral oil barrier, it is especially well-suited for dry foods and bread bags, as well as non-food wrapping, e.g. copy papers. UPM Asendo is designed to be used for glued wraps and bags, as a liner material for packaging structures or to be further converted.





**FOOD & BEVERAGE
PACKAGING**



UPM SPECIALTY MATERIALS AND ROYAL VAASSEN: A RECYCLABLE FIBRE-BASED HIGH-BARRIER CANISTER



UPM Specialty Materials | Finland, the Netherlands

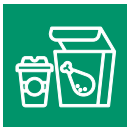


Janita Partanen | janita.partanen@upm.com

UPM Specialty Materials and Royal Vaassen have jointly developed a recyclable fibre-based high barrier canister, that is recyclable in current fibre recycling streams. It is designed as a replacement for traditional composite canisters that often rely on laminated layers of cardboard, plastic films, and aluminium. These multimaterial structures are typically difficult to recycle because their layers cannot be separated in standard fibre recycling processes. The new fibre-based canister addresses this challenge while combining premium print performance, structural strength, and high moisture and oxygen barrier protection.

This concept allows converters to accelerate the development of their own fibre-based canister solutions, using Barryrwrap® Everest, with UPM Solide™ Lucent as the base paper. Barryrwrap® Everest provides the moisture, oxygen, and light protection required for dry food categories such as coffee, powders, and chips, which are segments traditionally reliant on aluminium foil. The canister concept has been validated as recyclable based on Capi/4evergreen v.2 recycling tests.





FOOD & BEVERAGE PACKAGING



WOOD-BASED PET FOR FOOD, BEVERAGE, PHARMACEUTICAL AND COSMETICS PACKAGING



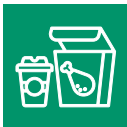
UPM | Finland



Caroline Schmid | caroline.schmid@upm.com

UPM BioPET is a fully recyclable polyethylene terephthalate (PET) alternative made from sustainably sourced wood, using UPM's renewable BioMEG and BioNaphtha in place of fossil feedstock. It matches virgin fossil PET on clarity, strength, processability and safety, and runs as a true drop-in solution: no changes to existing production lines or recycling infrastructure are needed. BioPET already meets the purity, safety and traceability standards required in regulated pharma packaging, and the same material serves food, beverage and cosmetics applications. For brand owners and converters, it offers a way to cut carbon footprint and meet recyclability and circularity targets while keeping the performance their products already rely on.





DS SMITH LIFT UP: EFFECTIVE FIBRE-BASED CONSUMER MULTIPACK SOLUTIONS FOR ANY LIQUID CONTAINER



DS Smith | Europe

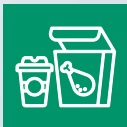


Lida Katsikini | lida.katsikini@dssmith.com

DS Smith Lift Up is a fully recyclable, paper-based alternative to plastic shrink wrap for multi-packs of liquid containers, primarily PET bottles. The solution consists of a corrugated top clip and, depending on the collation, also a paper banderole. The corrugated top clip serves as a handle, allowing weights of up to 12 kg to be carried comfortably. Originally designed for 4 and 6 PET bottles (1 to 2 litres), the range has now been expanded to accommodate other configurations and bottle sizes. The banderole, when applied, further stabilizes the multipack, offers printing opportunities, and can cover barcodes.

This minimalist solution stands out in the store, both on and off shelf. It offers excellent product visibility and allows for 360-degree branding. It is comfortable to carry—even with large bottles—and easy to open, yet robust enough to withstand the retail supply chain. All materials used are fully recyclable, made from renewable sources, and biodegradable. As a result, the solution avoids plastic and saves energy while reducing CO₂e emissions (LCA available). Developed in collaboration with mechanisation partner Krones, it is tested and validated to run on high speed packaging lines.





