

Engineered Biopolymers in Wood Adhesives

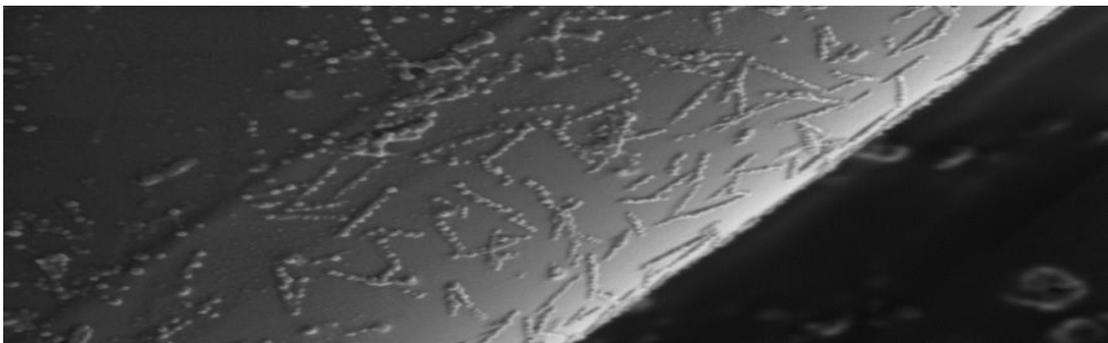
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CHIMAR HELLAS SA

Challenges in Wood Adhesives overcome by Engineered Biopolymers

In the era of the environmental strain caused by fossil fuels and chemicals, and the increased concern with the long-term security of supply of petrochemicals, considerable interest is raised in resins obtained from renewable resources. The wood-based panel sector along with the resin manufacturers, who provide the necessary raw materials for the production of the former, find it extremely difficult to swift from the conventional amino and phenolic resins to adhesive systems that can simultaneously provide sustainability, performance meeting the legislative requirements on formaldehyde emissions worldwide and cost savings or at least cost neutral production. The alternative of using highly reactive isocyanates is also being considered as not sustainable enough as this type of binders are also being manufactured by classical petrochemicals. Moreover, and as chemical applications/modifications continue to be the sector's biggest challenge, with the inexistence of sufficient feedstock being the second one, the biopolymers should also offer to the end user an easy to handle chemistry, safer than its predecessors, and no issues when the binder enters the production process by using the same processing conditions as with conventional binders and by enabling yearly sufficient availability of raw materials.

Taking all the above-mentioned into account, CHIMAR and Ecosynthetix proceeded to technology advancements which have resulted in the development of an adhesive system based on biopolymer Durabind™, which was specifically engineered in order to be used as a binder for composite wood panels overcoming all the drawbacks and obstacles already mentioned. The advantages of using an engineered biopolymer are many and are fully demonstrated by evidences collected through numerous laboratory, pilot and industrial trials.



Scanning electron micrograph of Durabind™ engineered biopolymer

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