

Seeing invisible resin

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(PhysOrg.com) -- When manufacturing chipboards, it is important to correctly distribute the resin on the wood shavings. Researchers are now developing a measuring technique that makes it possible to monitor the application of the resin during production.

Particleboards have multiple purposes: they can serve as attic floors, practical wall constructions or packaging material. Designers and interior decorators value their natural look. The boards are increasingly made of wood residues. If flakes of a defined size are used, the resulting boards are known as OSBs - short for “oriented strand boards”. The strands are mixed with [resin](#) and scattered in several layers to form a mat, which is then fed into a press on an endless conveyor. The boards are produced under immense pressure and at [high temperatures](#).

Manufacturers of OSB always have to make sure the mixture is right. If they use too little resin, or if the resin is not distributed properly on the strands, the resulting boards are not firm enough. But the special resin is expensive and accounts for roughly one-third of the production costs, so using too much resin is a great waste of money. Researchers at the Fraunhofer Institute for Wood Research WKI and their colleagues at the Reutlingen Research Institute RRI are helping manufacturers to distribute the resin as efficiently as possible.

“We use special optics to measure how well the resin is distributed,” says WKI project manager Burkhard Plinke. At present, manufacturers use expensive dyes for this. They add the dyes to the glue and then check how it spreads inside the board. However, this method can only be used

on random samples, whereas the new technique will enable continuous measurements during production. A line spectrograph, i.e. a camera with special integrated optics, scans the surface of the shavings mat before it enters the press, recording the image of a narrow section across the entire width of the forming line. The optics register the light of the near-infrared range. At these wavelengths, the resin can be distinguished from the wood.

“A computer stores the data and analyzes them online before the mat is transported into the press. The data indicate where the strands are glued and where they are not,” says Plinke.

Thanks to the new measuring technique, manufacturers of OSB will soon be able to monitor the distribution of the glue online and quickly detect any unevenness. This will help them to save costs and to further optimize their production processes. The researchers will be presenting the measuring principle at the Ligna trade fair in Hanover from May 18 to 22.

Provided by Fraunhofer-Gesellschaft ([news](#) : [web](#))

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