

Non-wood fibres in the European pulp and paper industry workshop

19 November 2024

Pulp and Paper Institute (ICP), Ljubljana



AGENDA

8.30 **Welcome coffee**

9.00 **Welcome speech**

David Ravnjak, Director at ICP

9.10 **Introduction by Cepi**

Jori Ringman, Director General at Cepi

9.20 **Presentation of speakers**

Ulrich Leberle, Raw Materials Director at Cepi
Annita Westenbroek, Innovations Manager at Cepi

9.30 **Non-wood fibre database + ICP work on non-wood fibres**

Mija Sežun, Postdoctoral Researcher at ICP
Andrej Šinkovec, Head of Department - Materials and Technologies in Papermaking at ICP

9.50 **Non-wood fibre in pulp production in Europe**

- **OnceMore - the process to recycle blended textile fabrics into high quality cellulose fibres**
Åsa Degerman, Senior Business Development Manager at Södra
- **Pulp production from wheat straw and other alternatives**
Igor Žeželić and Sascha Galic, Sales Managers at JRS
- **Miscanthus as source for paper pulp**
Marcel van de Peppel, Chief Technology Officer at Miscancell

11.10 **Perspectives on sustainable fibres in the tissue sector**

Carlos Reinoso, Director General at European Tissue Symposium

11.25 Introduction to ICP activities and facilities

David Ravnjak, Director at ICP

11.30 Tour of the laboratories and pilot paper machine

In groups

12.30 Lunch

14.00 Paper and packaging from non - wood fibres

- **Tissue paper from straw pulp**
Martin Wiens, Essity Operations Mannheim at Essity
 - **The grass fibre and grass paper packaging technology**
Michael Schatzschneider, CFO at Creapaper
 - **Specialty paper from bagasse, cotton, bamboo and recycled textiles**
Gaël Depres, Senior Innovation & Grenoble R&D Center Manager at Fedrigoni
 - **Local side streams valorised in paper production**
Achille Monegato, Research Director at Favini
 - **Alternative fibres for containerboard**
Thomas Ferge, Group Paper and Board Development Director at DS Smith
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15.10 Latest results and insights from research institutes

- **Adding value to agricultural side streams**
Annabelle Cox, CEO at Tensei
 - **Pulp fibre production from wheat straw**
Friedrich Steffen, Research Associate at University of Hamburg
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15.30 Summary and closure of the workshop

Annita Westenbroek, Innovations Manager at Cepi

Workshop presentations

Non-wood fibre database and ICP work on non-wood fibres

Mija Sežun, Andrej Šinkovec, ICP

To assist companies in the paper and packaging industry in their process and product development of non-wood fibre raw materials, ICP has created a non-wood database for Cepi. The database provides an overview of non-wood fibre sources for potential users of cellulose fibres from alternative types of biomass. The database includes information on the parameters that are relevant for pulp production (biomass processing), paper production and paper product characteristics.

ICP will also present their "circular stories" using alternative fibres as a cellulose source.

They will present the challenges they face and the practical development from idea to prototype.

OnceMore® – the process for recycling blended textile fabrics into high-quality cellulose fibres

Åsa Degerman, Södra

OnceMore® is the world's first large-scale process for recycling blended fabrics and a solution to circularity for MMCF (Man Made Cellulosic Fibres) products. With OnceMore®, Södra is making an important contribution in the shift towards a more sustainable textile industry. The process combines textile waste with wood from responsibly-managed forests to produce high-quality textile pulp.

Pulp production from wheat straw and other alternatives

Igor Žeželić and Sascha Galic, JRS

JRS is a manufacturer and technology leader for industrially-usable, fine-structured plant fibre products made from re-growing raw materials - e.g. cellulose fibres, wheat fibres, oat fibres, citrus fibres, vegetable fibres, alginates, wood fibres, corn granules, etc. At the Dunacell production site in Hungary, Rettenmaier operates a pulp mill where wheat straw pulp is produced. This pulp is used in the paper industry as an alternative to wood pulp and in the food industry as a dietary fibre. The wheat straw is sourced locally. Miscanthus could be another alternative.

