

## S U R F A C I N G

This is the first installment of an ongoing series about surfacing options.

Watch future issues of *Second Wave* for in-depth articles on the latest developments and design innovations in high and low-pressure laminates, foils, vinyls and other decorative surfacing materials.

## Take a Powder

**W**e take for granted that metal is frequently finished with the powder coating process, but what about wood? Thanks to new technology, powder coating is now available on composite wood products.

"Commercially, it's been most successful on medium-density fiberboard," notes Mike Favreau, marketing manager of Rohm and Haas Powder Coatings. "Clear and tinted powder coatings are ideal for MDF because they permit you to see the fibers and interesting textures of the product.

"It's also very important to start with a smooth surface because powder coatings are engineered to conform to all contours of a substrate -- even unwanted surface flaws. That's why we like MDF; it has a consistently smooth surface."

Refining the technology to make powder coatings adhere to MDF rather than metal proved more difficult than anticipated.

"We worked on it for a long time," notes Steve Couzens, wood industry powder coatings specialist for HB Fuller. "The trick was to use a temperature that was high enough to get the powder to cross-link or cure, but not so high that it would compromise the foundational strength of the MDF"

Chemical scientists achieved that elusive balance about five years ago.

### NOT JUST FOR DESKS

Rohm and Haas (previously known as Morton) markets its powder coatings for composite wood

under the brand name Lamineer®. Although aimed at large manufacturers (particularly cabinet component and office furniture makers), the company is also fielding requests from project designers and architects.

"We've made prototypes for libraries and schools," explains Favreau. "It's great for shelving, desks -- or to add flair and design to endcaps."

To accommodate low-volume requests, Rohm and Haas established the Certified Lamineer Component Supplier Program. It includes six companies throughout the United States that are trained to complete powder coating jobs that are not large enough to require one of Rohm and Haas' main production lines. Three more companies are expected to join the roster in early 2003.

### EARTH-FRIENDLY

"Powder coatings offer distinct environmental advantages, since they don't use solvents, produce VOCs, contain lead or create hazardous waste," notes Favreau. "These advantages complement the use of an environmentally preferable substrate like MDF, as well as a total encapsulation of the substrate which eliminates seams, delaminations or swelling from heat and moisture."

Anti-microbial powder coatings are among Rohm and Haas' more recent developments, and they are just becoming commercially available. Product manufacturers and space designers are likely to find ideal applications for germ-busting coatings in children's rooms, day-care centers, restaurants, hospitals and other health care facilities. Based on the popularity of anti-microbial dishwashing soaps, hand gels and cleaning sprays, consumer interest could be intense.





PHOTOS COURTESY OF ROHM AND HAAS POWDERCOATING

#### STYLE AND PERFORMANCE

Powder coatings are available in a wide array of textures – from a semi-glossy effect, to a smooth leathery feel, to a sandpaper look. In addition to clear and translucent coatings, virtually any solid color is available, as are speckled or granite appearances.

Couzens stresses the wide variety of performance characteristics that can be engineered into powder coatings for composite wood – including varying levels of resistance to impact, stains, abrasion and even boiling water.

“Different applications require different performance characteristics,” he explains. “The work surface of an office system, for instance, needs to be hard enough so that pencil marks won't cause indentations. The finish on a TV stand, however, serves a more decorative purpose. With powder coatings, we can tailor the formula to achieve what each customer needs.” **2W**

## ITW Gema

ITW Gema has been a pioneer in powder coating solutions for more than 40 years, offering our customers the confidence and expertise that come with being the industry's world leader. By working with non-conductive substrates, ITW Gema has gained extensive experience in applying a powder coating to such materials as Medium Density Fiberboard (MDF) and natural woods. This experience, and a close working relationship with leading powder manufacturers, has helped to make powder coating on wood a practical reality. Setting the standard for cutting-edge wood finishing solutions, ITW Gema is the wood powder coating specialist.



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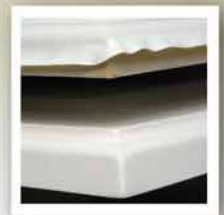
PHOTO COURTESY OF ROHM AND HAAS POWDERCOATING

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## How it Works

The same basic principles that make magnets stick to refrigerator doors bond powder coatings to metal and composite wood substrates.

The powder has a positive electrostatic charge, and products to be coated are hung on a grounded paint line with a negative charge. Metal substrates have inherent negative charges, but composite wood uses moisture to cause the attraction to all exposed surfaces and edges.



With thermo-set coatings, composite wood – typically medium-density fiberboard – is heated in gas or convection ovens to draw moisture to the surface before it's ready for powder coating. The temperature varies according to the moisture level of the wood and the complexity of the product shape, but 100° - 200° F is typically all it takes.

Products are hung vertically on a “paint line” and guns spray the positively charged powder coating on the negatively charged substrate. After one to three minutes in the “paint” booth, products then cure in an oven for another three to five minutes and the coating is completely cured.

Ultraviolet lamps are also used to cure powder coatings on composite wood. This process speeds curing to just 5 to 10 seconds.

For more information on powder coatings, contact:  
HB Fuller at 651/236-3700 or [www.hbfuller.com](http://www.hbfuller.com)

Rohm and Haas at 610/775-6600 or  
[www.mortonpowder.com](http://www.mortonpowder.com)

