

PSX® 700

PSX 700 Series
Patent Nos. 5,618,860 and 5,275,645

Engineered Siloxane Coating

PSX® Advantage: PSX®700 is the world's first weatherable epoxy it embodies the properties of both a high-performance epoxy and an acrylic polyurethane in one coat. This multi-purpose coating offers "breakthrough" weather resistance and corrosion control.

Product Data/ Application Instructions

- Unique, high-gloss, self-priming coating
- Can be applied directly over inorganic zinc
- Gloss and appearance retention exceeding the best polyurethane
- Significantly lower applied costs
- Excellent resistance to acid and corrosion
- High solids, low VOC
- Resists high humidity and moisture
- Applied by brush, roller or spray—without thinning
- Outstanding resistance to chemical splash and spill

Typical Uses

PSX 700 adheres strongly to bare steel, coated steel and inorganic zinc silicate coated surfaces on new construction, repair and field maintenance coating projects. It provides effective long-term corrosion control and weatherability.

- Structural steel
 - Bridges –Marine
- Tanks
- Piping
- Industrial power plants
 - Power – Wastewater treatment
 - Pulp and paper – Chemical and petrochemical
- Concrete walls and floors
- Transportation
 - Rail car exterior – Vehicle equipment—buses, trucks
- Marine
 - Decks – Topside and superstructures on ships
 - Boottops – Barges and offshore platforms

Physical Data

Finish	Gloss	
Color	See color card	
<i>Yellow, red and orange colors will fade faster than other colors due to the replacement of lead-based pigments with lead-free pigments in these colors.</i>		
Components	2	
Curing mechanism	Chemical reaction	
Volume solids (calculated)		
PSX 700	90% ± 3%	
PSX 700FD	90% ± 3%	
Dry film thickness per coat	3 – 7 mils (75 – 175 microns)	
Coats*	1 or 2	
Theoretical coverage	ft ² /gal	m ² /L
1 mil (25 microns)	1444	35.5
3 mils (75 microns)	481	11.8
5 mils (125 microns)	289	7.1
7 mils (175 microns)	206	5.1
VOC**	lb/gal	g/L
700 & 700FD (EPA method 24)	0.7	84.0
700 & 700FD mixed/thinned @ 2 ½ oz/gal (calculated)	0.83	99.9
Temperature resistance, dry	°F	°C
continuous	200	93
intermittent	250	121
Flash point (SETA)	°F	°C
resin	207	97
cure	205	96
FD cure	180	82
Amercoat 12	2	-17
Amercoat 65	81	27
Amercoat 101	145	63
Amercoat 939	60	16

Qualifications

NFPA – Class A
USDA – Incidental food contact

* When applying more than one coat, it is recommended that total dry film thickness not exceed 10 mils.

**The mixed and applied coating cure reaction will produce VOC of mixed alcohols. For 100 g/l VOC requirements, a VOC - exempt thinner such as Amercoat 939 may be used as needed.

Typical Properties

Physical

Abrasion resistance (ASTM D4060)	
1 kg load/1000 cycles CS-17 wheel	weight loss 53 mg
Adhesion, elcometer (ASTM D4541)	2700 psi
Elongation (ASTM D522)	14%

Performance

Salt spray (ASTM B117)	5500 hours
Face corrosion, blistering	None
Humidity (ASTM D2247)	5500 hours
Face corrosion, blistering	None
Gloss retention (ASTM G53) QUV-B bulb	
Greater than 50% gloss retention at 26 weeks	

Chemical Resistance Guide

Environment	Splash and Spillage	Fumes and Weather
Acidic	E	E
Alkaline	E	E
Salt solutions		
acidic	E	E
neutral	E	E
alkaline	E	E
Fresh water	E	E
Solvents	E	E
Petroleum products	E	E
F-Fair	G-Good	E-Excellent

This table is only a guide to show typical resistances of PSX® 700. For specific recommendations, contact your PPG representative for your particular corrosion protection needs.

Systems Using PSX 700 or 700FD

Substrate	Coats	DFT per coat
Steel (blasted)	1 or 2	5-7
Intact coating	1	3
Dimetcote ⁺	1	4-6
Amercoat 68HS ⁺ , 370 or 385	1	3-5
Amerlock Series	1	3-5
Concrete ⁺⁺	2	5-7
Amercoat 385, Amerlock Series	1	3-5
Masonry		
Amerlock 400BF	1	3-5
Amercoat 965	1	3-5

⁺ Mist-coat/full-coat application may be required. See special thinning instructions.