FOOD & BEVERAGE PACKAGING



FOOD-PACKAGING PAPERS WITH SUSTAINABLE WATER-BASED BARRIERS



The Navigator Company | Portugal



Ana Nery | ana.nery@thenavigatorcompany.com

Food-packaging papers made from virgin *Eucalyptus globulus* fibres and featuring sustainable water-based barriers are being developed by The Navigator Company as part of the “From Fossil to Forest” project. This research and development partnership brings together packaging producers, converters, end users, academic institutions and research centres.

The new packaging materials provide barriers against oil and grease, oxygen, water and water vapour. They have been developed using both brown and white papers, including papers with low basis weights, to make use of the distinctive properties of *Eucalyptus globulus* fibres.

The papers offer a unique combination of mechanical strength, surface properties and barrier performance, providing a genuinely sustainable alternative to single-use plastics in food packaging.





CIRCBUILT: CIRCULAR BIO-BASED BUILDING PRODUCTS FROM LIGNOCELLULOSIC WASTE FOR SUSTAINABLE CONSTRUCTION

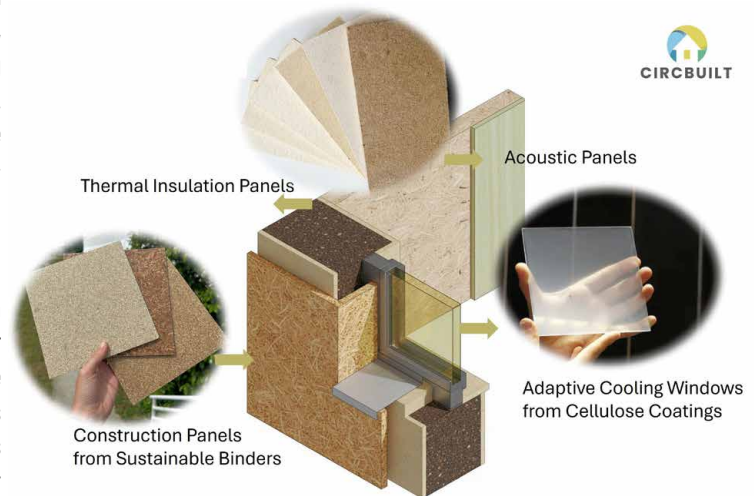


VTT Technical Research Centre of Finland | Finland



Amit Sonker | amit.sonker@vtt.fi

CIRCBUILT (EU-grant ID-101212747, 2025-2028) aims to transform underutilised lignocellulosic residues from forest industries, agricultural, agro-food into high-value bio-based construction materials, supporting the transition towards a circular and climate-neutral built environment. Addressing the building sector's significant environmental footprint, the project develops innovative bio-based building blocks, including foam-formed lignocellulosic materials, thermochromic nanocellulose-based films and coatings, and formaldehyde- and isocyanate-free bio-based binders. These innovations will be integrated into four 100% bio-based construction products (TRL 5 by the end of project): thermal insulation panels, construction panels, adaptive cooling windows, and indoor acoustic panels. By creating resource-efficient and scalable value chains based on secondary biomass streams, CIRCBUILT promotes circularity, reduces dependence on fossil-based materials, and enables the production of high-performance building products with lower environmental impact. The project further incorporates the principles of the New European Bauhaus by combining sustainability, functionality, inclusivity, and aesthetic design to accelerate the adoption of innovative bio-based solutions in the construction sector.





**FURNITURE
& CONSTRUCTION**



METSÄ LIGO – TURNING INDUSTRIAL SIDE STREAMS INTO HIGH VALUE MATERIALS



Metsä Group | Finland



Julia Jouvençon | julia.jouvencon@metsagroup.com

Metsä Ligo™ is a forest-based bioeconomy innovation under development in Metsä Group. Metsä Ligo™ is a novel wood lignin-based high-performance biopolymer product family. In Metsä Ligo™, part of the lignin, a side stream from pulp production traditionally used for bioenergy, is converted into a high-value renewable material capable of replacing fossil-based chemicals.

Metsä Group has built together with Andritz a novel lignin products demonstration plant in Äänekoski, Finland. The plant with nominal capacity of two tonnes per day was started in the beginning of 2026.

