



ZELLCHEMING-CONFERENCE

CELLULOSE-BASED MATERIALS –  
FROM SCIENCE TO TECHNOLOGY

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### **Circular way of thinking – Innovative approach to the use of nature-produced waste materials**

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#### **Abstract**

Let us be circularly minded – the word circular can be heard almost every day and mostly in relation to the economy, agriculture and waste treatment. At the Pulp and paper institute we have been systematically evaluating potential applicability of different bio-based waste materials, such as corn stover, straw, harvested hemp, hop and tomato stems, residues from pruning fruit trees, invasive plants, residues from food (husks, shells) and textile (rags) industries, waste packaging (jute sacks) and many others. On the basis of chemical analyses it can be already assumed how the material may be further technologically processed. Possible applications are manufacture of paper, bioplastics, composite and construction materials... If the material has high enough cellulose content and isolated fibers are good quality in term of morphological and mechanical properties it may be used in pilot scale paper production. So far we have produced different grades of which some have been used for innovative packaging, e.g. boxes, envelopes, sacks while others for printing leaflets, flyers, posters, brochures, journals, etc. By processing of accumulated bio-waste into marketable products the entire circle is closed. Even more, cellulose based products are recyclable, biodegradable and compostable so they are environmentally friendly in all aspects.



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Paper production  
Innovative products

**Biography**

Andrej Šinkovec has BSc. in Chemical Engineering and in Wood Science and Technology. He's expertise in fibrous materials and process technologies is built on combination of professional knowledge and industrial competences; 10 years of industrial experiences as a process and development engineer in papermill (Radeče Papir d.o.o.) and 6 years as researcher and head of department at Pulp and Paper Institute Ljubljana (Materials and Technologies in Papermaking). Mr. Šinkovec has expertise in development of analytical methods and laboratory testing of biomass, cellulose fibers and fibrous materials. He is also responsible for Institute's pilot equipment, where raw materials, new products and technologies are tested at semi-industrial level. As researcher, he has expertise in biomass fractionation and delignification processes and in development of advance techniques and processes in fiber pretreatment (cavitation technology).

