

Specifics of non-wood dissolving pulps on dissolution and spinning of Lyocell fibres

B. Kosan^{a}, K. Römhild^a, K. Thümmeler^b, F. Meister^a*

^a Thüringisches Institut für Textil- und Kunststoff-Forschung e.V. (TITK), Breitscheidstraße 97, 07407 Rudolstadt, Germany

^b Technical University Dresden, Institute for plant and wood chemistry (IPHC), Piennner Straße 19, 01737 Tharandt, Germany

* corresponding author

Abstract

The demand for cellulose man-made fibres (CMMF) will steadily grow up in the next decades because of world-wide increase of per capita consumption especially in populous Asian countries reaching typical western Europe consumption values, stagnation of world-wide cotton cultivation and increase of micro plastic waste in world's oceans. The pulps required for CMMF manufacturing are today mostly coming from wooden sources. A further significant increase of wooden dissolving pulp manufacturing is limited because of restricted availability of wood as a resource, climate changes, bark-beetle attacks in the forests and uninhibited forest clearance.

For all these reasons new sources for dissolving pulp production are highly required. Agricultural wastes, upgraded paper pulps or cotton fibres originate from textile fabrics recycling could be potential new sources of dissolving pulps.

The lecture will introduce actual results of basic and more applied studies on manufacturing of these new kind of dissolving pulps, their effects on pulp dissolution and spinning dope properties as well as on fibre spinning and resulting CMMF properties. It will compare the different kinds of dissolving pulps to the common wooden dissolving pulps and will conclude how spinning procedure will have to be adjusted in regard to a common Lyocell spinning process.