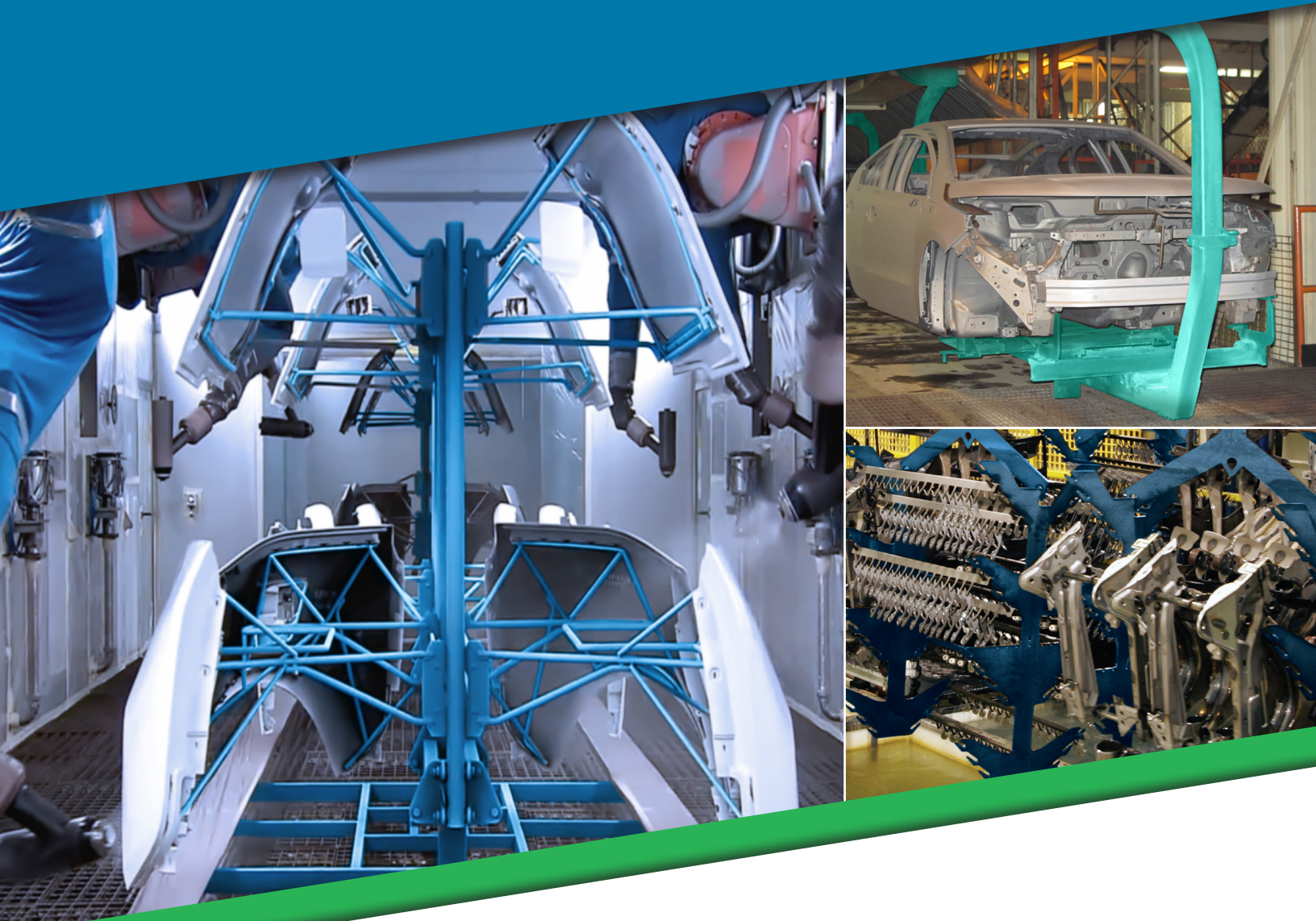


PPG OPTIMA SOLUTIONS™

OptiGuard™



We protect and
beautify the world™

PPG OptiGuard™

PPG *OptiGuard*™ is a comprehensive series of insulative and/or non-stick coatings specifically designed to facilitate the cleaning of all equipment found in paint shops within the industrial and automotive segments. Our versatile offering improves health and safety while generating significant savings in cleaning and maintenance areas when compared to uncoated equipment.

