

# RAIZ



Forest and Paper Research Institute

TECHNOLOGICAL  
SCOUTING NEWSLETTER

July & August 2020

## Highlights

New biorefinery solutions for the production of lignin, sugars and bioplastics.

New paper based packaging, from spirit bottles to hand sanitizer packages.



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**Services Provided by RAIZ Technological Scouting:**

Technological Scouting Newsletter (monthly)

Technological Scouting On Demand (specific technological issues, upon request)

Industrial Property (IP) Survey (quarterly)

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## START-UP OF THE MONTH

# PULPEX.

Diageo, makers of Johnnie Walker, Smirnoff and Guinness, and Pilot Lite, a venture management company, have launched Pulpex Limited, a new sustainable packaging technology company. Pulpex has developed a patented, “first of its kind” pulp packaging solution and process, involving pressurizing pulp in molds, curing the pulp containers in microwave ovens and, finally, spraying the bottles internally with specialized coatings designed to be compatible with the products to be hold.

To enlarge the application areas of the developed technology, Pulpex Limited has already established a partner consortium of world leading Fast Moving Consumer Goods (FMCG) companies, in non-competing categories, including Unilever, and PepsiCo, with further partners expected to be announced later this year. The consortium partners are each expecting to launch their own branded paper bottles, based on Pulpex Limited’s technology, in 2021.

Read more > [PulPex](#) | [Diageo](#)



## PAPER PACKAGING



photo: Diageo

### Diego: New paper based spirits bottle

Diageo, makers of Johnnie Walker, Smirnoff and Guinness, announced the development of the world's first 100% plastic free and paper based spirits bottle. The development went through a new partnership with Pilot Lite, a venture management company, to launch Pulpex Limited, a new sustainable packaging technology company (more details at the start-up section of this Newsletter). The bottle will debut with Johnnie Walker in early 2021.

Read more > [Diageo](#)

● Technological  
● Product Development



photo: Klabin

### Klabin: new hand sanitizer and packaging

Researchers at the Klabin Technology Center, together with the SENAI Institute of Innovation in Biosynthetics and Fibers and the cosmetics industry Apoteka, have developed a novel formulation of hand sanitizer produced from microfibrillated cellulose, MFC. The thickener is used as a replacement of carbopol, a component derived from fossils and not produced locally at Brazil. The MFC used to produce the hand sanitizer is manufactured at Klabin's recently inaugurated Parque de Plantas Piloto in Telêmaco Borba, Paraná. The specific MFC used for this purpose is a type of nanocellulose that is more homogeneous, and whose properties ensure that the skin remains hydrated, preventing the dryness caused by the continuous use of this kind of products.

Additionally, with Gualapack, a producer of stand-up pouches with nozzles, Klabin has developed a packaging to store and transport the hand sanitizer. The packaging is made from Klabin's Sack Kraft Plano paper and uses lamination as a barrier to preserve the original properties of the product.

Read more > [Klabin | Klabin](#)

● Technological  
● Product Development

## FOREST



photo: Paper Advance

### **FPInnovations: new automated-harvesting solutions**

FPInnovations presents two innovations resulting from its automated-harvesting project, which is part of FPInnovations' larger Forestry 4.0 project, aiming to bring automation to the forest industry. The first, is a mechanical log loader which allows the detection of logs on the ground while avoiding obstacles such as rocks, trees or even people nearby. The second, is a low-to-the-ground rugged robotic vehicle, an Unmanned Ground Vehicle (UGV), for autonomous navigation and real-time forest inventory. The UGV is planned to be sent into the forest, much like a scout, to send back data on tree species, wood volume, and other forest inventory information before sending out larger machines to carry out the desired work.

