



PSX[®] 700

High-performance, engineered siloxane - lowering total operational costs



**PPG Protective &
Marine Coatings**

Bringing innovation to the surface.™



PSX[®] 700

High-performance, engineered siloxane - lowering total operational costs

PPG Protective & Marine Coatings (PPG) is a world leader in protective and marine coatings.

Our global capabilities and respected protective coatings brands enable us to provide our customers with exceptional products, performance and service. Our proven and trusted products protect a wide range of assets for the most demanding markets and environments, including:

- Civil Infrastructure
- Marine
- Mining
- Offshore
- Petrochemical
- Power
- Rail

PPG has the scale and resources to deliver outstanding support with well-established operations in over 60 countries. Continuous development ensures that we provide optimum solutions for asset owners, contractors, fabricators and applicators across the globe, helping our customers to meet the challenges they face today and tomorrow.

Experience, innovation and integrity – that is what makes PPG the ideal coatings partner.

Introducing the *PSX 700* factor

PPG's innovative technology proves that you do not need a three-coat system to obtain the optimum corrosion resistance of a zinc primer and an epoxy midcoat, along with the long-term gloss and color retention of conventional aliphatic polyurethane.

Now, with only one coat of zinc primer, plus one coat of our breakthrough *PSX 700* you get performance equalling, or surpassing, the finest three-coat systems available today. Our unique system uses patented engineered siloxane components delivering the excellent adhesion, toughness, corrosion and chemical resistances of epoxy siloxane.

In addition, *PSX 700* removes the need to use the traditional mid-coat epoxy to achieve excellent resistance to weathering, exterior gloss and color retention.

***PSX 700* offers unsurpassed benefits in three critical performance areas**

The benefits of *PSX 700* are more than just a reduction in coats. Three additional factors set this breakthrough product apart from all others:

- Unsurpassed performance
- Significant cost savings
- Outstanding environmental characteristics

Put the power of the *PSX 700* factor to work for you on your next project and find out how the product can benefit your business.



Introducing the PSX 700 factor

FACTOR 1 - unsurpassed performance

PSX 700 offers a longer service life than the traditional epoxy/aliphatic polyurethane system it replaces (see Table 1, Service life projection). And when combined with a zinc primer, the two-coat system significantly outlasts the best three-coat systems (zinc primer, epoxy midcoat, and polyurethane finish).

Table 1: Service life projection

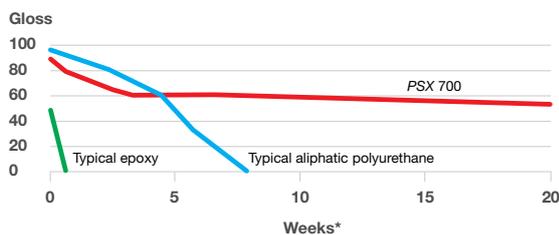
System	Number of coats	Surface preparation ISO 8501-1 / Years of service		Environmental conditions**
		St2/St3	Sa2½	
Epoxy/ epoxy/ urethane	3	10+	15-24*	C4
		6-10	12-21*	C5
Epoxy/ PSX 700	2	15+	20-32*	C4
		8-15	16-28*	C5

* Based on zinc rich epoxy ** ISO12944

Here are some of the key performance benefits offered by PSX 700:

- Gloss and color retention surpasses that offered by conventional aliphatic polyurethane (see Table 2)
- Corrosion resistance and chemical resistance exceeds those provided by an epoxy coating (see Table 5)
- Abrasion resistance is greater than, or equal to, a flexible aliphatic polyurethane and far superior to an ordinary epoxy (see Table 4)
- Highly resistant to stains, graffiti and dirt accumulation

Table 2: Accelerated weathering QUV test



* 1 week equates to approximately 1 year of Florida exposure.

FACTOR 2 - significant cost savings

PPG's PSX 700 siloxane-epoxy coating delivers dramatic, proven cost savings. Use one coat of PSX 700 to replace a conventional epoxy/polyurethane topcoat system or use PSX 700 over a zinc primer to replace a conventional three-coat zinc primer, epoxy, conventional polyurethane system. Either way, here's how you save:

- Less frequent repainting: due to greatly extended service life
- Shorter application time: only one low-VOC coat to apply reduces costly plant downtime
- Increased profitability: one coat versus two coats or more increases profits through lower product costs
- Reduced hazardous waste management costs: extremely low-volatile, organic compound content easily satisfies stringent environmental and health and safety requirements, and cuts disposal costs (fewer cans to discard)
- Quick and easy application: using airless or conventional spray, brush or roller
- Shorter downtime: cures at room temperature and will be touch-dry in two hours at 21°C (70°F)
- Higher output/throughput

Table 3: Applied cost savings

System description	% three-coat zinc silicate/epoxy/PU	% two-coat zinc silicate/PSX 700
Material (A)	4.8	7.3
Application (B)	95.2	63.5
Total Operational Costs	100	70.8

Reference: Corrosion 92/NACE Annual Conference, NACE Paper #335. Includes surface preparation and application by conventional spray. Note: Costs are based on industry standards in the United States.

FACTOR 3 - outstanding environmental characteristics

PSX 700 meets, or exceeds, today's stringent environmental, health and safety requirements due to its formulation of ultra-high solids and extremely low-volatile organic compounds. It also needs little or no thinning, providing significant reduction in solvent emissions and hazardous waste.