Metsä Ligo™ can add value as a plasticizer, dispersant and functional additive in various end-use applications. Metsä is working in collaboration with Dow to develop applications for the construction sector, notably bio-based plasticisers for concrete and gypsum products.

By creating new value chains from renewable raw materials already available in industrial processes, Metsä Ligo™ aims to demonstrate how the forest sector can deliver scalable solutions for Europe's circular bioeconomy.





UPM DECOREASE: REMOVABLE, FIBRE-BASED WALLPAPER FOR FLEXIBLE INTERIORS



UPM Adhesive Materials | Finland



Anna Sube | anna.sube@upm.com

UPM DecorEase is a self-adhesive, removable wallpaper material that lets brands, retailers and interior decorators update wall décor quickly, without paste, professional installation, or wall damage. UPM DecorEase's nonwoven base is FSC™-certified (FSC C003094) and coated with UPM's solvent-free Micro-tac adhesive technology, enabling secure adhesion during use while allowing clean, residue-free removal even from sensitive surfaces after long-term application. UPM DecorEase is PVC-free and fully compatible with a range of digital printing technologies, including HP Latex, UV inkjet, and dry toner, making it a practical, print-ready surface for custom interior designs. UPM DecorEase is particularly suited to spaces that need visual flexibility without long-term commitment: rental properties, retail environments, hospitality and office spaces, and temporary branded environments such as events and exhibitions. It shows how a wood-fibre-based, FSC™-certified (FSC C003094) material can replace PVC-based wallpaper in everyday interior design, while also removing the need for solvent-based adhesives and the wall damage typically associated with traditional wallpaper installation and removal.





HEALTH & PHARMACEUTICAL APPLICATIONS



DS SMITH TAILORTEMP



DS Smith | United Kingdom



Marlena Hardy | marlena.hardy@dssmith.com

TailorTemp® is an innovative, fibre-based temperature-controlled packaging solution developed by DS Smith to replace expanded polystyrene (EPS) and other hard-to-recycle cold chain packaging used in the pharmaceutical and life sciences sectors. Built from corrugated fibre materials and enabled by advanced predictive modelling technology, TailorTemp delivers the thermal performance required for temperature-sensitive medicines while significantly reducing environmental impact. The solution combines a 100% corrugated, plastic-free and recyclable packaging design with a proprietary digital forecasting tool that predicts thermal performance and enables the creation of customised packaging configurations tailored to individual customer requirements. This data-driven approach ensures medicines, biologics, vaccines and diagnostic products remain within required temperature ranges throughout transport while minimising material use and logistics inefficiencies. Designed and manufactured in Europe using renewable forest fibre resources, TailorTemp demonstrates how bio-based materials can successfully replace fossil-based alternatives in one of the most demanding packaging applications. The solution has already been validated for pharmaceutical cold chain requirements, including performance up to 48 hours under ISTA 7D summer testing profiles and up to 72 hours in controlled conditions. Beyond product protection, TailorTemp contributes to circularity and climate goals. Internal lifecycle assessment work has indicated an estimated reduction of more than

42% in CO₂e emissions compared with conventional EPS-based solutions, while providing a packaging format that is readily recyclable through existing paper recycling streams. The design also improves transport and storage efficiency through flat-packed supply and optimisation of package dimensions, reducing logistics-related emissions and costs.

Key Benefits

- Made from renewable forest fibre-based corrugated materials.
- 100% recyclable and plastic-free packaging solution.
- Replaces conventional EPS cold-chain packaging.
- Estimated >42% reduction in CO₂e emissions versus EPS alternatives.
- Custom-designed through predictive digital technology.
- Validated for pharmaceutical temperature-controlled logistics.
- Supports circular economy and European climate goals.





