



Forests, their Products and Services (FPS)

Participating countries

AT, BA, BE, CH, DE, DK, EL, ES, FI, FR, HR, HU, IT, LT, LV, NL, NO, PL, PT, RO, RS, SI, SK, SE, UK

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COST Action FP1006

Bringing new functions to wood through surface modification

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Objectives

- Investigation of new wood and wood-based panels surfacing methods to enhance existing properties and created new properties and/or new products
- Understanding of the relationships between wood and wood-based panels surface and surface modification processes
- Evaluation of the changes in material properties during the modification and the long term performance
- Investigation of models for the adequate description of the material properties during various processes
- Improve the collaboration and exchange of information between interdisciplinary communities

Main Achievements

- New functionalities on wood surfaces and wood interfaces
- Development of new surface modification techniques
- Comprehensive knowledge on the interface modification mechanisms and interactions
- Development of adequate models for the description of the changes in material properties during product life time

Working Group 1

- WG 1 focus on new treatments to develop enhanced or new functionality on wood surfaces. It aims to make even smarter products and to enter new fields of applications.
- Innovative product design and development requires comprehensive knowledge of the micro-mechanisms for surface modification of the specific materials. Also information about the various user needs and preferences will be collected.
- Based on these considerations, developments of new surface modification processes can be performed to fulfil customer needs. It is intended to focus on and investigate possibilities for eco-friendly treatments.

Working Group 2

- WG 2 focus on fundamental studies of wood interface modification which allows for example eco-friendly self-binding or other functionalities to occur. The emphasis will be placed on studies of non-toxic interface modification methods for wood and wood products. Areas of interest will be e.g. adhesion improvement by enzymatic pre-treatment or interface modification using other materials e.g. magnetic particles.
- In this research area a comprehensive knowledge of the interface modifications mechanisms and interactions will also be gained. Interface and surface analysis will be carried out in order to obtain results on the effectiveness of processes .

Working Group 3

- WG 3 will develop adequate models for description of the changes in material properties for various processes and under varying conditions. Understanding of the impact of different environmental conditions on the quality of the material is essential for the prediction of a product's performance during its life cycle.
- Looking at various materials and modification methods the knowledge obtained by fundamental research and later used for the development of models will help us not only to simulate the changes in material properties but also aid in the optimization of existing surface modification techniques and materials

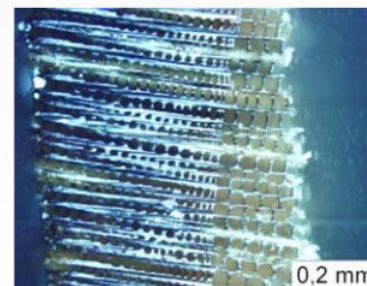


Figure 1. cross-section of southern yellow pine modified with magnetic particles, precipitating from solution into the structure and adhering to the side of the lumen (Source: Dr. Stacy Trey, SP Wood Technology, Sweden).



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