

Latvia

September 2013



COST FP1205: Innovative applications of regenerated wood cellulose fibres



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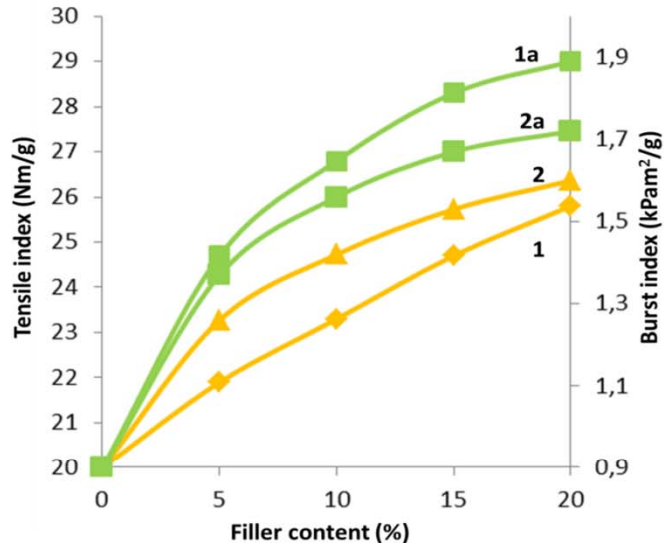
All other institutions and laboratories like the Institute of Inorganic Chemistry, Riga Technical University, Institute of Solid Physics, are working with carbon nanotubes, nanoparticles from metals, metals oxides et al.

E.g., COST Action MP0701 entitled “Composites with novel functional and structural properties by nanoscale materials (Nano Composite Materials – NCM)”.

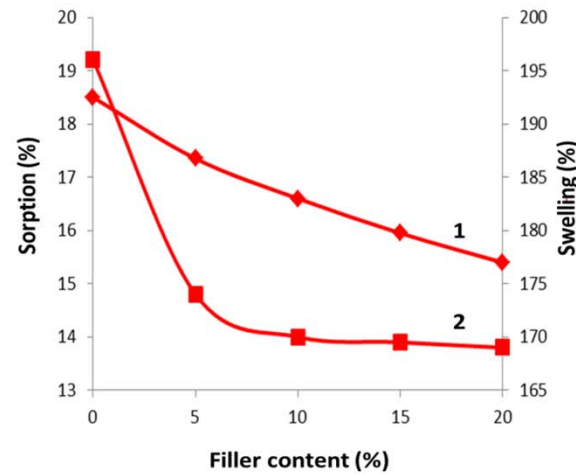


Descriptions of ongoing projects / previous activities

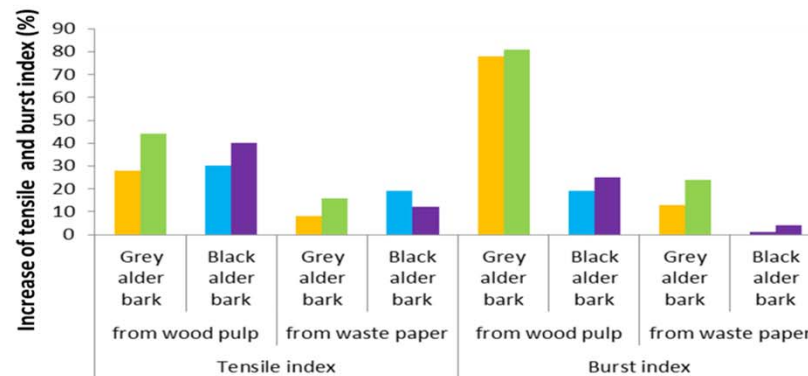
1. *MATERA project “Smartfibre-Surface Engineering of Pulp Fibres:New Functionalisation Concepts for Smart Fibre Products”, 2009-2011, Finland, Latvia (coordinator P.Fardim).*
2. *WoodWisdom-Net project “Development of Advanced Lignin-Cellulose Composites with High Impact Properties for Logistics”, 2011-2013, Germany, Finland, Turkey, Latvia (coordinator L.Ziegler, Tecnar).*
3. *National project nr. 1610“Properties of novel multifunctional polymer materials from lignocellulose, polyols and lignin, their obtaining and modification with nanoparticles” , 2009-2013,(Leader A.Treimanis).*
4. *National project “Wood biomass fractionation with ionic liquids, valorisation of polyphenolic and cellulosic products obtained”, 2013-2016, (Leader T.Dizhbite, principal investigator A.Treimanis).*
5. *Latvian State Project “Natural Resources”, 2011-2013.*
6. *COST Action E54 “Characterisation of Fine Structure and Properties of Papermaking Fibres Using New Technologies”, 2006-2011, 22 Countries (Chair Arnis Treimanis).*
7. *COST Action FP1105 “Understanding wood cell wall ...” , (Vice Chair A.Treimanis)*



