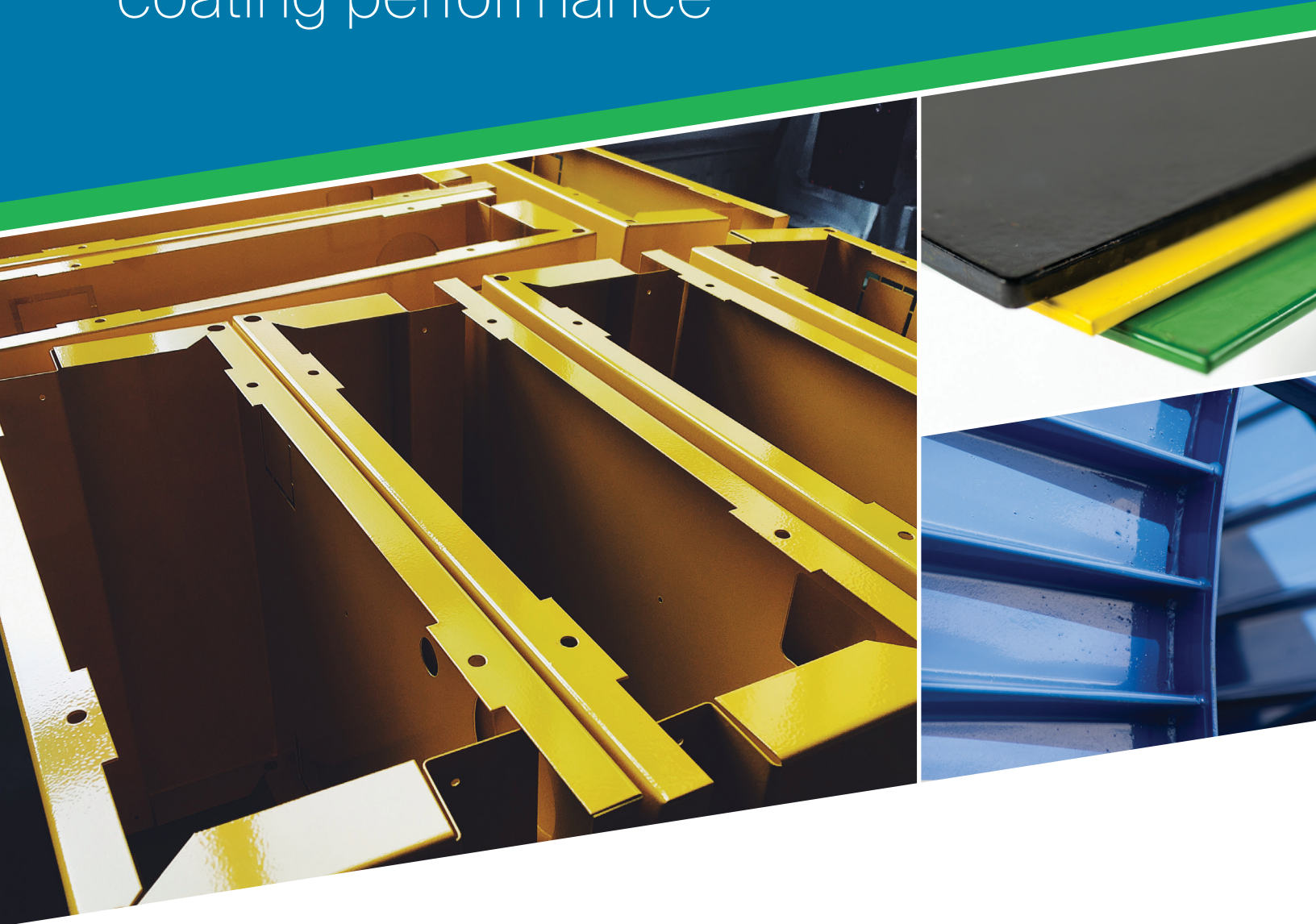


Edging out the competition:
a new standard in powder
coating performance



PPG ENVIROCRON® Extreme Protection
Edge Plus powder technology



We protect and beautify the world®



What is high-edge powder technology?

