PPG Amercoat

Amershield™

Amershield Series — *Aliphatic polyurethane coating*

Product Data/ Application Instructions

- Unique, high-solids, high-build, multifunctional coating
- Low VOC
- High-gloss, self-priming coating
- Excellent gloss retention
- Direct to metal and concrete in selected environments
- Outstanding abrasion, reverse and direct impact resistance
- Good chemical and stain resistance
- Tough and flexible coating

Amershield displays high gloss and excellent color and gloss retention during extended service periods. The direct-to-metal capabilities of Amershield provide a single-coat system at reduced installation cost for use in protected environments. Compatible over prepared, smooth cold-rolled steel and abrasive blasted hot-rolled steel.

Amershield has excellent adhesion to concrete providing a durable, glossy, easy-to-clean flooring system. May be used over Amerlock® as a durable, weather-resistant topcoat for extra heavy duty service; over zinc-rich epoxy coatings as a direct topcoat; over intact, old paint as a maintenance product.

Amershield's curing time may be adjusted with Amercoat 866M Accelerator for convenient application at low temperatures or when faster cure is required. A full color range is available in the PPG Rapid Response color system to provide timely delivery.

Typical Uses

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

Physical Data

Finish	Gloss
Color	See PPG Amercoat color chart

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.

Components	2
Curing mechanism	Solvent release and chemical reaction
Volume solids (ASTM D2697 modified)	73% ± 3%
Dry film thickness per coat	4-6 mils (100-150 microns)
Coats	1

Theoretical coverage	ft^2/gal	m^2/L
1 mil (25 microns)	1171	29
5 mils (125 microns)	234	5.7

VOC	lb/gal	g/L
mixed	2.2	264
mixed/thinned (1 pt/gal)	2.7	323
mixed/thinned/accelerated	3.01	360
mixed/accelerated	2.5	304

Temperature resistance (dry)	°F	°C
continuous	200	93
intermittent	250	121

Flash point (SETA)	°F	°C
cure	122	50
resin	110	43
mixed	115	46
Amercoat 65	78	25
Amercoat 12	2	-17
Amercoat 866M	94	34

Qualifications

USDA – Incidental food contact
Tint and custom colors

NFPA – Class A

Typical Properties

Physical

Impact resistance (ASTM D2794) @ 5 mils		
direct	140 in · lbs	15.8 N · m
reverse	50 in · lbs	5.6 N · m
Taber abrasion		
1 kg load/1000 cycles	weight loss	
CS-17 wheel	60.2 mg	
Elongation (ASTM D522)	>32%	
Graffiti cleaning with Amerase		
with gloss retention	100 cycles	

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
Seawater	E	E
Fresh water	E	E
Solvents	G	E
Petroleum products	E	E

F-Fair G-Good E-Excellent NR-Not Recommended

This table is only a guide to show typical resistance of Amershield. Contact your PPG representative for your particular corrosion protection needs.

Typical Systems

Substrate	Primer	Finish Coat
Steel	none, 400*, 68HS	Amershield
Galvanizing	400*	Amershield
Aluminum	none, 400*	Amershield
Concrete	400*	Amershield
Masonry	none, 400*	Amershield

*Other PPG epoxy primers are also acceptable.

Refer to specific primer's product data sheets and application instructions for detailed application and surface preparation information.

Apply test patch to intact coating to confirm compatibility and adhesion.

When Amerlock 400 is used as a primer for Amershield the maximum topcoat time is one month; Amerlock 2 – 7 days, 400 with 861 Accelerator – 14 days. Clean and roughen surface if topcoat time is exceeded.

On Amercoat 68HS use a mist coat/full coat application procedure to prevent application bubbling.

Environmental Conditions

Temperature air or surface	°F	°C
Amershield	40 to 120	4 to 49
Amershield with 866M	32 to 120	0 to 49

Surface temperature must be at least 5°F (3°C) above dew point to prevent condensation.

Low Temperature Application

At low temperatures or when a fast cure is required Amercoat 866M accelerator can be added to mixed Amershield resin and cure (see Amercoat 866M literature). **DO NOT** apply Amershield with 866M when surface temperature is over 120°F.

Application Data

Applied over	Prepared* or primed steel, aluminum, galvanizing, masonry and primed concrete **Protected environments*
Surface preparation	
steel	SSPC-SP 6 or 10
aluminum	Alodine®, Alumiprep® or light abrasive blast
galvanizing	Galvaprep® or light abrasive blast
concrete	See specific primer
masonry	ASTM D4261
previously coated surface	SSPC-SP1, 3 or 7

Appearance will vary depending on substrate and application method.

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

Pot life (hours)

	°F/°C 90/32	70/21	50/10	32/0
Amershield	1½	2½	5	-
Amershield with 866M	½	1	2	4

Using 1/2 pt Amercoat 866M per mixed 5 gallon Amershield

Environmental Conditions

Temperature-Air or surface	°F	°C
Amershield	40 to 120	4 to 49
Amershield with 866M	32 to 120	0 to 49

Surface temperatures must be at least 5°F (3°C) above dew point to prevent condensation.

