



Penncoat™ 312 FR Lining

SELECTION & SPECIFICATION DATA

Type	Graphite filled vinyl ester lining
Description	PENNCOAT 312 FR Lining is a 24 to 36 mil thick, fire resistant, graphite filled, vinyl ester resin lining.
Features	<ul style="list-style-type: none">• ASTM E84 Class A rating• Outstanding chemical resistance• Resists sulfuric acid, hydrofluoric acid, hydrochloric acid. Consult Armor for specific chemical resistant applications.
Uses	<ul style="list-style-type: none">• Reduction of flame spread and smoke generation in the event of fire exposure to the structure to which it is applied• Chemical resistant lining for concrete or steel substrates• Explicitly intended for use in high-risk environments such as heavy industrial manufacturing, chemical, petrochemical, oil, gas, and power generation structures and facilities
Limitations	<p>PENNCOAT 312 FR Lining is not intended to be used as a cosmetic finish and color stability will not be achievable.</p> <p>Contact with the surface may result in some of the graphite filler transferring from the surface, however, this does not affect performance.</p>

SUBSTRATE & SURFACE PREPERATION

All	Substrate must be clean, dry and free of contaminants including soluble salts.
Steel	<p>Immersion: Not Recommended</p> <p>Non-Immersion: SSPC-SP 6/NACE No. 3, Commercial Blast Cleaning with jagged, annular profile 3.0 to 5.0 mils.</p>
Concrete	<p>Concrete: 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/NACE 6, Surface Preparation of Concrete. Required surface profile is CSP 3-5. Voids and damaged concrete surfaces shall be repaired.</p> <p>Prime steel and concrete with Penntrowel Vinyl Ester Primer.</p> <p>When working outside or in direct sunlight, concrete outgassing may occur when the surface temperature rises due to sunlight or increased ambient temperature. This can cause bubbles or holes in lining. When this problem occurs shade the surface from sunlight and/or apply the material in the cooler evening or at night so the initial cure can take place without air outgassing from the concrete.</p>

MIXING & THINNING

Ratio	1 gallon Part A resin : 2.0 -2.5 fl. oz. Part B hardener		
Mixing	Mix resin for 1 minute to loosen. Continue mixing while slowly adding the hardener into the center vortex, and mix thoroughly for 3 minutes, moving the mix blade up, down and around the pail to catch all the edges.		
Thinning	Do not thin.		
Pot Life	50°F (10°C) 60 minutes	75°F (24°C) 30 minutes	90°F (32°C) 15 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 Specification	CES-259 Installation Specification for PENNCOAT 331 and 340 Linings
Installation Conditions	PENNCOAT 312 FR Lining is formulated for ideal handling at 70°F (21°C). Materials and substrate should be acclimated to the air temperature prior to installation, and the air temperature should be between 50°F (10°C) and 90°F (32°C) during installation and cure.
Spray	30:1 to 56:1 Pump Tip range 0.036 – 0.045
Brush	Brush application in small areas
Roller	Short nap or mohair phenolic core roller

PENNCOAT 312 FR Lining is recommended to be applied by airless spray. Application by brush or roller, may require more than two coats and is suggested for small area or areas where spraying is not an option. Surface texture and uniformity will vary with brush or roll application.

CURE TIME & RECOAT WINDOW

Substrate Temperature	Initial Set	Minimum Recoat	Maximum Recoat	Full Cure
50°F (10°C)	5 hours	12 hours	7 days	48 hours
75°F (24°C)	2 hours	4.5 hours	7 days	24 hours
90°F (32°C)	1.5 hours	3 hours	3 days	8 hours

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



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PACKAGING, ESTIMATING & HANDLING

Product	Code	Packaging
PENNCOAT 312 FR Resin	29519	4.5-gal (49 lb) pail
CHP Hardener	19552	11.2 fl. oz. (0.7 lb) bottle
	21922	1 gal (8.3 lb) can

4.5-gal unit consists of 1 x 44-lb pail resin and 1 x 0.7 lb bottle hardener.

1-gallon bottles are available for added convenience.

Theoretical Coverage 89 ft² to 134 ft² (8.3 m² to 12.5 m²) yields 12 – 18 mils (305 – 457 microns) DFT per coat. 2 coats are recommended for immersion service.

ASTM E84 testing conducted using 5 mils of primer and 2 coats of PENNCOAT 312 FR Lining at 12 mils per coat.

Storage & Shelf Life Maintain products in original packaging and sealed until ready for use. Estimated shelf life of resin is 6 months, and hardener is 1 year when stored in a dry area at 70°F (21°C). Warmer resin storage conditions will dramatically reduce shelf life. Store resin between 55°F (13°C) and 65°F (18°C) for maximum shelf life. Actual shelf life may vary with storage conditions.

If there is any question with respect to the quality of the 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
Color	Grey
Gloss	Not applicable
Density	10.9 lb/gallon (1.29 kg/L)
Solids content	100% reactive

Rev. 11/2025

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