

SUSTAINABLE COATING SYSTEMS FROM TREE BARK FOR THE TRANSPORT SECTOR (SuperBark)

PARTNERS:

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DESCRIPTION: In the SuperBark project nanocellulose and tannins are extracted from tree bark to create sustainable, biobased coatings that can replace petroleum-based materials in engineered wood products.

RESULTS & CHALLENGES

The developed bark-based coating system demonstrates strong potential as a fully bio-based alternative to conventional petroleum-based coatings, with mechanical performance exceeding expectations for transport applications. Key challenges remain in ensuring consistent performance across bark extracts with varying compositions and in scaling the process to industrial production.



Fig. 1: a) Around 15% of a tree consists of bark, b) it is currently mainly burned, disposed of, or used only for low-value applications, c) however, valuable tannins can be extracted from bark, which can serve as the basis for a 100% biobased resin.



Fig. 2: Tannins are obtained through alkaline treatment and spray-drying; the remaining residues are further processed into nanocellulose

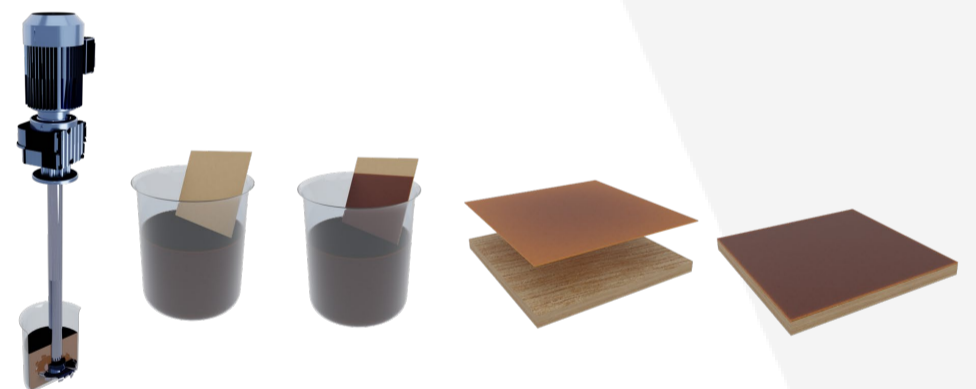


Fig. 3: Production process of 100% biobased tannin resin coating

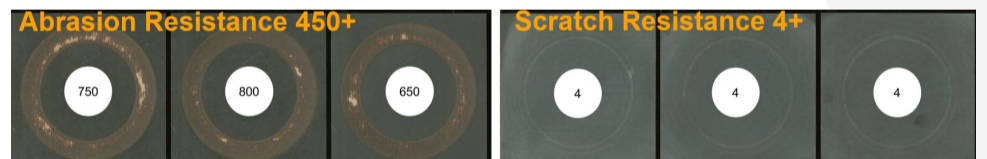


Fig. 4: Abrasion and scratch resistance results of tannin-resin coatings

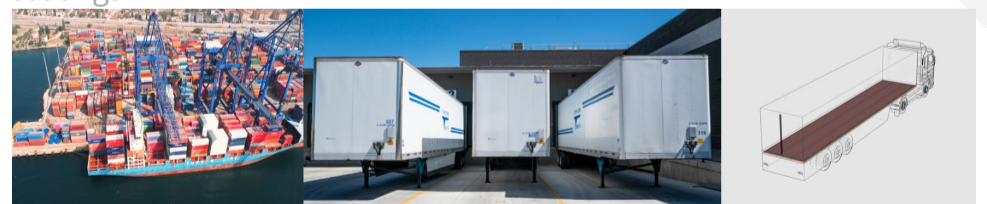


Fig.5: Polyphenol plywood coatings for high-performance surfaces in the transport sector

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