

BY







INNOVATION LAB OF THE FUTURE EU CIRCULAR #BIOECONOMY

Bio-based, sustainable and recyclable products for consumers, a strong EU bioeconomy and a resilient European industry



Fibre-based clothing

1. RE-FASHION TENCEL™ X REFIBRA™ CAPSULE COLLECTION

TENCEL™ x REFIBRA™ is a brand new way of creating fashion. REFIBRA™ Technology gives a second life to pre-consumer cotton waste from garment manufacturing – rescued from being sent to landfills or incineration – by upcycling it into brand new cellulosic fiber materials for clothing and home products.

- Lenzing
- Austria
- ⋈ Alexandre Collon a.collon@lenzing.com

#MaterialSubstitution #Textiles





2. KUURA® FIBRE

Kuura® is a new wood-based textile fibre. Whereas all commercial wood-based textile fibres are made using dissolving pulp as the raw material, Kuura's raw material is paper-grade pulp. This and an advanced integration to a bioproduct mill results in a very competitive fibre, in terms of ecological sustainability. The wood used to make the pulp has full traceability and all production [pulp and Kuura fibre] is done using only renewable energy. Kuura fibre is currently produced in a greenfield demo plant, as part of the bioproduct mill in Äänekoski, Finland. The on-going demo phase and the demo plant are part of a collaboration with ITOCHU Corporation, Japan.

- Metsä Spring Oy
- ♥ Finland
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3. ONCEMORE FOR JACK & JONES

OnceMore® is the world's first process for industrial-scale recycling of textile waste of blended fiber turning waste into new garments. With 20 percent post-consumer waste content and wood from our responsibly managed forests in OnceMore®, we can bring circularity to the textile industry. The 2025 target is to have a capacity of recycling 25,000 tons per year of textile waste and offering a OnceMore® pulp based on 50% cellulose from Södra's members' forests and 50 % recycled textile waste. First garment out which was based on 100% OnceMore® was the shirt from Bestseller. The range comprises men's summer shirts under the JACK & JONES brand and available for online purchase in 19 markets.





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#MaterialSubstitution #Textiles

4 FCO-HANGER REPROJECT

RePROJECT® is an innovative eco-friendly and FSC® certified paperboard made from minimum 75% up to 100% post consumer recycled paper with the virgin pulp residue. The excellent tensile binding properties are exclusively due to the mechanical treatment of the elementary fibers processed with high pressure avoiding any use of chemicals additives. A further benefit is that RePROJECT® is strong, durable and recyclable into paper (class 'A' certification in the Aticelca standard).

#Recycling #MaterialSubstitution #WasteManagement





Food & beverage packaging

5. FUNCTIONAL BARRIER PAPER

Mondi's first recyclable functional barrier paper bag is a fully integrated solution – Mondi operates across the value chain from sustainably managed forests, to producing pulp and kraft paper, applying the coating and printing the final material. The new packaging is 95% paper with a functional barrier layer. It is made from renewable resources with Mondi managing the paper production and coating in-house. It is easy for consumers to recycle the paper in existing waste streams. The solution ensures that the paper can be recycled at the end of its life, contributing to a circular economy.

- Mondi
- Austria/International
- ☑ Thomas Joham Thomas.Joham@mondigroup.com

#CircularEconomy #FoodSafety #MaterialSubstitution





6. PERFORMING MONOLOOP FOR SLICED FOOD

PerFORMing Monoloop is a formable and recyclable paper-based solution for sliced food such as cheese or meat. The paper tray with a barrier layer is combined with a plastic top web solution, allowing excellent product protection while reducing plastic use. The barrier layer can be easily separated from the paper tray so that all elements can be disposed of in the correct waste streams. PerFORMing Monoloop, certified recyclable by Institute cyclos-HTP, offers high flexibility for the food manufacturer, as it is suitable for a range of depths and forms on existing lines.