Simply put, sharp edges are failure points for traditional powder coatings and typically the first areas to show signs of heavy rust and corrosion.

High-edge powder technology is formulated to provide additional coverage and protection for these areas, helping to extend substrate life.



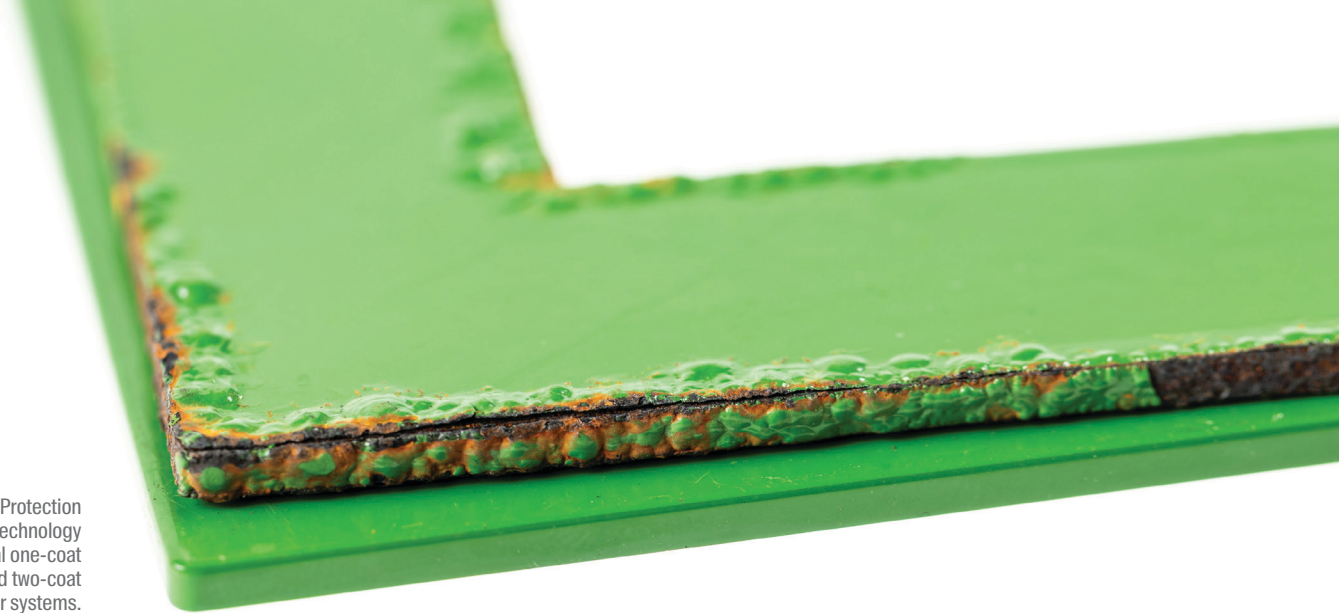
Sharp and laser-cut metal edges are especially susceptible to corrosion and rust.

What problems can be solved using high-edge powder technology?

When conventional powders cure, they tend to shrink and pull away from sharp edges, leaving the metal exposed and vulnerable to corrosion. This problem is particularly prevalent with parts produced through laser cutting, welding with sharp edges or corners, and stamping or water-jet cutting processes.

Customers experiencing these challenges often invest additional time and resources into mechanically smoothing edges or by relying upon complex primer and topcoat systems to prevent corrosion.

High-edge powder technology fights these problems by using a single coat to ensure even the sharpest edges are fully protected, promoting safer handling and significantly reducing the risk of corrosion and field failures. The technology is an ideal solution for customers seeking to enhance durability, reduce maintenance costs and improve overall coating performance on complex metal parts.



Envirocron Extreme Protection Edge Plus powder technology outperforms traditional one-coat direct-to-metal and two-coat dry-on-dry powder systems.