Drying time (ASTM D1640) (hours)

	°F/°C 90/32	70/21	50/10	32/0
touch	1	2½	4	-
with 866M	½	¾	1	2½
through	5	10	72	-
with 866M	2	3	6	10

Recoat time (hours)

	°F/°C 90/32	80/26	70/21	50/10	32/0
minimum	4	5½	8	48	-
with 866M	1½	1¾	2	4	8
maximum	12	24	168	168	-
with 866M	6	8	12	24	48

Drying times are dependent on air and surface temperatures as well as film thickness, ventilation and relative humidity. Maximum recoating time is highly dependent upon actual surface temperatures - not simply ambient air temperatures. Surface temperatures should be monitored, especially with sun-exposed or otherwise heated surfaces. Higher surface tempertures shorten the maximum recoat window.

Roughen surface or use Amerase™ if maximum recoat time is exceeded.

Thinner	Amercoat 65
Equipment cleaner	Thinner or Amercoat 12

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.

Surface Preparation

Coating performance is, in general, proportional to the degree of surface preparation. All surfaces must be clean, dry and free of oil, grease, dirt, salt deposits or other contamination.

1. To provide a smooth appearance to the Amershield coating Amercoat® 851, flow control additive may be used. See Amercoat 851 Product Data Sheet for more information.
2. For faster drying at low temperatures, Amercoat 866M can be used with all Amershield products.

Steel – Mill scale and rust must be removed. Abrasive blast hot-rolled steel to SSPC-SP6 and rusted and pitted steel to SSPC-SP10. Clean cold-rolled steel to SSPC-SP1 using vapor degreasing or solvent emulsion to remove all oil, grease and contamination. Solvent wipe is not satisfactory. Contact PPG for compatible phosphate surface treatments.

Aluminum – Remove oil, grease or soap film with neutral detergent or emulsion cleaner; treat with Alodine® 1200 or Alumiprep® or blast lightly with fine abrasive.

Amercoat 68HS – Wash off water soluble contaminants; remove oil, grease, etc., with a neutral detergent or emulsion cleaner. Solvent wipe is not satisfactory.

Concrete – Clean concrete and masonry surfaces, abrasive blast (ASTM D4259) or acid etch (ASTM D4260). Fill concrete voids with Nu-Klad® 114A or 965. Fill masonry block with Amerlock® 400BF block filler.

Coated surface – Clean by low pressure water cleaning (1000 psi or greater) water blast, abrasive blast (SSPC-SP7), solvent emulsion cleaning (SSPC-SP1) or power tool cleaning (SSPC-SP3). Surface must be clean, dry and free of oil, grease, dirt or other contamination. Apply test patch to confirm compatibility and adhesion.

Application Equipment

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

Airless and electrostatic spray – Standard equipment Graco, DeVilbiss, Nordson-Bede, Speeflo or others having a 28:1 or higher pump ratio and a fluid tip with a 0.015- to 0.021-inch (0.38- to 0.53-mm) orifice.

Conventional, air-assisted airless and electrostatic spray – Devilbiss, Binks or Graco production spray equipment with moisture and oil trap in the main air supply line.

Brush – Natural bristle. Maintain a wet edge.

Roller – Solvent resistant. Level any air bubbles with a bristle brush.

When brush or roller applied, multiple coats may be needed to achieve dry film thickness.

Application Procedures

1. Flush equipment with thinner or Amercoat 12.
2. Stir resin thoroughly, add cure and mix until uniform. Do not mix more material than will be used within pot life time. Mixing ratio is 4 parts resin to 1 part cure by volume.

Pot life (hours)	°F/°C			
	90/32	70/21	50/10	32/0
Amershield	1½	2½	5	-
Amershield with 866M	½	1	2	4

3. If thinning is necessary, add up to 1 pint Amercoat 65 per gallon of Amershield .
4. When applying by spray, adjust pressures for equipment configuration and environmental conditions to ensure proper atomization.
5. Apply a wet coat in even, parallel passes; overlap each pass 50 percent.

Drying time (ASTM D1640) (hours)	°F/°C			
	90/32	70/21	50/10	32/0
touch	1	2½	4	-
with 866M	½	¾	1	2½
through	5	10	72	-
with 866M	2	3	6	10

Using ½ pt Amercoat 866M per 5 gal Amershield

Recoat time (hours)	°F/°C				
	90/32	80/26	70/21	50/10	32/0
minimum	4	5½	8	48	-
with 866M	1½	1¾	2	4	8
maximum	12	24	168	168	-
with 866M	6	8	12	24	48

Roughen surface or use Amerase™ if maximum recoat time is exceeded.

Note: When applying directly over organic zinc at full thickness, bubbling may occur A mist coat/full coat technique may be required to prevent application bubbling.

6. For colors, application of 8-mil wet film thickness (thinned) will normally provide 5-mil dry film thickness, Clear coat at 5-mils WFT will normally provide 3-mil DFT.
7. Clean all equipment with thinner or Amercoat 12 immediately after use.

Note: Moisture sensitive – Keep cure container tightly closed. Repeated moisture exposure will cause gellation and gassing; handle bulged containers with caution, lids may eject forcibly.

Repair

Spot blast or power tool clean bare substrate to the requirements shown under surface preparation. Feather edges of intact coating. Remove dust, dirt and contamination before recoating.

Shipping Data

Packaging units	1 gal	5 gal
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	2.2	1.0
resin	11.0	5.0
5-gal unit		
cure	10.4	4.7
resin	55.0	25.0

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

resin	1 year from shipment date
cure	1 year from manufacturer date

Numerical values are subject to normal manufacturing tolerances, colors and testing variances. Appearance will vary depending on substrate and application method. Allow for application losses and surface irregularities. See application instructions for complete information and safety precautions.

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

Safety Precautions

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

PPG Protective & Marine Coatings
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