Recognized Benefits:



Cost Improvement

- Reduction of cleaning management costs and labor
- Reduction of coating accumulation on equipment
- Easier maintenance
(clogged filters, nozzles, transfer mechanism)
- Reduced line stoppage risk and down time



Safety & Environmental Impact Improvement

- Reduction of injury risk due to cleaning
(lower water pressure needed)
- Reduction of cleaning chemicals
- Improved sustainability through reduced water and energy consumption
- Reduction of hazardous waste disposal
- Energy savings



Investment Improvement

- Reduction of safety stocks
- Reduction in capital and maintenance for blasting and cleaning equipment



Process Improvement

- Simplification of the cleaning process
- Reduction of cleaning management
- Reduction of cleaning cycle time
- Reduction of repair costs and possible line stoppage due to “dirt” from carriers being deposited on units



Why Choose OptiGuard?

Reduces contaminant buildup on equipment and fixtures found in the paint shop

PPG *OptiGuard* helps automotive and industrial customers dramatically reduce the time, cost and risk associated with maintaining their equipment in any paint shop process.

Many customers are forced to pull equipment from production every 300 - 350 cycles to remove buildup of e-coat, paint, grease, and other contaminants. The insulative and/or non-stick properties of *OptiGuard* coatings resist material adhesion and buildup, enabling our customers to extend cleaning intervals by up to 75%.

Faster, easier cleaning requirements

Removing contaminants from uncoated racks and jigs often requires companies to rely on outside vendors for thermal cleaning or contract labor for time-intensive, on-site water blasting using extremely high – and potentially dangerous water pressures.

OptiGuard coatings help users dramatically reduce the time needed to properly clean each piece of equipment in the paint shop. Additionally, the coating can be effectively cleaned at significantly lower water pressures, reducing risk of injury to workers and eliminating the need for more expensive water blasting equipment.

Requires less water, produces less waste

The frequent cleaning cycles and time-intensive water blasting requirements of uncoated equipment also increase our customer's water, energy and waste disposal costs. Some OEMs and tiers, using *OptiGuard* coating, have extended carrier cleaning intervals to thousands, rather than hundreds, of cycles, leading to significant savings, not only in labor, but also materials, energy and waste filtration/removal.

Helps maintain e-coat throwpower and film build

Because *OptiGuard* resists e-coat buildup on vehicle carriers and helps minimize tank contamination, more paint can reach the vehicle body. This helps maintain desired throw power and film build capabilities while better controlling energy consumption.

A turnkey solution

PPG makes this offering through a turnkey solutions package. Using our approved and trained global applicator network, we will provide fully coated equipment door to door. We will project manage this offering for you - including arrangement according to your schedule and timing considerations, as well as making the logistics arrangements.

OptiGuard Product Range

The *OptiGuard* product range consists of solutions based on either fluoropolymer or solvent free epoxy-based technology. All products in the range are chemical resistant (*pH3-pH12*) and have been lab tested for compatibility. Furthermore, over three years of extensive, on-the-line pilot programs have been conducted to ensure the viability of the products with current customers.

OptiGuard A and B coatings combine high non-stick and insulative properties enabling a broad application on all equipment in the paint shop, in e-coat, powder and/or liquid paint shop booth areas. These coatings have been specially formulated to enable variations of anti-stickiness. *OptiGuard H* adds to the range the combination of high anti-stick and conductive properties for equipment with multiple contact points and adds measure of safety where grounding is needed. All references are highly heat resistant and can safely go through an oven process.

OptiGuard EG coating is specific for use in OEM e-coat processes. It's highly insulative, smooth, hard, and glossy finish has excellent release properties ensuring high rinsability through a standard e-coat OEM process (*one which does not involve the carrier going through an oven process*).

PPG's *Optima Solutions™* Sales Consultants will work with you to understand which product is most appropriate for the intended use and organize panel trials, as needed, to validate the selection.

<i>OptiGuard</i> Solution	B	A	H	EG
Compatible with EC process without oven	++	++	U/I	+++
Compatible with EC process with oven	+++	+++	U/I	No
Compatible with LQ & PW	+++	+++	U/I	No
Compatible with Paint process (Primer, BC, CC)	+++	++	+++	No
Compatible with PT	+++	+++	N/A	+++(*)
Compatible with oven process (Max T°C)	205°C / 400°F	260°C / 500°F	260°C / 500°F	Not Compatible
Insulative	++	++	Conductive	+++
Non-stick properties	+++	+++	++	-/+
Taber wear index	115	30	115	45
Pencil hardness	H	6H	3H	38
Impact/abrasion resistance	-/+	-/+	-/+	++
Possibility to spot repair on-site	No	No	No	Yes
Approximate thickness of coating	50-60µm	60µm	60µm	500-600µm
Approximate temperature substrate and coating will be cured at during application process	400°C / 752°F	400°C / 752°F	400°C / 752°F	Ambient (6 days) or force cure 77°C / 171°F (4h)

N/A: not suitable | U/I: under investigation | (*): compatibility with regular cycle but no long term immersion, please contact PPG for more details

Customer Care and Maintenance After Coating

OptiGuard is designed to last for many production cycles so long as basic care, cleaning and maintenance requirements are met. Please contact your local PPG *Optima Solutions* Service representative for further details.