HEALTH & PHARMACEUTICAL APPLICATIONS



RENEWABLE PAPER-BASED LABEL MATERIALS FOR PHARMACEUTICAL & HEALTHCARE PACKAGING

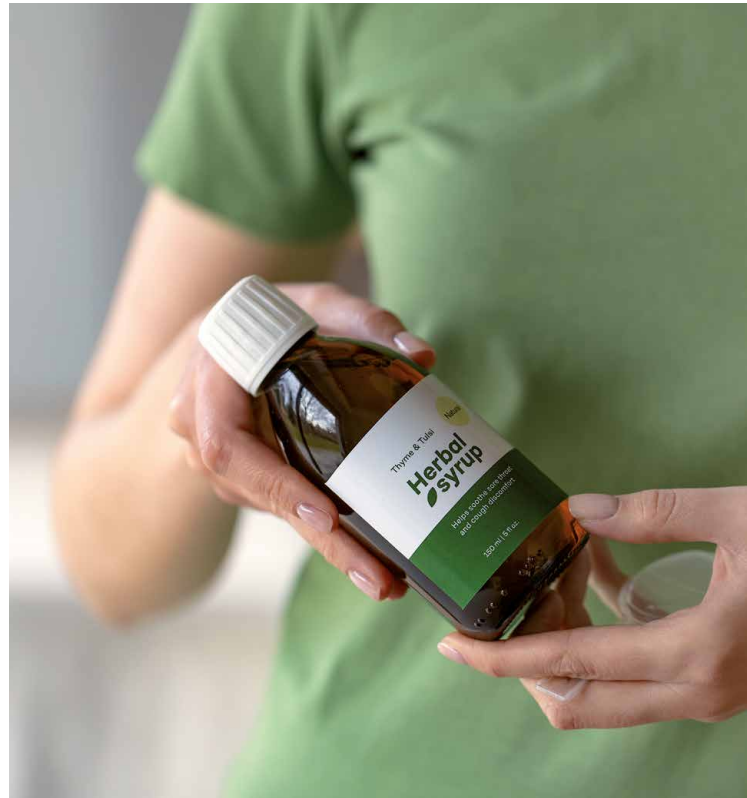


UPM Adhesive Materials | Finland



Anna Sube | anna.sube@upm.com

UPM Adhesive Materials offers a portfolio of renewable, paper-based label solutions purpose-built for pharmaceutical and healthcare packaging, where sustainability improvements must never compromise patient safety. Labels are pre-tested to meet strict regulatory requirements and are offered with dedicated change management services to ensure long-term material consistency once qualified. For glass bottles, used for OTC and prescription liquids and solids, UPM recommends Pharmacoat NXT+ OTC-FSC, a paper label made from renewable, FSC™-certified (FSC C012530) origin that takes verifiable positive climate action while remaining fully compatible with existing glass recycling streams. For cardboard pharmaceutical packaging, such as secondary cartons, UPM offers Translucent White-FSC, a tamper-evident paper label from renewable origin, pre-tested across all market-leading cardboard substrates. Paper fibre labels are specifically recommended over plastic alternatives on both glass and cardboard packaging, since they increase recyclate yield and support a genuinely circular pharmaceutical supply chain, turning the label itself into a tool for sustainability rather than a compromise against it.





**HEALTH & PHARMACEUTICAL
APPLICATIONS**

UUTE SCIENTIFIC

UPCYCLING FOREST INDUSTRY RESIDUES TO MEDICAL EFFECT



Uute Scientific Oy | Finland



Kari Sinivuori | kari.sinivuori@uutescientific.com

One in two people living in cities has a condition linked to the immune system. This may be associated with highly hygienic lifestyles and insufficient exposure to the slow-growing microbes found in forests. Our patented innovation uses residues from the forestry and horticultural industries in a composting process to produce a microbial extract that can be added to consumer products for potential health benefits. This low-capital process increases the material's value by a factor of 10,000, with a margin of 95 per cent. ReConnecting Nature extract is already on the market and is used by 35 customers in more than 100 products. We have also conducted a clinical trial involving 142 patients with atopic dermatitis. Our next step is to apply for regulatory approval to begin clinical trials as part of the drug-development process.