⁺⁺ Fill voids with Amercoat 114A prior to applying Amercoat 385, Amerlock Series.

Application Data

Applied over**	Prepared or primed steel, primed concrete, prepared galvanizing or aluminum
Surface preparation	
steel	SSPC-SP5, 6 or 10
concrete	ASTM D4259 or 4260
galvanizing	Galvaprep or blast lightly
aluminum	Alumiprep or blast lightly
aged coatings	Contact your PPG representative
Primers	Dimetcote® 9 Series, Dimetcote® 21-5, Amerlock® Series, Amercoat 68HS, 351, 370, 385

Method: Airless or conventional spray, brush or roller

Mixing ratio (by volume): 4 parts resin to 1 part cure

Pot life (hours)*	°F/°C		
	90/32	70/21	50/10
700 & 700FD	1½	4	6½

* Thinning material with ½ pt/gal after 3 hours will extend pot life to 5 hours at 70°F.

Environmental Conditions

Temperature	°F	°C
air	40 to 120	4 to 49
surface	40 to 120	4 to 49

Relative humidity: 40% minimum

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation during application and initial dry through.

Relative humidity lower than 40% will extend dry times.

Heat curing

Allow 700 or 700FD to dry to touch before exposing to curing temperatures above 140°F.

Drying time (ASTM D1640) (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
touch (700)	1½	3	6	12
touch (700FD)	1	2	4½	9
through (700)	4	6	11	38
through (700FD)	3	4½	8½	24

Recoat/topcoat time (hours) @ 40% R.H. or above

	°F/°C			
	90/32	70/21	50/10	32/0
minimum (700 over 700)	3	4½	9	32
minimum (700FD over 700FD)	2	3	7	18
maximum**	None			

Thinner: Amercoat 65, 101,

Equipment cleaner: Thinner or Amercoat 12

**See surface preparation for aged coatings.

**Appearance will vary depending on substrate and application method. Use two coats of PSX® 700 over bare concrete.

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. Refer to specifications for the specific primer being used. Prior to coating, primed surface must be clean, dry, undamaged and free of all contaminants including salt deposits. Round off all rough welds and remove all weld spatter.

Steel – Remove all loose rust, dirt, grease or other contaminants by one of the following depending on the degree of cleanliness required: SSPC-SP6 or 10. The choice of surface preparation will depend on the primer selected and end-use service conditions. In very low to low corrosivity environments, PSX 700 may be applied directly to steel that has been abrasive-blasted to a near-white metal condition (SSPC-SP10).

Concrete – Acid etching (ASTM D4260) or abrasive blast (ASTM D4259) new concrete before priming.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner, blast lightly with fine abrasive.

Galvanizing – Remove oil or soap film with detergent or emulsion cleaner, then blast lightly with fine abrasive.

Aged coatings – Contact your PPG representative. A test patch of PSX® 700 over intact clean coating and observation for film defects over a period of time may be required, dependant upon the type of aged coating.

PSX® 700 is compatible over Amercoat 450H and Amershield.

Repair – Prepare damaged areas to original surface preparation specifications, feathering edges of intact coating. Thoroughly remove dust or abrasive residue before touch up.

Application Equipment

The following is a guide; suitable equipment from other manufacturers may be used. Changes in pressure, hose and tip size may be needed for proper spray characteristics.

Airless spray – Standard equipment with a 30 to 1 pump ratio or larger with a 0.015- to 0.021-in. (0.38 to 0.53 mm) fluid tip.

Conventional spray – Industrial equipment such as DeVilbiss MBC or JGA spray gun with 78 or 765 air cap and “E” fluid tip, or Binks No. 18 or 62 gun with a 66 x 63 PB nozzle set up. Separate air and fluid pressure regulators, and a moisture and oil trap in the main air supply line are recommended.

Power mixer – Jiffy Mixer powered by an air or an explosion-proof electric motor.

Brush – Natural bristle. Maintain wet edge.

Roller – Use industrial roller. Level any air bubbles with bristle brush.

Environmental Conditions

Temperature	°F	°C
air	40 to 120	4 to 49
surface	40 to 120	4 to 49
Relative humidity	40% minimum	

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation during application and initial dry through. Relative humidity lower than 40% will extend dry times.

Heat curing

Allow 700 to dry to touch before exposing to curing temperatures above 140°F.