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#FoodSafety #WasteManagement #MaterialSubstitution

mondi

7. MUOTO® - SHAPED FOR PURPOSE TRAYS

Muoto® is a fossil-free, safe and natural product. Its incomparable properties make it a perfect substitute for plastics, for example in food packaging. It is a functional 3D fibre product made out of sustainably managed northern wood. With patented technology and our unique concept, we manufacture the products tailored to diverse applications and maximise the benefit and ease to the customer. The resource efficiency of the production technology has been honed to the

highest level – raw materials and water circulate in the process, and no waste is generated from production. The Muoto® products are today manufactured in a greenfield demo plant, which is integrated to a paperboard mill in Äänekoski, Finland. The demo plant is co-owned with Valmet, Finland.





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#FoodSafety #WasteManagement #MaterialSubstitution

8. FRUIT BASKET

The "Fruit Basket" was developed for storing and carrying fruits as an alternative to traditional plastic thermoform trays. Consumers buying fruit in this pack get a plastic-free sustainable packaging solution that displays the product both from the top of the pack as well as through the integrated air holes in each side. This folding pack, made from flexible and environmentally-friendly brown cartonboard, can be branded and easily adapted to fit different fruit sizes and customer's individual requirements. The integrated round handles give the pack the appearance of a small carrying basket.

- MM Board & Paper & MM Neupack for Hofer
- Austria
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#FoodSafety #WasteManagement #MaterialSubstitution



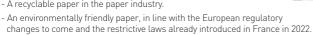




9. GASCOSEAL

Initially approached by a prospect who wanted to replace their single-use plastic packaging for screw parts and instructions, we carried out the first successful factory trial at this prospect's site only five months later. Five months of hard work by our teams have resulted in the creation of our heat-sealable and recyclable paper: our GascoSeal. A kraft paper base and a coating to ensure sealability





- A PEFC[™] certified paper
- A paper that is appropriate for food contact
- France
- ⋈ Elisa Charollais echarollais@gascognesacs.com

#FoodSafety #WasteManagement #MaterialSubstitution



Packbenefit, with its Project FRAMTID, is once again leading innovation in sustainable biopackaging with its new plastic-free food tray that can be used in ovens and microwaves at high temperatures They are made of high-yield cellulose with sprayed coatings developed in collaboration with ENCE. Maintaining the characteristic of being compostable and recyclable, they extend the shelf life of the contained food due to their sealing and protection capacity, which gives them unequaled functionality and sustainability.

- PackBenefit & ENCE
- Spain
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#FoodSafety #WasteManagement #MaterialSubstitution #Health&Safety











11. DRY MOLDED FIBER

With a revolutionary innovation in fiber forming, PulPac has changed the game of fiber packaging. By removing the need for water, Dry Molded Fiber has eliminated the drawbacks of traditional fiber forming methods and made fiber-based packaging highly competitive. This new converting technology saves water, energy and gives up to 80% lower CO2 footprint at the same or lower cost than plastic. It can be used for producing most rigid single-use products presently made of plastics. E.g., products in the SUP Directive, such as plates, lids, cutlery. Dry Molded Fiber is available to packaging manufacturers worldwide.

- Pulpac
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12. COCO POPS BOXES FOR BLIND & PARTIALLY SIGHTED PEOPLE

To mark World Sight Day in 2020, Kellogg's launched a limited Edition pack of Coco Pops boxes for blind and partially sighted people as a trial in almost 60 Co-op stores across the UK. The boxes have been created in partnership with the Royal National Institute of Blind People (RNIB) and feature UK-first technology that allows a smartphone to detect a unique on-pack code and playback labelling and allergen information to the user. The trial comes after research from RNIB revealed that nine in ten blind and partially sighted people feel that information on food packaging is difficult or impossible to read.