Miscanthus as a source for paper pulp

Marcel van de Peppel, Miscancell

Miscancell is a Netherlands-based scale-up company that has developed technology and designed pulp mill infrastructure for the optimal processing of miscanthus into various industrial raw materials. The miscanthus pulp produced is of high quality and a drop-in replacement for non-wood and wood pulp products. Sustainable agricultural feedstock combined with balanced processing enables the production of the next generation of sustainable pulp products and paper.

Perspective on sustainable fibres in the tissue sector

Carlos Reinoso, European Tissue Symposium

A balanced and accurate debate on choices of fibre is essential in the tissue industry, as it significantly impacts marketing strategies and shapes consumer perceptions of sustainability. Sustainability guidelines serve as a tool in guiding fibre selection by offering a structured framework to evaluate both traditional and alternative sources. By integrating criteria such as environmental impact, certification, circularity, and social responsibility, these guidelines clarify options and potentially reduce the risk of greenwashing. Input from workshop delegates will be instrumental in helping the European Tissue Symposium advance this initiative.

Tissue paper from straw pulp

Martin Wiens, Essity

Essity integrates new cellulose fibres from straw as a complement to fresh and recovered fibre as raw material for their tissue production. The fibres are as soft, tear-resistant and highly absorbent as conventional cellulose made from wood fibres. Annually, Essity regionally sources 70,000 tonnes of straw that will become about 35,000 tonnes of pulp. The process enables a reduction in the use of water and energy while the by-product of the integrated pulping process will be further refined to serve as a substitute for oil-based chemicals. By using this agricultural by-product that would otherwise go unused and making it into high-quality pulp, Essity becomes more circular and offers a tissue product with less climate impact.

Grass fibre and grass paper packaging technology

Michael Schatzschneider, Creapaper

Headquartered in Hennef, Germany, Creapaper produces grass fibre raw material and grass paper products for the retail, paper and packaging industry. By sourcing the raw material from peatlands and from EU-RDP-areas, Creapaper provides a new revenue stream for grassland farmers, helps in the renaturation of peatlands and supports biodiversity and carbon capture by nature on an industrial scale.

Specialty paper from bagasse, cotton, bamboo and recycled textiles

Gaël Depres, Fedrigoni

Fedrigoni Group is a European producer of luxury packaging. Where most of its paper and board products are made from wood fibres, more and more non-wood fibres are included. These are mainly cotton and bagasse, but nowadays also bamboo and recycled textiles. These alternative fibres are used for technical reasons and for sustainability purposes.

Local side streams valorised in paper production

Achille Monegato, Favini

Alternative fibres for containerboard

Thomas Ferge, DS Smith

DS Smith is investigating scenarios for alternative fibre raw materials in containerboard and corrugated board from three different angles:

- the usefulness of alternative fibre-based papers in corrugated board production.
- the potential of alternative fibres in containerboard paper production in the context of recycled paper manufacture. Here, it becomes clear that the process chosen for pulp production, as well as fibre availability, are decisive factors for the economic use of alternative fibres at scale.
- the potential opportunity to use novel sources, e.g. agricultural by-products, modified for use as cellulose-based additives for enhancing paper properties.

To summarise the above aspects, particular attention is given to the influences on the established recycling loops.

Adding value to agricultural side streams

Annabelle Cox, Tensei

Tensei is a materials science company focussed on developing new materials using 'Second Harvest'. These are primarily agri-based residues from food crops and include both fibre, starch and lignins derived from straws, seeds, husks and stones. Materials in development include papers, adhesives, bio compounds and advanced material composites.

Second Harvest as a collateral asset, adds greater value to the circular economy, through 'waste' resourcing and positive social implications by delivering additional revenue to farmers.

Pulp fibre production from wheat straw

Friedrich Steffen, University of Hamburg

The Institute of Wood Science at the University of Hamburg combines approaches from economics, engineering and natural sciences to develop sustainable practices for the use of natural, renewable, raw wood material in the production of innovative materials and bioenergy. For many years, one research focus has been the valorisation of agricultural residues by using them as feedstock for pulp and paper production. With this presentation they aim to give a short insight into our current research and projects that deal with the pulp fibre production from wheat straw.