Importantly, unlike polyurethane, *PSX 700* does not contain hazardous isocyanates, and also provides Class A fire resistance with low fire and smoke generation ratings.

PSX 700 – Typical Applications

- Airports
- Bridges
- Heavy equipment
- Manufactured products
- Marine topsides and superstructures
- Offshore platforms
- Piping
- Structural steel
- Tank exteriors
- Wind turbines

Breakthrough technology - Proven in service

PSX 700 is a major breakthrough in protective coatings technology, and is still unequalled in quality and performance. Like all other PPG products, it's been thoroughly tested in the only way that matters – in service, for over a decade. In fact, *PSX 700* is currently protecting millions of square meters of valuable assets in a wide variety of applications, ranging from corrosive chemical environments to general maintenance.





The standard in high performance coatings

PPG's patented *PSX* engineered siloxane technology represents an entirely new coating category, offering unprecedented improvements in performance and durability. *PSX 700* is an exceptional example of this technology and offers a combination of characteristics available in no other product.

Table 4: Abrasion resistance / ASTM D4060
(1 kg (2.2 lbs) load/1000 cycles, CS17 wheel)

System	mg (oz) loss
<i>PSX 700</i>	53 (0.0019)
Epoxy mastic	102 (0.0036)
Flexible aliphatic PU finish	60 (0.0021)

Abrasion resistance: The abrasion resistance of *PSX 700* is similar to flexible aliphatic polyurethane.

Table 5: Chemical resistance (24-hour exposure) ISO 2812

(Splash/spill resistance of *PSX 700* compared to an epoxy mastic and a conventional polyurethane)

System	<i>PSX 700</i>	Epoxy mastic	Conventional polyurethane
Sodium hydroxide, 50%	10	10	10
HCL, Conc.	10	8	8
Sulfuric acid, 93%	6	6	0
Phenol	8	2	0
Phosphoric acid, Conc.	10	2	8
Acetone	10	8	10
Ammonium hydroxide, Conc.	10	10	10
Ethyl alcohol	10	10	10

10 = no change, 0 = complete failure

Typical systems using PSX 700

System-1: Zinc epoxy based		
Zinc epoxy	Zinc epoxy ¹	75 microns (3.0 mils)
Engineered siloxane	PSX 700	125 microns (4.9 mils)
System-2: Zinc silicate based		
Zinc silicate	Zinc silicate ¹	75 microns (3.0 mils)
Engineered siloxane	PSX 700	125 microns (4.9 mils)
System-3: Epoxy based		
Epoxy mastic	Surface tolerant epoxy	125 microns (4.9 mils)
Engineered siloxane	PSX 700	125 microns (4.9 mils)

¹ Zinc in compliance with ISO 12944.

Features and benefits of PSX 700 engineered siloxane

Unsurpassed performance	
Superior color and gloss retention	PSX 700 significantly outperforms the polyurethane system in color and gloss retention. A traditional polyurethane method begins to lose its color and gloss at an exponential rate after five years of application, whereas PSX 700 has been proven to retain it year after year.
Excellent corrosion and chemical resistance	PSX 700 resists corrosion and chemicals far more than traditional epoxy coatings.
Better abrasion resistance	PSX 700's abrasion resistance is greater than or equal to the flexible aliphatic polyurethane and superior to ordinary epoxy.
Supreme adhesive strength	PSX 700 has an adhesive strength of 2700 psi (on steel, using ASTM D4541), more than double the strength of the 500-1000 psi offered by conventional epoxy coatings.
Limited accumulation of dirt and mildew	The low surface energy of PSX 700's limits the accumulation of stains, graffiti and dirt, and enhances the ability of the surface to self-clean. For uncontrollable situations such as graffiti and defacement, the product is easy to clean and does not affect the original color and gloss. PSX 700's inorganic chemical makeup protects substrate surfaces from being micro-pitted, which prevents mildew from attaching to it. This avoids potential long-term corrosion problems.
Unlimited topcoat window	PSX 700's unlimited topcoat window make it easy for your field touch up and future maintenance.
Significant cost savings	
Lower application costs	When comparing to a conventional three-coat system, there is one less coat to apply, which significantly reduces initial application costs.
Lower application time & downtime	Applying one less coat with PSX 700 saves project labor time and costs. Plus, PSX 700 saves project downtime by curing and drying to the touch in two hours at 70°F (21°C).
Easy maintenance, clean-dry-recoat	For future maintenance, instead of blasting old coatings and repainting as with traditional aliphatic polyurethane, PSX simply requires that you clean, dry and recoat the area with another coat of PSX 700. The product reduces your operational shutdown time and money for maintenance projects.
Reduced waste management costs	PSX 700 features low volatile organic compound content that reduces disposal costs.
Outstanding environmental characteristics	
Isocyanate-free	PSX 700 contains no hazardous isocyanates, which promotes a healthier working environment and has less impact on the environment.
Low voc emissions	PSX 700 is formulated with high solids and extremely low volatile organic compounds and abides by stringent environmental requirements without compromising performance.



ppgmc.com
pmc@ppg.com
© 2013 PPG Industries, all rights reserved.
1500-962620-GLOB
Created December 2013

No rights can be derived from the content of this publication. Unless otherwise agreed upon in writing, all products and technical advice are subject to our terms of sale, available on our website ppgmc.com. All rights reserved. The PPG logo is a registered trademark. *Bringing innovation to the surface.* and PSX are trademarks or registered trademarks of PPG Industries Ohio, Inc.