Tensile (1) and burst (2) of pulp handsheets vs. Alder extracted (a) and non-extracted bark nanoparticles content



Water sorption (1) and swelling (2) vs. Content of fillers from birch wood



Strength increase at 20% content of nanoparticles from extracted and non-extracted bark .

Specialist equipment

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LS Institute of Wood Chemistry possess:

- Pyrolysis GC-MS, Shimadzu
- Nanosizer, Malvern
- Automated cellulose viscosity meter, Rheotek
- SEM “Vega TS 5136M” , microscope “Leica DM5500B”, Image-Pro
- “FiberTester” for fibres and fines dimensions measurement
- Standard equipment for fibre handsheet preparation and testing.

Original processing methods:

- Thermocatalytic method for preparation of microcrystalline and nano cellulose
- Hydromechanical peeling of pulp fibre surface layers.



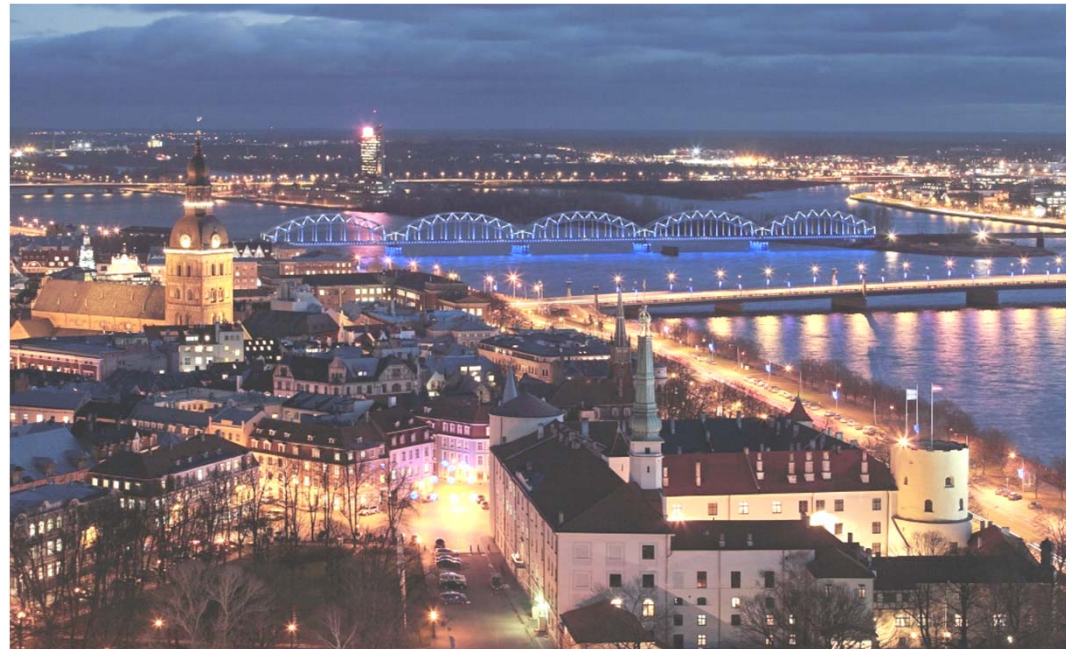
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THANK YOU FOR THE
ATTENTION!

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Riga – Capital of Latvia



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