

Fiber4Fiber- Sustainable and traceable eucalyptus-based cellulosic fibres

Rita Valério^a; Catarina Costa^a, Joana F. Araújo^a, Paula Oliveira^a, Daniela C. Ferreira^a; Nelson Durães^a; Catarina Guise^b; Lúcia Rodrigues^b, Filipe Rodrigues^b, Eugénia Coelho^b, Luis Ramos^b, Carla Silva^b; Gabriel Sousa^c; João Martins^c; Samuel Peres^d; Miahela Postoronca^d

^a CeNTI – Centre for Nanotechnology and Smart Materials. Rua Fernando Mesquita, 2785, 4760-034. Vila Nova de Famalicão, Portugal.

^b CITEVE - Technological Centre for the Textile and Clothing Industries of Portugal. Rua Fernando Mesquita, 2785, 4760-034. Vila Nova de Famalicão, Portugal.

^c Altri, Rua Manuel Pinto de Azevedo, 818, 4100-320. Porto, Portugal.

^d Caima – Pulp Industry S. A., Rua da Fábrica, 2250, 2250-058, Constância Sul, Portugal

Abstract

Nowadays, there is an ecological awareness and social concern regarding the environmental impact of the textile industry, focused on the growing need for developing green and sustainable approaches throughout this industry's supply chain.

The Fiber4Fiber project is a response to this self-sustainability challenge, that brings together two key industries in Portugal, the textile industry and the pulping sector, in particular the dissolving wood pulp from *Eucalyptus globulus* wood. Currently, the dissolving wood pulp is mainly exported outside Europe where it is transformed into man-made cellulosic fibres (MMCF), and the textile industry is importing these fibres and yarns back to Portugal.

Fiber4Fiber project aims to develop optimized dissolving wood pulps (DWP), from Portuguese *Eucalyptus globulus*, by Altri group, at Caima mill, to produce MMCF-Lyocell and Viscose, that can be traced along the value chain. The traceability applied will make it possible to distinguish products with sustainable origin from others, that come from less responsible management sources, making it crucial to leverage the use of these fibres in increasingly demanding applications. Under Fiber4Fiber project, modified lyocell fibres are being developed to obtain properties that are appealing to the end user and/or that meet more demanding technical and performance requirements in the market, such as antimicrobial and flame-retardant properties.

This work was developed in the scope of Fiber4Fiber project (n.46948), which was co-financed by Portugal 2020, under the Operational Program for Competitiveness and Internationalization (COMPETE 2020) through the European Regional Development Fund (ERDF).