***Envirocron* Extreme Protection Edge Plus powder technology improves upon our existing high-edge formulation**

Launched in 2019, PPG ENVIROCRON® Extreme Protection Edge powder coating technology offered outstanding edge corrosion resistance in a single coat. Engineered specifically to cover sharp edges on challenging parts such as louvers, blades and mesh, this innovative, patented technology delivered exceptional coverage that outperformed traditional one-coat direct-to-metal (DTM) powders and two-coat dry-on-dry (DOD) powder systems. The advanced formulation also delivered high first-pass transfer efficiency, which can lower powder consumption and provide long-term cost savings.

Building on those competencies, improved ***Envirocron* Extreme Protection Edge Plus** technology provides the same excellent protection with enhanced aesthetic features.

The film now has significantly reduced orange peel versus its predecessor, resulting in a smoother, more uniform appearance. This elevates the product's visual appeal while maintaining the same strong corrosion protection.

Available in a wide range of colors, gloss levels and effects, *Envirocron* Extreme Protection Edge Plus technology supports diverse end-market applications and meets specific requirements for corrosion resistance, aesthetics and cost effectiveness.

Suggested Industries

General industrial

Vehicle and equipment

Suggested End Uses

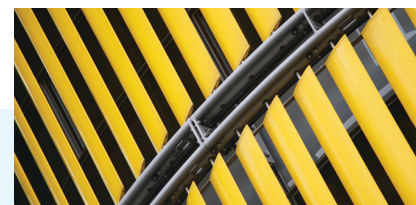
HVAC

Heavy-duty equipment

Electrical enclosures

Railings and gates

Signs and point of sale displays



The PPG benefit



One-coat, direct-to-substrate application

Exceptional edge protection in extreme environments with up to 20+ micron edge coverage

Outstanding corrosion protection with good chemical resistance



Designed to work with multiple *Envirocron* powder chemistries

Durable and ultradurable formulations available



Eliminates or minimizes edge rounding equipment and extra machining time

Eliminating primer coat and bake can reduce labor, material and utility costs



Improved appearance/smoothier film with reduced coating issues, including orange peel*

Long-lasting color with a full gloss range at 60°

Batch-to-batch color consistency

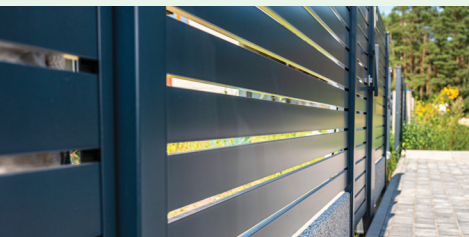
* Compared to first-generation PPG *Envirocron* Extreme Protection Edge technology.



Proven compatibility with multiple powder resin chemistries

Envirocron Extreme Protection Edge Plus technology has been lab tested and proven to work with the following PPG resin technologies:

- Polyester TGIC
- Polyester TGIC (Low Cure)
- Polyester Primid
- Polyurethane
- Polyester/Epoxy Hybrid
- Epoxy



Envirocron Extreme Protection Edge Plus technology + *Envirocron* HTE 04 powder: our best high-edge performance

Envirocron Extreme Protection Edge Plus technology is fully tested and highly compatible with many of our powder coatings, but we recommend using it with PPG *Envirocron* HTE 04 Ultra-Durable powder coatings. These polyester TGIC coatings were already designed for outstanding coverage on complex parts and shapes, offering an exceptionally high transfer efficiency rate of up to 85%. Combined with *Envirocron* Extreme Protection Edge Plus technology, these coatings offer outstanding edge corrosion protection as well.