- MM Board & Paper & MM Packaging UK for Kellogg's
- Austria & UK
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#FoodSafety #WasteManagement #MaterialSubstitution #SocialInclusion #PublicHealth #HumanRights







storgenso

13. TRAYFORMA™ BY STORA ENSO

Trayforma is the original paper-based tray material for replacing plastic and aluminium. A solution that meet consumers' demands for ecoperformance packaging in liquids, and chilled or frozen foods categories. Trayforma can reduce up to 80% of plastic in ready-meal trays and up to 67% of CO2 emissions. Trayforma's functional barriers and guaranteed food safety and taste and odour neutrality allow it to work conveniently from freezer via oven to table. With its innovative tooling technology by Stora Enso, it can be used even in gas-tight or modified atmosphere packaging. Trayforma PET is conventional or microwave oven safe, while the new Trayforma PP is a microwavable ready-meal tray with 50% less plastic and free from PET. Trayforma Bio microwave-ovenable trays are compostable.

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14. AQUASTOP BOX

AquaStop™ paper is water-resistant thanks to a special coating which is added to it during the manufacturing process. Packaging with AquaStop™ paper delivers temporary protection against water. Unlike many other coatings, this does not compromise the recyclability of the product – it can be recycled in the same way as standard paper-based packaging.

- The Netherlands
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Smurfit Kappa

E-commerce solutions

15. ADVANTAGE STRETCHWRAP

Advantage StretchWrap is a brand new lightweight paper grade from Mondi made specially for wrapping pallets. It is able to stretch and resist punctures, providing robust protection for goods during transit. The paper's impressive stretchability and high-tensile strength makes it a reliable alternative for transport. Strong recycling rates in Europe for fibre-based packaging and availability of paper waste streams ensure that the paper can be recycled at the end of its life, contributing to a circular economy. Mondi commissioned an independent life cycle assessment (LCA) comparing its Advantage StretchWrap paper to conventional plastic stretch film.

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#MaterialSubstitution #WasteManagement #Transport #Mobility





16 FCO-FIX FOR BOTTLES

Worldstar awards winning Category: Packaging Materials and Components Sustainable set of corrugated cardboard fixings replace polystyrene fixings. They are 100% reliable – no complaints have arisen since the beginning of use. Easy folding and handling – the bottle is inserted from the top into a fixation, which is then closed on both sides by corrugated cardboard partitions. These partitions on the bottom and the top of the packaging create deformation zones that protect bottle during transport. The wine inside the fixation is then placed in the shipping box, which creates deformation zones on all sides. Fixation is produced in different variants for different sizes of wine bottles.

THIMM]

- THIMM THE HIGHPACK GROUP
- Czech Republic/Germany
- ☑ Denise Hoffmann denise.hoffmann@thimm.de

#WasteManagement #MaterialSubstitution

17. SOAP PACKAGING

The two-piece, 100% corrugated packaging for sensitive soap products is product and shipping packaging in one (SICO certified). It safeguards the soap bars from uncertain impacts in the last mile transport, reflects the organic nature of the product and saves 34 tonnes annual plastic consumption for the brand owner. The printed inside of the corrugated cardboard substitutes for previous leaflets- saving print and handling. The packaging saves material overall and reduces waste, is easy to set up with only two parts and fits in any mailbox.

- Mondi
- German
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#PublicHealthSafety #MaterialSubstitution #WasteManagement





18. SUMO PADDED BAG

The unique and eco-friendly SUMO® paper padded shipping bags are made from 100% recycled paper. The padding effect is created by an advanced multi-layered paper construction, that provides the best protection for the contents during shipping and completely eliminates the use of plastic. The recyclability makes the SUMO® paper padded bag one of the most sustainable shipping packages.

- Bestpac GmbH
- Germany
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19. PROTECTIVE WINGS TABLET

Corrugated wings are folded in a special way offer optimal protection. The wings lift the tablet from the bottom of the box and create a buffer zone. A new packing solution for shipping tablets of various sizes

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#WasteManagement #ResourceEfficiency #Digitalisation



Smurfit Kappa

20. BOX WITH ADAPTABLE CREASE LINES

eCommerce is individual delivery direct-to-consumer, so ideally each consumer would have fit-to-size packaging Obviously this would drive too much complexity in the supply chain. So the challenge is to manage complexity vs fit-to-size: In other words, how could one packaging fulfill a few fit-to-size options? This example is with additional crease lines, which allow the box to be manually adapted to the size of the product to prevent shipping void space.