HEALTH & PHARMACEUTICAL APPLICATIONS



UPM RAFLATAC FOREST FILM: RENEWABLE ALTERNATIVE TO FOSSIL PLASTIC IN PHARMACEUTICAL LABELING



UPM Adhesive Materials | Finland



Anna Sube | anna.sube@upm.com

Even where plastic performance is still required in pharmaceutical labeling, for example on PP or PE bottles, where monomaterial recyclability makes plastic labels the preferred choice over paper, UPM Adhesive Materials offers a renewable alternative to fossil-based plastic. UPM Raflatac Forest Film is a wood-based label film made from wood-based bio-naphtha through an ISCC-certified mass-balance value chain, developed in partnership with UPM Biofuels using residues from the wood pulping process. Its healthcare-specific grade, Forest PP Clear TC 50 RPMD HDS-FSC™-certified (FSC C012530), is engineered for low-leachable performance on small-diameter containers and curved surfaces, suited to vials, syringes, bottles, and drug-delivery devices, packaging where migration-safe labeling is critical and few sustainable alternatives have historically been available. In a 2025 collaborative study with Corning Pharmaceutical Technologies, Forest Film labels were

tested on Corning's Viridian glass vials across room-temperature, dry-heat, tropical, and cryogenic storage conditions, demonstrating reliable adhesion across the full range of conditions used in pharmaceutical packaging, while providing up to a 42% reduction in CO2 emissions compared to conventional fossil-based plastics. The material is also already used commercially: Ego Pharmaceuticals has adopted Forest Film as part of its climate action strategy, estimating a 48% CO2 reduction for its application. Forest Film shows that even in the applications where plastic remains the right technical choice, that plastic no longer has to come from fossil sources.





**HYGIENE
& COSMETICS**

THE
NAVIGATOR
COMPANY

AMOOS FRESH



The Navigator Company | Portugal



Ana Nery | ana.nery@thenavigatorcompany.com

Amoos Fresh is more than a conventional toilet paper, it features innovative, microplastic-free microencapsulation technology that gradually releases a refreshing fragrance, enhancing the experience with every use. Thanks to its unique system of movement-activated scented beads, the exclusive Air Sense™ technology helps freshen the room. The fragrance is reactivated each time the paper is used, allowing the fresh scent to last longer. The paper is produced from renewable resources, sourced from responsibly managed forests FSC™.





HYGIENE
& COSMETICS



AMOOS SELECTION



The Navigator Company | Portugal



Ana Nery | ana.nery@thenavigatorcompany.com

Amoos Selection toilet paper combines 50% virgin eucalyptus fibre with 50% recycled fibre, creating a circular, efficient, and responsible solution that optimizes resource utilization without compromising quality and comfort. The optimal selection of recycled fibers guarantees a tissue paper free of contaminants such as BPAs, delivering superior sensory and functional quality.





HYGIENE
& COSMETICS



CORELESS CONSUMER TISSUE



Essity | Gien, France, and Mannheim, Germany



Sofia Krigsman | sofia.krigsman@essity.com

Essity's coreless technology for consumer tissue products demonstrates how sustainability innovations can be developed once and then rolled out across multiple European markets. The innovation itself eliminates the cardboard core, improves transport efficiency and lowers the carbon footprint. For instance, Essity's coreless toilet paper products and household towels significantly reduce CO₂ emissions, thanks to product design, transport weight, production as well as the use of renewable energy.

Also, this innovation can be rolled out in more than one country to customers with different preferences. The same underlying technology for toilet paper and household towels has already been expanded across brands and countries, including Lotus in France and Zewa in Germany, as well as Edet and Tempo in other European markets. Produced in Gien, France, and Mannheim, Germany, as well as Manchester, UK. And the consumers like it: 98% of consumers who used Zewa Smart bathroom tissue consider it a practical new solution. 82% said it lasts longer than a regular toilet paper roll.