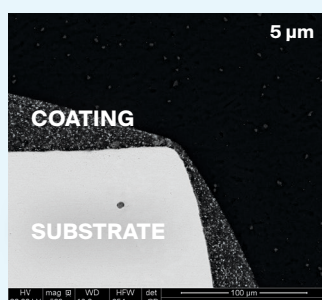
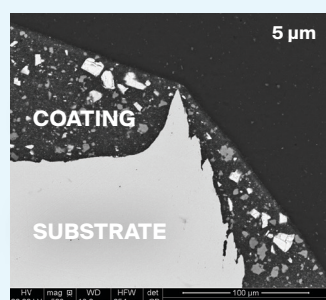
Product Characteristics	<i>Envirocron</i> HTE 04 Ultra-Durable
Color	Full range
Gloss @ 60° (ASTM D523)	15-95
Substrates	Cold-rolled steel, hot-rolled steel, aluminum, iron
Performance Properties	
Hardness (ASTM D3363)	2H minimum
Adhesion (ASTM D3359)	5B
Salt Spray Resistance (ASTM B117)	Steel: 1,000 hours Aluminum: 3,000 hours

Tests were performed using a variety of pretreatments, including iron phosphate, zinc phosphate and zirconium.

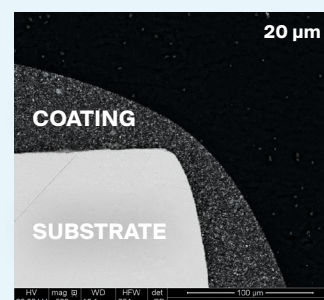
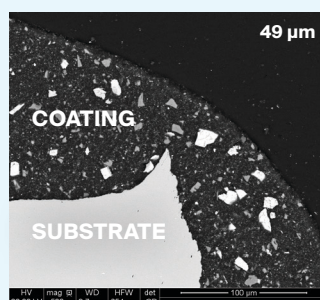
Exceptional edge coverage in a single coat

Taken at 500 times magnification with an electron microscope, these cross-section images show the exceptional protection provided by *Envirocron* Extreme Protection Edge Plus technology as compared to conventional direct-to-metal (DTM) powder.

Conventional DTM powder



Envirocron Extreme Protection Edge Plus technology



Relative performance comparison

The chart below shows relative performance characteristics of standard and high-edge powders against industry-wide testing standards, also highlighting improvements between our *Envirocron* Extreme Protection Edge Plus technology and its predecessor. Ask your PPG sales representative for assistance with the powder coating selection process.

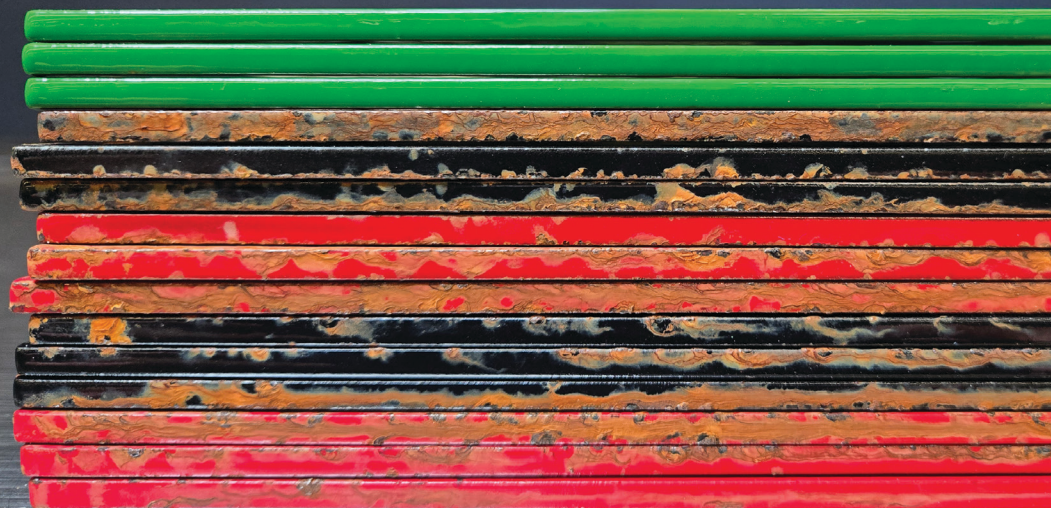
	Standard Polyester TGIC			Polyester TGIC + High-Edge Technology	
	Direct-to-Metal Topcoat	Epoxy Primer / Topcoat 2-Bake System	Epoxy Primer / Topcoat Dry-on-Dry 1-Bake System	<i>Envirocron</i> Extreme Protection Edge	<i>Envirocron</i> Extreme Protection Edge Plus
Edge Corrosion (ASTM B117, 1,000 hours)	★	★★★★	★★	★★★	★★★
Scribe Corrosion (ASTM B117, 1,000 hours)	★★★★	★★★★	★★★★	★★★★	★★★★
Gloss @ 20° (ASTM D523)	★★★★	★★★★	★★	★★★	★★★★
Smoothness (PCI Rating)	★★★★	★★	★	★	★★★
Distinctness of Image (TRICOR DOI/Haze Meter)	★★★★	★★	★	★★	★★★★
Color Retention (SAE J2527, 1,000 hours, 20° gloss)	★★★★	★★★★	★★★★	★★★	★★★