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#WasteManagement #ResourceEfficiency #Digitalisation



Smurfit Kappa

Digital Space

21. VIRTUAL REALITY VISIT YOUR FOREST

Metsä Group is a pioneer in developing electronic forest management services. Metsäverkko service is available for all Finnish forest owners and it enables the forest owners to manage their forest property digitally, and now also in virtual reality, regardless of time and place. Handy tools take into account forest assets from both ecological and economic perspective based on forest owner's own interests. Services such as timber trade, investments, tax returns, certification and forest management plan are only a few clicks away.

- ⋈ Kalle Ikonen kalle.ikonen@metsagroup.com

#SustainableForestManagement #Digitalisation #ResourceEfficiency





Construction & mobility

22. LIGNODE® BY STORA ENSO

It is necessary to revolutionize battery technology to sustainably cover the needs for energy storage in an electrified future. What if you could replace graphitic carbon in lithium-ion batteries with something made from trees? Lignode® by Stora Enso is a hard carbon that is a bio-based alternative made from lignin – an existing by-product in the pulp production. Lignin is renewable, traceable and is already being produced in millions of tons in Europe – enabling the fast-growing battery business to become more sustainable.



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#Energy #Mobility #StrategicAutonomy



Hygiene, cosmetics & pharmaceutical applications

23. ECOWICKET BAG

The EcoWicketBag is made of one-ply sack kraft paper. Such strong paper ensures the bag holds up during the filling process, protects the products inside and is still recyclable after use. Our unique kraft paper solution meets all hygiene standards, ensuring the long shelf life of your products and preventing quality issues. Not only is the EcoWicketBag recyclable, depending on its construction it has lower the CO2 emissions compared to LDPE (plastic) wicket bags.



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#Packaging #InternalMarket #WasteManagement



24. RENEWABLE PAPERBOARD TUBE

Stora Enso is introducing a paperboard tube for cosmetics packaging as an innovative low-carbon, renewable alternative to plastic tubes. The paperboard tube is suitable for the primary packaging of skin cream products. Combating climate change and reducing the environmental impacts of packaging are high on the agenda for cosmetic brands driving this change. The tube is made from a functional barrier with a liquid and oil-resistant and recyclable paperboard by Stora Enso, which makes it suitable for the primary packaging of skin creams. Currently, making the body of the tube from paperboard reduces the use of plastic by 70% compared with a plastic tube. Stora Enso is also developing biocomposite materials to replace the plastic cap and shoulder of the tube in the future.





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25. TAMBRITE FOOD & PHARMACEUTICAL PACKAGING

A robust folding boxboard that delivers run-to-run consistency, Tambrite™ by Stora Enso has been the go-to packaging material of food and pharmaceutical companies for decades. Available as hard-sized (HS) as well as barrier-coated on demand, Tambrite can be made to withstand humid and frozen conditions and to reduce plastics when packaging frozen and chilled foods. Tambrite's ideal stiffness-to-weight ratio means that contents are well protected even when each package is lighter in weight. Tambrite fulfills the relevant legal standards for food and pharmaceutical packaging while meeting flexibility demands in production. Tambrite performs well in printing, converting and filling lines. It's suitable for digital printing, laser and inkjet coding, as well as Braille embossing and other special finishing effects.





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 $\verb|#PublicHealthSafety| \verb|#FoodSafety| \verb|#MaterialSubstitution| \verb|#WasteManagement| \\$

26. TORK PAPERCIRCLE - THE WORLD'S FIRST PAPER HAND TOWEL RECYCLING SERVICE

Tork PaperCircle® is a one-of-a-kind recycling service for paper hand towels. Together, we can enable businesses to go circular by collecting and recycling your used paper hand towels into new tissue products – turning waste into a resource. Tork PaperCircle helps businesses meet their sustainability targets by reducing waste with up to 20% and reducing the total carbon footprint by up to 40%. 95% of customers have said the service increases the overall sustainability awareness among people in the facility – both for visitors and employees. The service is now available in 14 European markets.





