

MDI: A Market Driven Solution for Composite Wood Products

For more than 40 years, wood panel manufacturers have used glues containing formaldehyde to hold wood together during the manufacturing process for particleboard and medium-density fiberboard (MDF). Today, Huntsman is providing an alternative solution for these composite wood products (CWP).

Huntsman's I-BOND® and RUBINATE® methylene diphenyl diisocyanate (MDI) provide cost-effective and easier-to-use alternative resins to hold wood particles together. The use of MDI improves indoor air quality and helps manufacturers meet more stringent regulations for the manufacturing of composite wood products. It also provides a sustainable solution for forest product companies to recycle sawdust into composite wood panels.

MDI provides a very strong bond with the wood particles as it reacts with the wood itself when put under intense heat, creating a chemical weld. It is a different and superior type of bond compared to the mechanical weld that formaldehyde-based products produce.

MDI can help manufacturers of composite wood products to achieve a more stable processing window, improved material performance in terms of internal bond strength and increased protection against thickness swell, while reducing production costs.

"If you're sitting at a desk reading this, chances are, you are close to something made of particleboard or MDF," says John Bebak, Huntsman's CWP Business Manager. "With new regulations on the use of glues that contain formaldehyde, Huntsman's MDI is a proven alternative."

Although Huntsman has been providing MDI as a resin for composite wood product manufacturers for more than 26 years, it is expanding its customer base for the resin as a glue replacement as regulations on the use of formaldehyde get stricter.

Formaldehyde was a popular resin used for decades in the manufacturing of desks, cabinets, chairs and other wood products. A recognized carcinogen, it is known to emit fumes from a finished panel or product. In early 2000, regulators in California passed legislation to regulate formaldehyde emissions from composite wood products, and in 2010, Congress enacted legislation mandating the creation of a national emission standard for composite wood products.

MDI resins contain no added formaldehyde (NAF) and are considered "exempt" under requirements of the California Air Resources Board (CARB) standards. Using MDI resins classifies products as both CARB I and CARB II compliant. The resins are also compliant to the European EPF-S standard, as well as the Japanese formaldehyde emission standard.

"Huntsman works closely with our customers to help them convert from one type of binder to another. We recommend process changes so that MDI can be safely and effectively used in composite wood product production," Bebak adds.