Performance properties were determined using 3.0 mils of powder film over 22 gauge (0.032") cold-rolled steel B1000 test panels pretreated with P99X wash primer. The performance properties of the powder coatings may vary based on actual product formulations, application characteristics and operating conditions.

Better edge retention and corrosion resistance than competitive primer/topcoat systems

A single coat of *Envirocron* HTE 04 Ultra-Durable powder enhanced by *Envirocron* Extreme Protection Edge Plus technology clearly outperforms competing two-coat, dry-on-dry (DOD) powder systems after 1,008 hours of ASTM B117 salt spray corrosion testing.

	Edge retention %
<i>Envirocron</i> Extreme Protection Edge Plus	87%, 3.1 mils
Competitor DOD Polyester over Zinc Epoxy	0%, 3.1 mils
	0%, 4.1 mils
Competitor DOD Polyester over Epoxy	15%, 4.5 mils
	13%, 3.2 mils

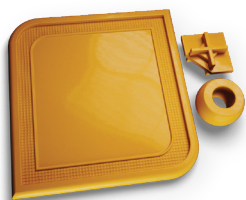




Envirocron Extreme Protection Edge Plus powder technology colors with gloss range*

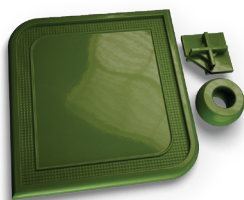
These are just a few of our popular colors. Ask your PPG representative about the full range of in-stock and custom colors we can provide.