- Essity
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- ⊠ Sofia Krigsman sofia.krigsman@essity.com

#Recycling #PublicHealthSafety #WasteManagement

27. AMOOS | NAVIGATOR TISSUE

Amoos is the FMCG tissue products brand of Navigator, fully supported by the competitive sustainable advantages of Navigator, such as the extensive use of the eucalyptus globulus virgin fibers, from forests owned and managed by the company. Using a vertically integrated renewable resource of the highest quality enables Navigator tissue to offer products with differentiated characteristics of bulk, smoothness, absorption, comfort and efficacy of use.

- The Navigator
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28. HEAT SEALABLE PAPER

Smurfit Kappa Techni Paper® Thermo Sealant
TM is a sealable paper that can be wrapped around products. It protects the product, has perfect runnability on wrapping lines and it is printable. Made from MG Kraft paper, it has heat sealable properties while being fully renewable, recyclable & OK COMPOST HOME.

- Smurfit Kappa
- The Netherlands
- ☑ Outi Marin outi.marin@smurfitkappa.com





High quality print

29. NAVIGATOR BRAND UWF PAPER FAMILY

The Navigator paper is one of the whitest and most opaque office papers available in the market, making it especially suitable for colour and double-sided printing. The quality of Navigator paper is the result of the exceptional characteristics of the Eucalyptus globulus fibre. This is "special" raw material guaranteeing unique properties in terms of machine performance being 99.99% jam-free, a characteristic certified by the Buyers Laboratory. This fibre works together with the UHD Formula for breakthrough printing results, which is a special treatment that improves paper surface for smarter ink absorption.

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#Recycling #PublicHealthSafety #WasteManagement









COCKTAIL & NETWORKING AREA

Food & beverage packaging

BEVERAGE CARTONS FOR MILK & JUICE

Beverage cartons are a widely used form of packaging to protect fresh drink and food products, enabling distribution either at ambient temperatures or under refrigerated conditions. As well as protecting the freshness, flavours and nutritional qualities of the product during transportation, whilst on sale and in the home, the carton is convenient to use and provides optimal shelf-life. Beverage cartons have a lower carbon footprint when compared to alternative packaging solutions.

- Elopak, TetraPak and SIG (in cooperation with Riedel)
- Norway, Switzerland, The Netherlands
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WETCLAR PAPER STRAWS

Wetclar is a highly resistant waterproof paper used for the manufacture of drinking straws. It is made of virgin pulp in compliance with FDA and BFR standards. The paper is fully printable and available in 28 colours. The colour of the paper provides a high degree of differentiation in the straws. It can be supplied in reels or reams in grammages from 30gsm up to 150gsm.

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PAPER CUPS

Our love for coffee and other takeaway drinks sustains the consumption of significant amounts of disposable paper cups. Since this trend is increasing, it is important paper cups are designed for recycling and get collected so they can be recycled to produce new paper-based products. The Eco-Select paper cup uses a plastic-free dispersion barrier and can be collected through the normal paper stream.

- Ugrinpack
- O Hungary
- ☑ Ugrin András kereskedelem@ugrinpack.eu

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100% Plastic Fra



EXHIBITION SUPPORT

CARDBOARD FURNITURE AND ENTERTAINMENT

Cardboard offers a perfect alternative for all kinds of products and most of the time, designers aren't concerned with what happens with their product when it's no longer in use. That's how more products than necessary end up in bulky waste, and no products have eternal life. Kartent cardboard furniture, decoration, kids accessories and many more are made from strong wood fibres and offer a sustainable alternative.

- Kartent
- The Netherlands

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