HYGIENE
& COSMETICS

sappi

LAUNDRY DETERGENT SHEETS FROM NATURAL CELLULOSE



Sappi and Tru Earth | Netherlands



Jessica Ching | jessica.ching@sappi.com

When natural cellulose fibres are mechanically processed to their smallest components, they become highly fibrillated, creating a material with an extensive surface area and branched structure. This advanced form of cellulose, known as fibrillated cellulose, is branded as Valida by Sappi. It creates a 3D network with a greater surface area that can then be permeated with active ingredients. This ability to hold ultra-concentrated active ingredients is what brought Sappi Valida into partnership with its customer Tru Earth over 2 years ago.

The innovation being presented today by Sappi and Tru Earth is a laundry detergent sheet - a small strip made of cellulose and permeated with PVA-free, eco-friendly detergent, which is released on contact with water inside the washing machine. The whole product, including the packaging, is biodegradable. Hence no plastic jugs or dispensers in landfill or the ocean. And no transportation of heavy liquids.

The personal care and homecare market are undergoing a structural transformation towards delivering a more sustainable future, reinforced by regulatory trends and consumer demand. Upcoming EU microplastics regulations are particularly aimed at reducing synthetic polymers in cosmetics and detergents, creating a strong incentive for formulators to replace fossil-based, non-biodegradable ingredients. This regulatory

push further accelerates the phase-out of traditional rheology modifiers and strengthens demand for bio-based, biodegradable, microplastic-free alternatives.

Brad Liski, CEO, Tru Earth, said that his aim was that "in 200 years' time there will be no sign we ever existed." The vision of Sappi and Tru Earth is to co-create sustainable alternatives to fossil-based products. The idea of a laundry detergent in sheet format stemmed from a series of serendipitous events in Brad's life whereby he and some friends were discussing how to reduce the vast amount of plastic-based products and packaging in their lives.





**HYGIENE
& COSMETICS**



LIGNIN-BASED BLACK PIGMENT ENABLING BLACK PLASTIC RECYCLING



UPM | Finland



Caroline Schmid | caroline.schmid@upm.com

UPM Circular Renewable Black is a lignin-based pigment made from responsibly sourced wood that replaces fossil black pigments in plastic packaging without changing feel, processability or the signature deep tone. Unlike traditional black plastic, which near-infrared sorting technology cannot detect, this pigment stays fully detectable, keeping black packaging inside existing recycling streams and lifting recycling rates for products that would otherwise be lost to sorting. An independent life cycle assessment reviewed by DEKRA Assurance Services confirms a cradle-to-gate carbon-negative footprint, verified against ISO 14040 and 14044 standards. The pigment integrates into existing manufacturing processes, giving brand owners a way to keep premium black aesthetics while meeting circularity targets.





**HYGIENE
& COSMETICS**



PAPER BASED LAMINATE FOR COSMETIC TUBES



Gascogne Flexible | France



Alexandre Pinsolle | apinsolle@gascogneflexible.com

Paper-based cosmetic tubes offer a high-performance and sustainable alternative to conventional plastic packaging through an innovative multilayer fibre-based laminate containing more than 60% paper. Designed for personal care applications, the multilayer combines excellent oxygen and water vapour barrier properties, mechanical strength, heat sealability and compatibility with existing tube manufacturing processes. Its natural appearance and superior printability enhance brand value while reducing the use of plastics and lowering the carbon footprint. This innovation demonstrates how advanced paper-based materials can enable the transition towards more circular, high-value packaging solutions for the European cosmetics industry





**HYGIENE
& COSMETICS**



LignoBrite

		Borregaard Norway
	Kjersti Garseg Gyllensten kjersti.garseg.gyllensten@borregaard.com	

Kiilto has launched the world's first laundry powder that replaces fossil-based ingredients with lignin – a biopolymer derived from Norway spruce by Borregaard. The result: a significantly lower carbon footprint and improved cleaning performance.

By using LignoBrite, a 100% bio-based and upcycled¹ ingredient, Kiilto replaces traditional fossil-based substances like polyacrylates in professional laundry solutions for workwear, restaurant textiles and hospital linens.

