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SIMPOSIO INTERNACIONAL SOBRE MATERIALES LIGNOCELULOSICOS

NANOCELLULOSE –TOWARDS APPLICATIONS

Some views about safety of nanocellulose in applications

Pia Qvintus*, Tekla Tammelin, Erkki Hellen, Ulla Forsström, Jari Vartiainen, Marja Pitkänen, Heli Kangas, Kirsi Kataja

VTT Technical Research Centre of Finland, Biologinkuja 7, 02150 Espoo, Finland

pia.qvintus@vtt.fi

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Abstract: Nano/microfibrillated cellulose has been shown to be potentially very useful for a number of technical applications in the future. The key to understanding how nano/microfibrillated cellulose will behave in different applications is to have a thorough understanding of how the structure and interactions of nanocellulose affect its function and hence its suitability for different applications. The research performed at VTT relates to the whole production chain of nanocellulose – from selection of raw materials to development of production process and modification of nanocellulose material according to the needs of various applications. Successful use of nanocellulose in different applications requires profound understanding of structural and molecular properties of nanocellulose. Nanocellulose consists seldom of only cellulose and other compounds present may have a major impact on the properties of the preparation. At the moment nanocellulose research at VTT can be divided in five main research areas: Soft matter – emulsions, encapsulation, stabilization of dispersions, hydrogels, Condensed matter – composites, Porous matter – filters, adsorbents, scaffolds; thin films – barriers, supports, adhesive layers and use of nanocellulose in fibre based structures. The presentation highlights the latest nanocellulose application research related to research areas mentioned above. Safety issues, toxicity assessment and life cycle assessment (LCA) studies of nanocellulose materials developed at VTT is reviewed.