



COST FP 1006 WG1 WOOD SURFACE MODIFICATION

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WG1 AGENDA

- ➔ Task: Review paper in the field of the working group, submitted until October 2013
- ➔ Topics missing in this review paper?
- ➔ Gaps in knowledge, research needs?
- ➔ Other ideas or preferences?

- ➔ Task: Review paper in the field of the working group, submitted until October 2013:
 - ⇒ Petric M (2013): Surface Modification of Wood: A Critical Review. *Rev. Adhesion Adhesives, Vol. 1, No. 2, April 2013*



OVERVIEW OF MARKO'S PAPER

Petric M (2013): Surface Modification of Wood: A Critical Review.

1 Introduction

2 Surface Modification Methods

2.1 Plasma Treatments

2.2 Non-enzymatic Grafting onto Wood Surfaces by Chemical Treatments – Functionalisation of Wood

2.3 Enzymatic and Enzyme Assisted Functionalisation of Wood Surfaces

2.4 Sol-gel Methods

2.5 Modification of Wood Surfaces by Deposition of Nanoparticles



OVERVIEW OF MARKO'S PAPER

- 2.6 Chemical Modification of Surfaces and Surface Impregnation Treatments
- 2.7 Modification of Wood Surfaces with Microwaves
- 2.8 Application of Various Mechanical Treatments to Modify Surfaces of Wood
- 2.9 Thermo-hydro-mechanical Surface Treatment Methods



OVERVIEW OF MARKO'S PAPER

- 3 Target Properties to be Reached or Improved by Surface Modification of Wood
 - 3.1 Improvement of Adhesion of Adhesives and Coatings
 - 3.2 Wettability and Penetration
 - 3.3 Resistance Against UV Radiation and Weathering
 - 3.4 Resistance Against Biological Degradation Factors (Wood Pests) and Antibacterial Properties
 - 3.5 Fire Retardancy, Mechanical and Other Properties
- 4 Prospects
- 5 Summary/Conclusions

137 References!



TOPICS MISSING IN THE PAPER

- ➔ Modification using different sources of irradiation
 - ⇒ Laser, IR, Electron beams, laser beams...
 - ⇒ Abstracts from Turkey-Conference on COST Wegpages

- ➔ Layer by layer modification

- ➔ Nanocellulose deposition

- ➔ Washing of surfaces (cleaning, extraction)



GAPS IN KNOWLEDGE, RESEARCH NEEDS

- ➔ Characterisation of modified surfaces
- ➔ Change of properties of modified surfaces during exposure
- ➔ Predictive models for service life of coatings (→ WG3)
- ➔ Use of biobased oils
- ➔ Combination of modification methods to achieve supplementary effects or synergies
- ➔ Densified wood in exterior application
- ➔ End of life and health aspects of modified wood
- ➔ Protective systems with reduced use of biocides
- ➔ Fire retardant treatments
- ➔ Anti fouling treatments for boats in sea water



OTHER IDEAS OR PREFERENCES

- ➡ Try to involve and inform coating manufacturers
- ➡ Conference topic on coatings at one of the next COST events