LignoBrite gives superior cleaning performance while significantly reducing carbon emissions compared to conventional synthetic ingredients and is a novel innovation produced by Borregaard in Sarpsborg. It is a bio-based and biocircular dispersant and complexing agent derived from lignin, a natural polymer found in wood. LignoBrite replaces synthetic polymers in cleaning products and enhances cleaning performance by preventing redeposition, spotting, and filming on surfaces. It can be used in cleaning applications, from laundry to auto dishwashing and industrial cleaners.





**NOVEL PACKAGING
SOLUTIONS**



CATBIOBLOCKS: CATTAIL BIOMASS FOR SUSTAINABLE PACKAGING AND EMULSIONS



FinnCERES (VTT & Aalto University) | Finland



Nina Pulkkis | nina.pulkkis@photino.fi

Cattail plants are explored as an alternative to wood for making bio-based materials for both emulsions and sustainable packaging.

Drained peat croplands are among Europe's largest land-use emission sources; in Finland alone they release around ten million tonnes of CO₂ a year. Raising the water table and growing cattail (*Typha*) instead can cut emissions by up to 35 tonnes of CO₂ equivalent per hectare annually – but the crop needs a market. CatBioBlocks turns cattail stems into the same lignocellulosic building blocks as wood: alkaline pulping separates cellulose and lignin, which become cellulose nanofibrils and lignin nanoparticles for Pickering emulsion stabilisation and fibre-based packaging. The demonstrator is a cosmetic emulsion in a bio-based jar. A FinnCERES project with Aalto University, VTT and Luke.





NOVEL PACKAGING
SOLUTIONS



DS SMITH SETS WORLD RECORD WITH CORRUGATED CARDBOARD BOAT



DS Smith | Germany



Juscha-Marie Brinkmann | juscha-marie.brinkmann@dssmith.com

DS Smith designed and built a 12-metre-long corrugated cardboard catamaran for the Blue Ribbon of the Weser sailing event in Minden, Germany. Powered by a crew of 23 employees, the fibre-based vessel travelled more than 250 metres and set a new world record for sailing in a corrugated cardboard boat.

The catamaran was constructed from double-wall corrugated cardboard made with strong, lightweight Kraftliner paper. The material's durability and high tear resistance allowed it to support the crew on the water.

The team also hosted workshops to help other participants build with corrugated cardboard. The project demonstrated the strength and versatility of fibre-based materials beyond conventional packaging applications.





**NOVEL PACKAGING
SOLUTIONS**



CARTONOSAURUS REX



DS Smith Packaging | Romania



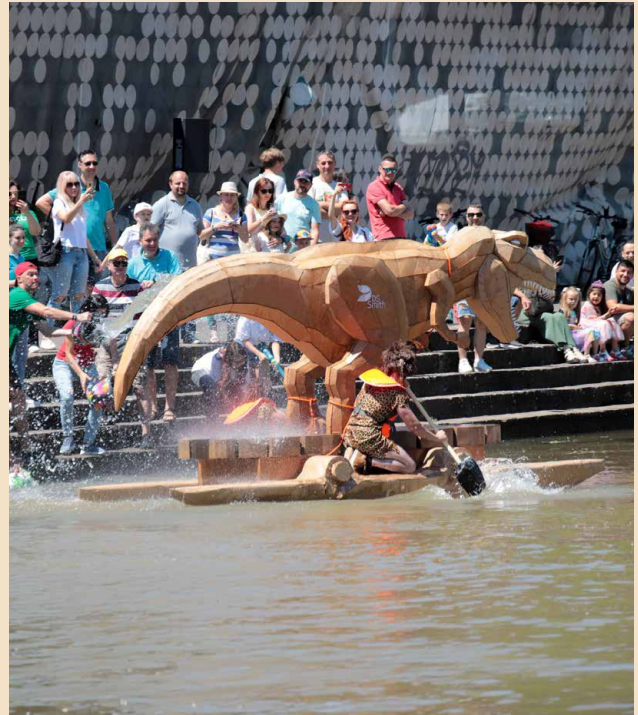
Denisa Boar | denisa.ramona.boar@dssmith.com

Cartonosaurus REX is a corrugated cardboard boat manufactured by DS Smith Packaging in Romania for the 2024 Make it! Race it! Recycle it! event in Timișoara. Organised annually by the Ecostuff NGO, the event promotes sustainable practices by bringing together companies, schools, NGOs and members of the local community for a lively race on the River Bega.

