

# Powder for wood. Perfected.



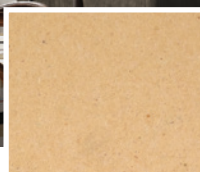
PPG ENVIROCRON<sup>®</sup> HeatSense  
powder coatings for heat-sensitive substrates



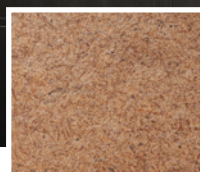
We protect and beautify the world™



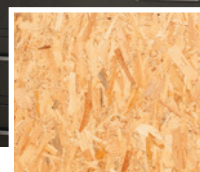
Hardwood (HW)



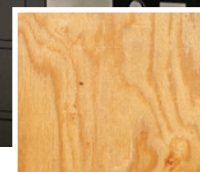
Medium-Density Fiberboard (MDF)



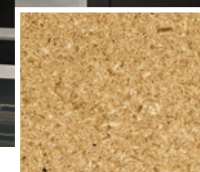
High-Density Fiberboard (HDF)



Oriented Strand Board (OSB)



Plywood



Particle Board

## Advanced technology brings the power of powder to wood and wood-composite substrates

Powder coatings have long been renowned for their toughness and durability when used over metal, but the technology has worked less reliably over wood. Low conductivity, warping, variations in moisture content and inconsistencies in substrate quality have all made it difficult for wood coaters to adopt powder.

Thanks to recent advancements in low-bake technology, we are pleased to offer *PPG Envirocron HeatSense* powder coatings for heat-sensitive wood and wood-composite substrates. These coatings – coupled with a perfected, strictly regimented application and curing process – overcome the traditional barriers to powder coating wood.

The result is a tough, durable coating that delivers clear advantages over competing finishing technologies in aesthetics and functionality.

### Suggested markets

Office furniture and equipment

Building products

General industrial

### Suggested end uses

Office furniture

Cabinetry and casework

Building and construction

Store fixtures and point-of-purchase (POP) displays

### Unique benefits



Durable protection from heat, moisture, physical impacts and UV light



Cost-effective, compact, low-waste, high-output, automated application technology



Delivers aesthetics and functionality: solids, textures, antimicrobial\*-protected films



Available in a wide range of RAL and custom colors and glosses



No edge-banding allows for application on curved and straight parts

\* Antimicrobial is limited to the treated surface to provide mold and mildew resistance on the paint film and to inhibit the growth of stain and odor-causing bacteria that may affect the surface of the coating. The use of these products does not protect users of any such treated article or others against food-borne or disease-causing bacteria, viruses, germs or other disease-causing organisms.





## The performance benefits of powder by end use



### Office furniture

- No edge banding creates more design freedom
- No edge banding can reduce labor cost
- Hardness and scratch resistance
- Sealed edges improve moisture resistance



### Cabinetry and casework

- Compact, single-coat process versus multi-coat liquid process
- Fully encapsulated and seamless
- Moisture and chemical resistance
- Design flexibility (e.g., one-piece shaker door)
- Small, custom-color batches



### Building and construction

- Exceptional durability and appearance
- Factory-applied, water-resistant barrier on OSB sheathing
- Prefinished, factory-applied coating for engineered wood siding
- Factory-applied primer for plywood



### Store fixtures and point-of-purchase (POP) displays

- Freedom of design
- Hardness and scratch resistance
- Custom colors, finishes and textures
- Seamless coverage aids in ease of cleaning
- PPG SILVERSAN™ antimicrobial\*-protected coating in public places

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## Overall, powder outperforms competing technologies

Powder coatings outperform solventborne liquid coatings and high-pressure laminates across several key metrics, the most important of which is in the realm of sustainability. Powder's VOCs and carbon footprint are considerably lower, boosted by the fact that powder can be reclaimed and resprayed.

Performance is another factor. Powder provides comparable durability to laminate and better durability than liquid, but does so in fewer coats than either competing technology. Because powder fully encapsulates the substrate, it provides better moisture resistance than laminate, which is banded and leaves openings at corners.

Powder offers RAL and custom color matching as well as finishing capabilities that are not available to laminate or liquid, including textures, veins, metallics and antimicrobial\*-protected surface options.

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	Envirocron HeatSense Powder Coating	High-Pressure Laminate	Solventborne Liquid Coating
<b>Sustainability</b>	VOCs NIA <sup>†</sup> Low CO <sub>2</sub> Low waste	High VOCs Moderate CO <sub>2</sub> High waste	Highest VOCs Highest CO <sub>2</sub> High waste
<b>Coats / Labor</b>	1 or 2	Multiple	Multiple
<b>Durability</b>	Excellent	Excellent	Good
<b>Moisture resistance</b>	Excellent	Poor	Good
<b>Design flexibility</b>	RAL/custom solid colors, textures, antimicrobial*-protected options	Limited due to edge banding	Thousands of solid colors

<sup>†</sup> Not intentionally added.







## The curing and application process

Wood substrates must be pre-heated before they can be powder coated.

### Step 1: Preheat the substrate

- Temperature range 150-250° F (66-121° C)
- Dwell time 5-10 minutes
- Substrate dimensions and type dictate conditions

### Step 2: Powder application

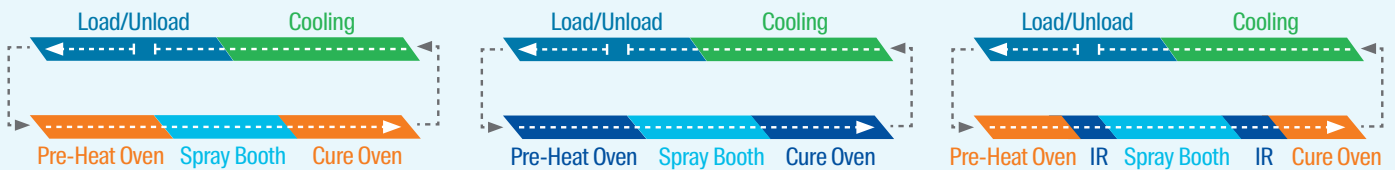
- Standard powder spray guns
- Film thickness of 4 mm or more – enough to form a continuous film
- Film thickness uniformity has to be controlled

### Step 3: Powder cure

- Temperature range 250-350° F (121-177° C)
- Dwell time 5-10 minutes
- Substrate dimensions and type dictate conditions

## Typical line configurations and oven types

The ideal line configuration for your business is dictated by the types of substrates you coat and end-product. For detailed information about line configurations, please speak with your PPG representative.



