

SELECTION & SPECIFICATION DATA

Type	Flake filled vinyl ester lining
Description	Penncoat 310 Lining is a flake filled vinyl ester lining system with excellent resistance to organic and inorganic acids and many aliphatic solvents. Penncoat 310 MR Lining incorporates a 1 oz. mat reinforcement into the primer layer to reduce crack transmission.
Features	<ul style="list-style-type: none"> • Broad resistance to most acids, alkalis and aliphatic solvents • Flake filled to reduce permeability • Chopped strand mat in the primer layer of Penncoat 310 MR Lining reduces potential for concrete crack transmission • Installation by airless spray, roller or brush
Uses	<ul style="list-style-type: none"> • Tank linings • Steel structures • Chemical resistant floor coating • Chemical splash and spill areas • Secondary containment lining
Finish	Gloss
Typical Thickness	14 - 16 mils (356 - 406 microns) WFT per coat to yield 12 - 14 mils (305 - 356 microns) DFT without MR reinforcing layer.
Solids Content	100% reactive

SUBSTRATES & SURFACE PREPARATION

All	Substrates must be clean, dry and free of contaminants
Steel	<p>Immersion: SSPC-SP 5 White Metal Blast with a minimum angular profile of 3 mils.</p> <p>Non-immersion: SSPC-SP 6 Commercial Blast with a minimum angular profile of 3 mils. SSPC-SP 2 Hand Tool or SSPC-SP 3 Power Tool Cleaning are suitable for mild environments.</p> <p>Self-priming on steel.</p>
Concrete or Concrete Masonry Units (CMU)	Concrete must be cured 28 days at 75°F (24°C) and 50% relative humidity or equivalent. Prepare surfaces in accordance with SSPC-SP 13 Surface Preparation of Concrete. Voids in concrete may require filling. Mortar joints should be cured a minimum of 15 days. Prime with Pennrowel™ Vinyl Ester Primer.

MIXING & THINNING

Ratio	1 gallon Part A resin : 2 fl. oz. Part B hardener. Increase dosage of hardener to 3 fl. oz. per gallon of resin to speed cure in cool conditions.		
Mixing	Mix Part A with a power mixer to combine the entire contents into a homogenous mixture. Add CHP Hardener to resin and mix thoroughly using a power mixer. Do not thin.		
Pot Life	50°F (10°C) 60 minutes	75°F (24°C) 40 minutes	90°F (32°C) 25 minutes
	Pot life is shorter at higher temperatures. A larger volume of mixed material will have a shorter pot life than a smaller volume.		
Cleanup	Methyl ethyl ketone or lacquer thinner		

APPLICATION GUIDANCE

Installation Conditions	Penncoat 310 Lining is formulated for ideal handling at 70°F (21°C). Use when surface, air and material temperatures are between 50°F (10°C) and 110°F (43°C) and substrate temperature is at least 5°F (3°C) above the dew point. The temperature of concrete to be lined should be stable (indoors) or falling (outdoors) and shaded from direct sunlight to prevent blisters or pinholes due to outgassing.
Airless Spray	30:1 to 56:1 Pump Tip range 0.027 - 0.033
Brush/Roller	Multiple coats may be required to achieve specified film thickness.
Work Stoppages	Do not leave material in hoses, guns or spray equipment. Thoroughly flush all equipment with appropriate cleaner. Do not reseal mixed material. Continue work until all mixed material is consumed. Material that has begun to gel cannot be recovered by adding fresh material

CURE TIME & RECOAT WINDOW

SUBSTRATE TEMPERATURE	INITIAL SET	MINIMUM RECOAT	MAXIMUM RECOAT	FULL CURE
50°F	5 hours	12 hours	7 days	48 hours
75°F	2 hours	4.5 hours	7 days	24 hours
90°F	1.5 hours	3 hours	3 days	8 hours

When surface temperatures exceed 95°F (35°C) or surfaces are exposed to direct sunlight, overcoat as soon as coating may be walked on or handled without marring in order to avoid intercoat adhesion issues.

PACKAGING, ESTIMATING & HANDLING

PRODUCT	CODE	PACKAGING
Penncoat 310 Resin Gray	19709	4.5 gal (45 lb) in a 5-gal pail
Penncoat 310 Resin Red	29456	4.5 gal (45 lb) in a 5-gal pail
Penncoat 310 Resin Off White	29439	4.5 gal (47 lb) in a 5-gal pail
CHP Hardener	19552 21922	11.2 fl. oz. (0.7 lb) bottle 1 gal (8.3 lb) can
1.0-oz Chopped Strand Glass Mat	19639	50-inch x 375-foot (1,500 square foot) roll
1.5-oz Chopped Strand Glass Mat	19640	50-inch x 264-foot (1,056 square foot) roll

Theoretical Coverage

100 - 115 square feet per mixed gallon applied at 14 - 16 mils (356 - 406 microns) WFT per coat will yield 11 - 12 mils (279 - 305 microns) DFT. Two (2) coats required. Target is 23 mils (584 microns) DFT for 2 coats.

For Penncoat 310 MR Lining, allow 1 gallon of Penntrowel™ Vinyl Ester Primer per 50 square feet of Chopped Strand Glass Mat as saturant.

Storage & Shelf Life

Maintain products in original packaging and sealed until ready for use. Estimated shelf life is 12 months for hardener and 6 months for resin when stored in a dry area at 70°F (21°C). Actual shelf life may vary with storage conditions. For maximum resin shelf life, store between 55°F (12°C) and 65°F (18°C).

If there is any question with respect to the quality of the lining components, check reactivity prior to use. For assistance, consult with Armor.

SAFETY
Safety

Mixes and applications of this product present a number of hazards. Read and follow the hazard information, precautions and first aid directions on the individual product labels and safety data sheets before using.

Ventilation

Provide thorough air circulation during and after application until the material has cured when used in enclosed areas.

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TYPICAL VALUE
Wet density	
Gray	10.0 lb/gal (1.2 kg/l)
Red	10.0 lb/gal (1.2 kg/l)
Off White	10.4 lb/gal (1.2 kg/l)
Viscosity, mixed material	4,000-6,500 cps at 72°F (22°C)
VOC content by weight	0.12 lb/gal (14 g/l)
Abrasion resistance, ASTM D4060	82 mg loss/1,000 cycles with 1,000-gram (CS-17) wheel
Maximum service temperature	
Continuous dry	300°F (149°C)
Splash and spill	200°F (93°C)

Temperature limitations will vary with chemical service and operating conditions. Consult Armor Technical Service for guidance.

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