Designed to resemble a prehistoric creature, the boat was not only a remarkable example of design craftsmanship but also a great success with the public, particularly children. Thanks to its innovative construction, it took part in two races without sinking and even withstood the friendly “Saved by the Bell” water fight. The DS Smith team received several awards: Best Theme, First Prize for Artistic Impression, Second Prize in the “Saved by the Bell” race and Second Prize for Speed.

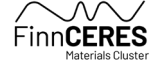
The boat was designed using Adobe Illustrator, SketchUp and ArtiosCAD. Its overall dimensions were 4.18 m long × 1.86 m wide × 2.4 m high. The materials used included brown, white and ESD black cardboard in BC, B and E flutes, as well as cardboard tubes bonded with hot-melt adhesive. The twin-hull floating structure was fitted with a moisture-resistant lining.

The boat was almost entirely recycled after the event, with only the Cartonosaurus REX trophy head retained as a memento.





**NOVEL PACKAGING
SOLUTIONS**



FOLD: ORIGAMI FOLDING FOR PACKAGING PROTECTION



FinnCERES, (Aalto University, VTT) | Finland



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Protective packaging based on folded cellulose structures offers a lightweight and sustainable alternative to conventional packaging.

A single origami pattern can turn flat paperboard into a strong, lightweight three-dimensional structure — no plastic, no additives, no adhesives. FOLD works with the Miura pattern, devised by Japanese aerospace engineer Koryo Miura and long used to fold solar arrays for spacecraft, because it is simple, scalable and delivers stiffness and ventilation from creases alone. Researchers at Aalto University and VTT, together with eight industrial partners, have taken it to continuous roll-to-roll production, making folded protective packaging fast and affordable at industrial volumes. The technology began within FinnCERES and continues as the Business Finland-funded FOLD2 consortium.





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woamy

A!
Aalto University

VTT

FinnCERES
Materials Cluster

BIO-BASED FOAMS FOR STRONG LIGHTWEIGHT STRUCTURES



Woamy Oy, FinnCERES (Aalto University, VTT) | Finland



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Bio-based foams combine low weight, strength, and protection for lightweight structures with high mechanical performance.

Plastic foams protect almost everything we ship, and almost none of it is recycled. Woamy, an Aalto University spin-off built on a decade of FinnCERES research, replaces them with a foam made from cellulose fibres. During extrusion the bubbles elongate and the fibres align with them, giving the material directional strength up to 40 times stronger in compression along the fibre orientation. Very little material carries a great deal of load. The foam is plastic-free, biodegradable and recyclable with paper, and it is thermo-mouldable: a heat press shapes it much like polystyrene. It already protects products for Finnish manufacturers in ceramics, design and medical technology.





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CELLULOSE-BASED FOAMS FOR THERMAL INSULATING PACKAGING



The Navigator Company | Portugal

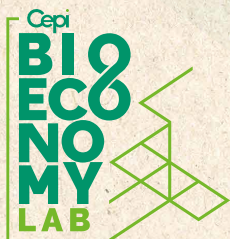


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Fibres from *Eucalyptus globulus* were used to produce novel cellulose-based foams for thermal insulating packaging. These new materials were developed by AlmaScience CoLab within the context of “From Fossil to Forest” project, with the support and coordination of The Navigator Company. The new materials represent an alternative to EPS (Expanded Polystyrene) foam in packaging applications. Although still at a pilot and prototype stage, the technology involved has significant potential to be scaled up.

A patent has been filled with this technology.





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