



DuraWOOD⁷

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ABSTRACT:

For wood to compete with other materials and be attractive to customers, a durability of treated wood facades of at least 5-8 years renovation-free should be guaranteed. New EC legislation (2004/42/EC) requires the replacement of solvent-borne coating systems with water-borne coatings for outdoor wood preservation purposes. Wooden facades treated with water-borne coatings are more susceptible to discolouring and damage by mould and blue stain fungi. Mould fungi grow mainly on the surface of the paint film and harm the appearance of wood surfaces via their pigmented spores. Blue-stain fungi are capable of colonising the surface as well as the wood and wood-coating interface. They can penetrate the coating film enzymatically and mechanically, thereby damaging its protective functioning against the elements, leading to costly repair work after only a few years of service life. In order to sustain the use of wood in the face of growing competition from other materials, a need exists for cost-effective wood protection methods free from toxic preservatives, but which are capable of offering comparing durability.

This project will develop a cost-effective, ecological, high performance wood coating system, offering low fungicide content. It is long known that the interaction of wood with water can lead to dimensional instability and accelerated bio, and weathering degradation. A variety of techniques have been investigated to achieve water repellent characteristics of wood surfaces, from liquid reagents, to thermal and chemical applications. A very promising technique to hydrophobize wood surfaces is the use of electrical gas discharges (plasma). This project will build on past research in this area to arrive at a DURAWOOD system that meets market needs in terms of price, durability and environmental protection. The RTD results will contribute to the continued growth of the EU wood industry, especially in light of global competition and new material alternatives.

KEYWORDS: Wood Coating Technology, Atmospheric Plasma Diffuse Barrier Discharge, Microbiological Resistance, Waterproofing

Development of a solvent-free coating process for wooden facades

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