Standard colors



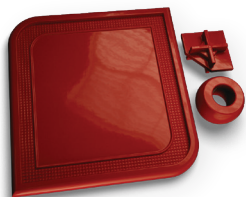
PCT39205
Yellow

80+
UD



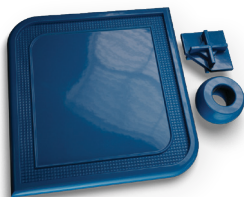
PCT49151
Green

80+•
UD



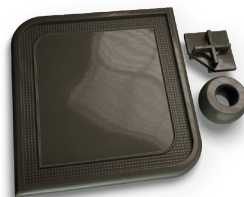
PCT69143
Red

85+
UD



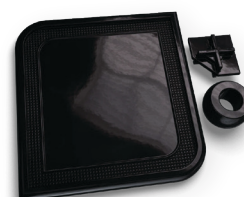
PCT59132
Blue

80+
UD



PCT79193
Grey

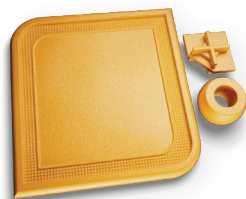
80+
UD



PCT99199
Black

85+
UD

RAL® colors



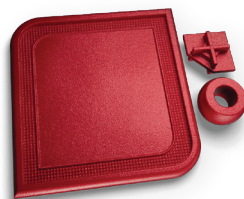
PCT39215
RAL 1003 Signal Yellow

85+
UD



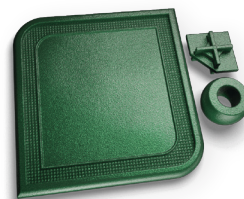
PCT39216
RAL 2010 Signal Orange

85+
UD



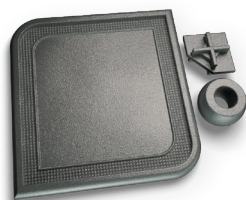
PCT69150
RAL 3001 Signal Red

85+
UD



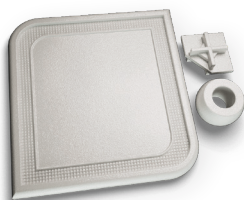
PCT49157
RAL 6028 Pine Green

85+
UD



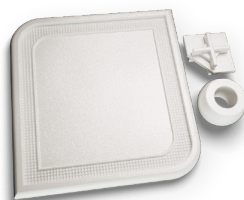
PCT79200
RAL 7012 Basalt Gray

85+
UD



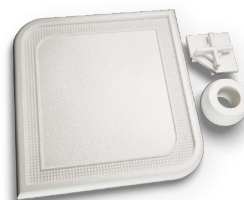
PCT79201
RAL 7035 Light Gray

85+
UD



PCT80406
RAL 9003 White

85+
SD



PCT89140
RAL 9003 White

85+
UD

* Gloss at 60° per ASTM D523 standards unless otherwise noted.
• Gloss measured at 20°.

UD = Ultradurable
SD = Standard durability

The chips in this brochure are approximations of color, gloss and texture; they should not be considered accurate matches or approved standards. Please contact your PPG representative for additional information.



PPG: WE PROTECT AND BEAUTIFY THE WORLD®



A trusted global coatings leader

Over 140 years in business with operations in 70+ countries



Renowned color expertise

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



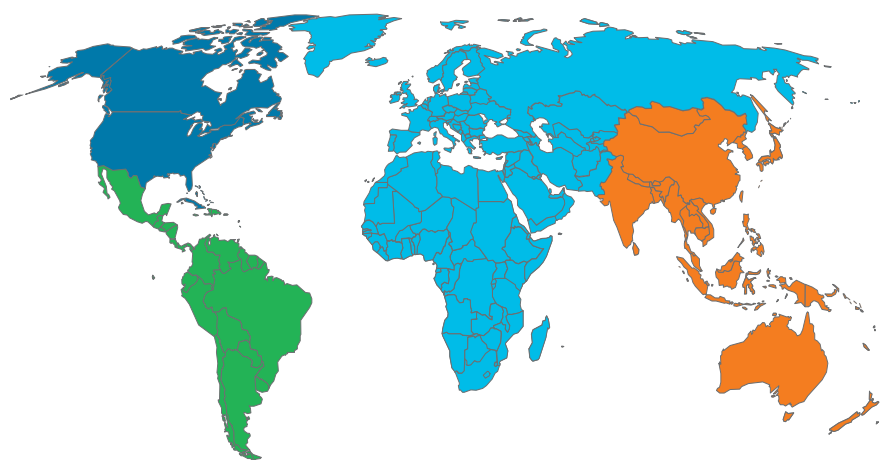
Commitment to sustainability

50% of annual sales from sustainably advantaged products and processes



Dedication to innovation

3,000+ technical employees with 700+ new coating patents over the past 10 years



PPG's Industrial Coatings business offers:

- World-class technical services and training
- Expertise and innovation in sustainably advantaged solutions
- Support for installation of new equipment and improving finishing efficiency
- World-renowned production troubleshooting
- A step-by-step process to accelerate the introduction of new coatings and colors through the SECURE LAUNCH EXCELLENCE™ program

To learn more about PPG coatings, please visit ppg.com/industrialcoatings or contact one of the international sales offices listed below.

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