Read more > [PaperAdvance](#)

● Forest

## BIOREFINERY



photo: Metsä

### **Metsä & Valmet: pilot plant for new wood-based 3D fibre products**

In February, Metsä and Valmet announced the establishment of a joint project for the development of new wood based 3D products for replacing fossil based consumer products, such as packaging. After a successful pre-study phase, the two companies have decided to accelerate the development phase with the construction of a pilot plant, at Metsä Group's mill site in Äänekoski, Finland. The construction will begin in the autumn of 2020 and is expected to be ready for operation by the end of 2021. The plant will test the developed production technology, which does not involve any intermediate steps, for the production of novel, durable, environmentally-friendly and easy-to-use food package. If the pilot plant phase proves to be successful, a commercial factory is expected within the following years.

Read more > [Metsä](#)

● Technological  
● Product Development

## BIOREFINERY



photo: Biorefineries Blog

### SWEETWOODS project: flagship plant ready to be commissioned

The SWEETWOODS project aims at the development of the first biofractionation flagship plant in Estonia, using sustainable hardwood biomass. The selected process combines innovative pre-treatment technology with enzymatic processes to provide sugar recovery levels of over 90 %, along with exceptionally high-quality lignin. Currently, the SWEETWOODS flagship plant construction works have been finished and key equipment installation is nearly completed. Commissioning is expected to start as soon as pandemic related restrictions allow.

Read more > [SWEETWOODS | BioRefineries Blog](#)

● Technological  
● **Product Development**



photo: NEC

### NEC Corporation: new NeCycle highly functional bioplastic

NEC Corporation announced that NEC Platforms, a wholly owned subsidiary, has begun global sales of NeCycle, its cellulosic, highly functional bioplastic which biodegrades in natural environments in approximately four years. NeCycle is said to be derived from cellulose, and composed of other safe ingredients. While environmentally friendly, with a long-term degradability in the ocean, NeCycle is, at the same time, suitable for durable applications, such as injection moulding. Mentioned applications are as pellets and molded components for interior products, automotive products, and office automation. Additionally, NeCycle presents a deep and warm black color that is similar to traditional lacquerware, without needing any coating processes. Since the coating process is no longer necessary, the degree of flexibility of the product shape and mass productivity are said to be improved.

Read more > [bioplastics magazine](#)

● Technological  
● **Product Development**

## BIOREFINERY

### Stora Enso



photo: Stora Enso

## Partnership with Helsinki Olympic Stadium on circular economy solutions

Stora Enso and the Helsinki Olympic Stadium will partner for the development of low-carbon and eco-friendly operations at the stadium, by the use of renewable materials and circular economy solutions. Focus will be on the use of renewable materials in customer and food service packaging, which will enable reducing the climate impact of stadium operations. In addition, the developed materials will be able to be recycled to a high degree.

Read more > [Stora Enso](#)

● Technological  
● Product Development



photo: Cision

## New pilot plant for bio-based packaging foam

Stora Enso has announced a new pilot facility for producing its developed Cellufoam™, a lightweight and fiber-based foam material for protective packaging and cushioning, replacing fossil-based polymer foams widely used in current packaging ways. The pilot plant targets at evaluating and validating Cellufoam™ as a packaging alternative in customer tests and to further develop the foam production process. The plant will be located at Stora Enso's Fors mill in Sweden, and is expected to be ready in the fourth quarter of 2021.

Read more > [Cision](#)

● Technological  
● Product Development

**BIOREFINERY**

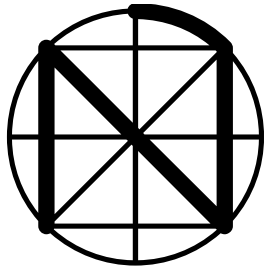
photo: RenCom

**RenCom: new extrusion system for RENOL® lignin**

Swedish company RenCom AB has a proprietary process which transforms lignin into a renewable and degradable biomaterial, branded as RENOL®, for replacing fossil-based plastics. The process involves different steps, including extrusion and compounding for promoting the chemical transformation of the lignin by polymerization. German industrial equipment manufacturer Coperion has now developed, along with RenCom, a complete extrusion system for producing up to 1,000 tons of RENOL® pellets. RENOL® is expected to be commercially available at the beginning of 2021.

Read more > [RenCom](#)





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