Application Procedure

Adhere to all application instructions, precautions, conditions, and limitations to obtain the maximum performance. For conditions outside the requirements or limitations described, contact your PPG representative.

1. Flush equipment with thinner or Amercoat®12 before use.
2. Mix to a uniform consistency.
3. Add PSX® 700 cure to 700 resin. Mix thoroughly until uniformly blended.

Pot life (hours)*	°F/°C		
	90/32	70/21	50/10
700 & 700FD	1 ½	4	6 ½

4. If needed for workability, thin** with Amercoat 65 or 101 up to 1 pint per gallon PSX® 700.
5. Apply a wet coat in even, parallel passes, overlap each pass 50 percent to avoid holidays, bare areas and pinholes. If required, follow with a cross spray at right angles to first pass.

Drying time (ASTM D1640) (hours) @ 40% R.H. or above
°F/°C

	90/32	70/21	50/10	32/0
touch (700)	1 ½	3	6	12
touch (700FD)	1	2	4 ½	9
through (700)	4	6	11	38
through (700FD)	3	4 ½	8 ½	24

Recoat/topcoat time (hours) @ 40% R.H. or above
°F/°C

	90/32	70/21	50/10	32/0
minimum (700 over 700)	3	4 ½	9	32
minimum (700FD over 700FD)	2	3	7	18

6. Brush and/or roll applications will require 2 coats to achieve a 7 mil DFT. There will be some surface texture, which is typical for brush and roll applications.
7. When applying PSX® 700 directly over Dimetcote® or Amercoat 68HS see special thinning instructions.
8. Clean all equipment with thinner or Amercoat 12 cleaner immediately after use.

*Thinning material with ½ pt/gal after 3 hours will extend pot life to 5 hours at 70°F.

**See special thinning for application over Dimetcote and Amercoat 68HS primers.

***See surface preparation for aged coatings.

Thinning for Application over Dimetcote

Thin PSX® 700 with Amercoat 65 or 101 up to 1 pint per gallon to assist in film thickness control and to minimize bubbling. This will depend on the age of the coating, surface roughness and conditions during curing. Based on conditions an interval between the mist-coat and full-coat may assist in the application.

Safety Precautions

Read each component's material safety data sheet before use. Mixed material has hazards of each component. Safety precautions must be strictly followed during storage, handling and use.

CAUTION – Improper use and handling of this product can be hazardous to health and cause fire or explosion.

Do not use this product without first taking all appropriate safety measures to prevent property damage and injuries. These measures may include, without limitation: implementation of proper ventilation, use of proper lamps, wearing of proper protective clothing and masks, tenting and proper separation of application areas. Consult your supervisor. Proper ventilation and protective measures must be provided during application and drying to keep spray mists and vapor concentrations within safe limits and to protect against toxic hazards. Necessary safety equipment must be used and ventilation requirements carefully observed, especially in confined or enclosed spaces, such as tank interiors and buildings.

This product is to be used by those knowledgeable about proper application methods. PPG makes no recommendation about the types of safety measures that may need to be adopted because these depend on application environment and space, of which PPG is unaware and over which it has no control.

If you do not fully understand these warnings and instructions or if you cannot strictly comply with them, do not use the product.

Note: Consult Code of Federal Regulations Title 29, Labor, parts 1910 and 1915 concerning occupational safety and health standards and regulations, as well as any other applicable federal, state and local regulations on safe practices in coating operations.

This product is for industrial use only. Not for residential use.

Shipping Data

Packaging unit	1-gal	5-gal
cure	0.20 gal in 1-qt can	1 gal in 1-gal can
FD cure	0.20 gal in 1-qt can	1 gal in 1-gal can
resin	0.80 gal in 1-gal can	4 gal in 5-gal can
Shipping weight (approx)	lb	kg
1-gal unit		
cure	2.0	0.9
FD cure	1.8	0.8
resin	10.3	4.7
5-gal unit		
cure	9.0	4.1
FD cure	8.9	4.0
resin	50.0	22.7

Shelf life when stored indoors at 40 to 100°F (4 to 38°C)

resin and cure 2 years from the date of manufacture

Numerical values are subject to normal manufacturing tolerances, colors and testing variances. Allow for application losses and surface irregularities.

This product is photochemically reactive as defined by the South Coast Air Quality Management District's Rule 102 or equivalent regulations.



**PPG Protective &
Marine Coatings**
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