Convection Cure	Infrared (IR) Cure	Combo: Convection and IR Cure
Slow, even curing	Fast, rapid curing	Choice of curing methods
Ideal for large and/or thick substrates	Ideal for small and/or thin substrates	Flexibility to handle all sizes of substrates
35-40 minute process	20-25 minute process	35-40 minute process







## Envirocron HeatSense powder coating technologies

The *Envirocron* HeatSense family of coatings offer formulations for a wide variety of end uses and wood-based substrates. The hard, fully encapsulated surface helps to protect your products from chips, scratches, chemicals, heat and water – all while delivering aesthetic and functional options not available with competing technologies.

	Envirocron HeatSense Technology Platforms				
	PCEW	PCMW	PCTW	PCFW	PCW
<b>Recommended Uses</b>	Office furniture Kitchen cabinets	Kitchen cabinets Vertical surfaces	Exterior applications	Textures Wood-grain finishes	Clearcoats for wood veneer
<b>Recommended Substrates</b>	MDF, HDF	MDF, HDF, HW	Plywood, OSB	MDF, HDF	MDF, HDF, HW
<b>Colors Options</b>	RAL, custom	RAL, custom	RAL, custom	RAL, custom	RAL, custom
<b>Texture Options</b>	Smooth and texture	Smooth and texture	Texture	Texture	Smooth and texture
<b>SilverSan Antimicrobial*-Protected Option</b>	Yes	Yes	Yes	Yes	Yes
<b>Oven Type</b>	Convection, IR or Combo	Convection, IR or Combo	Convection, IR or Combo	Convection, IR or Combo	Convection, IR or Combo

Specifications <sup>†</sup>					
<b>Dry Film Thickness</b> ASTM D4138	4.0 – 7.0 mils	4.0 – 7.0 mils	4.0 – 7.0 mils	4.0 – 7.0 mils	4.0 – 7.0 mils
<b>Gloss</b> ASTM D523 @ 60°	5 – 70	5 – 80	5 – 30	5 – 30	5 – 30
<b>Pencil Hardness</b> ASTM D3363	2H minimum	2H minimum	H minimum	H minimum	H minimum
<b>Solvent Resistance</b> PCI #8	No effect	No effect	Slight mar	Slight mar	Slight mar
<b>Boiling Water Resistance</b> NEMA LD 3-2005 -3.5	No effect	No effect	No effect	No effect	No effect
<b>Detergent/Water Resistance</b> KCMA 9.5	No swelling or edge cracking	No swelling or edge cracking	No swelling or edge cracking	No swelling or edge cracking	No swelling or edge cracking



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<sup>†</sup> Proper selection of substrate, powder, film thickness and curing process is critical to achieving a quality coated part.



## PPG: WE PROTECT AND BEAUTIFY THE WORLD™



### A trusted global coatings leader

Operations in 70 countries, with 150+ manufacturing facilities and 70,000+ employees



### Renowned color expertise

Trend-setting palettes for home, auto and industry paired with unrivaled color matching



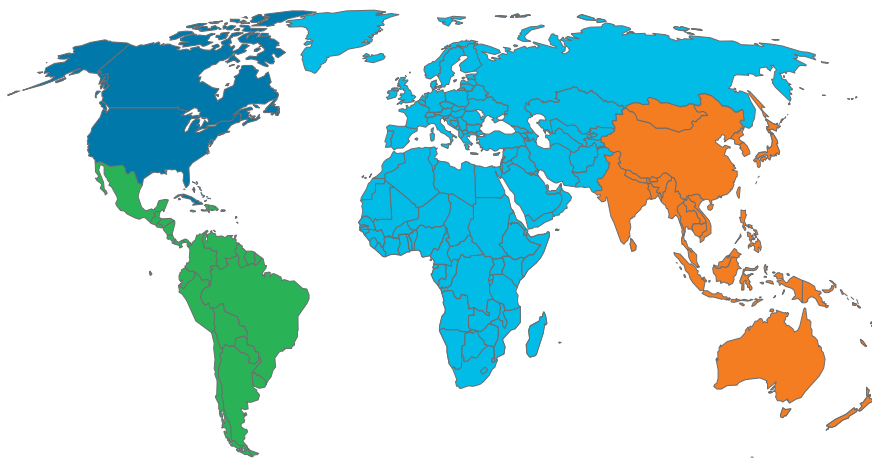
### Commitment to sustainability

Over 30% of annual sales from sustainably advantaged products and processes



### Dedication to innovation

3,500+ technical employees and \$470+ MM average annual R&D investment



### Industrial coatings from PPG

- World-class technical services and training
- Help meeting specific, coatings-related environmental mandates
- Assistance setting up new equipment and identifying areas where your processes may be streamlined
- Troubleshooting production issues
- SECURE LAUNCH EXCELLENCE™ accelerated custom product formulation and color development process

To learn more about PPG coatings, please visit us online at [ppgindustrialcoatings.com](http://ppgindustrialcoatings.com), or contact one of the international sales offices listed below.

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