How do I clean parts that have been coated with *OptiGuard*?

Normal pressure washing is suitable for *OptiGuard*, but at a much lower pressure than without the coating. Typically, 100-350 bars of pressure is needed, but this can vary based on distance, tip shape, and cleaning methods. Aggressive scraping of any kind, chemical cleaning, burning cleaning and/or high-water pressure are NOT recommended as they can damage the coating. We recommend a detailed review of your current cleaning methods as part of the process to evaluate any modifications which may need to happen to ensure optimal cleaning.

What other maintenance considerations are there?

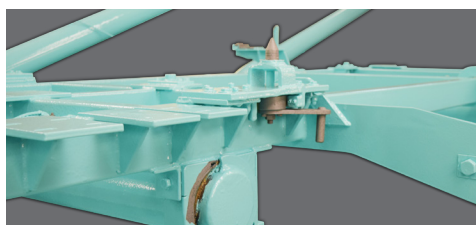
Avoid strong metal to metal shocks, rubbing or scraping to keep the coating intact. Improper treatment will cause the coating to wear down much faster. While *OptiGuard* can withstand short-term exposures to pH extremes, the coating should not be stored in very basic or acidic conditions. Specific to *OptiGuard EG* it should NOT be exposed to high temperature (ex: e-coat oven).

Will the appearance of the coating change over time?

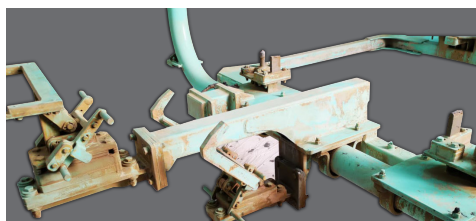
Yes, over time there will be some level of residual paint left on the coating and the color will change to show some areas of light gray and a more matte finish. This is normal and to be expected and the functionality of the product will not be impacted. The only additional negative impact is with overly aggressive cleaning, which will damage and reduce the effectiveness of the *OptiGuard* coating.

Can *OptiGuard* be repaired in the paint shop?

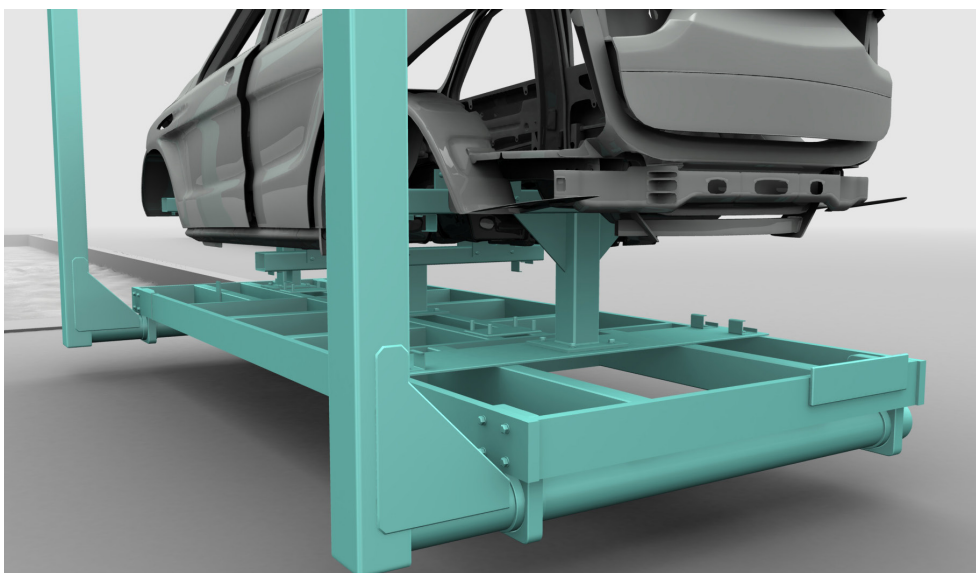
OptiGuard EG is designed to be repairable within the plant using available cartridges of the material – provided the surface of the carrier is properly prepared. There is a six-day curing time at ambient temperature for each product before use can resume, but can be shortened with an increase of the curing temperature of 77°C / 171° F. The other versions of *OptiGuard* will require a complete burn-off and re-coat which only an external applicator will be able to complete.



Freshly Coated



Normal Appearance after use in production





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