

HP-400 AR

Ceramic-Reinforced Epoxy Coating System

Description

Advanced FRP Systems' **HP-400 AR** is a 100% solids, ceramic-reinforced epoxy novolac coating system. Engineered to combine the excellent wear resistance of ceramics with the chemical resistance of an epoxy novolac, this system is designed to withstand mineral acid, caustics, and bleach at ambient or elevated temperatures. The high cross-link density of **HP-400 AR** also provides excellent permeation resistance and abrasion resistance for aggressive slurry service and high wear areas.

Product Advantages

- Zero VOC Coating system
- Outstanding adhesion to concrete, steel, masonry, wood and composites
- Highly blush-resistant formulation
- Excellent chemical resistance
- Reinforced with high-strength ceramic
- Ambient Cure Formulation
- Cures at temperatures as low as 50 °F

Suggested Application

Designed for applications such as caustic or acidic slurry service. Excellent coating system for flue gas desulfurization systems including wet and dry scrubbers and recycle vessels. Ask Advanced FRP Systems for any additional chemical resistances.

Performance Data

| | Test Method | Results |
|------------------------------------|------------------------------|--|
| Abrasion Resistance | ASTM D4060; CS17 wheel, 1 Kg | 17.7 mg loss/1000 cycles |
| Adhesion to Steel | ASTM D4541 | >3000 psi |
| Heat Distortion Temperature | ASTM D648 | 185 °F |
| Direct Impact Resistance | ASTM D2794 | 124 in lbs |
| Immersion Resistance | Fresh and Salt water; 1 year | No rust, no blistering, no loss of adhesion |
| Humidity Resistance | ASTM D4585; 10,000 hours | No rust, no blistering, no cracking, no loss of adhesion |
| Dry Heat Resistance | ASTM D2485 | 450 °F (232 °C) |
| Permeation Resistance | ASTM E96 | 0.0015 Perm-Inch |

Product Characteristics

Finish: High Gloss

Color: Red or Grey

Volume Solids: 100%

Mix Ratio (by wt.): 3.9:1

Mix Ratio (by vol.): 2:1

Density: 1.72 g/mL

Approx. Coverage: 80 sqft/gallon at 20 mils

Maximum Film Build: 30 mils per coat

Working Time: 45 minutes at 75 °F

Application Temperatures: 50 - 105 °F

HP-400 AR is sold in ½, 1, 2, and 4 gallon units. Other unit sizes may be available.

Sold FOB Weymouth, MA

Cure Schedule

| Cures for Application | 50 °F (10 °C) | 75 °F (24 °C) | 100 °F (38 °C) |
|--------------------------|----------------|---------------|----------------|
| Dry to Touch | 14 hours | 8 hours | 4 hours |
| Dry Hard | 36 hours | 24 hours | 12 hours |
| Overcoat Window | 14 - 168 hours | 8 - 120 hours | 4 - 72 hours |
| Cures for Service | 50 °F (10 °C) | 75 °F (24 °C) | 100 °F (38 °C) |
| Atmospheric | 36 hours | 24 hours | 12 hours |
| Water Immersion | 48 hours | 36 hours | 24 hours |
| Full Chemical Resistance | 168 hours | 120 hours | 72 hours |

Contact Advanced FRP Systems for elevated temperature post-cure information. Elevated temperature cures will increase chemical resistance and reduce return to service time.

Application Information

All Advanced FRP Systems products should be installed by a certified applicator or with direct oversight by Advanced FRP Systems, Inc. This data sheet provides general application guidelines for HP-400 AR.

Contact Advanced FRP Systems for more information if your project has detailed coating specifications.

Ensure air and substrate temperatures are between 50-105 °F and relative humidity is below 95%. Follow surface preparation guidelines below prior to coating.

Pour all of Part A – Hardener into Part B – Base and mix with low speed power agitator for 2-3 minutes. Using a paint stick or spatula, thoroughly scrape sides and bottom of unit. Mix with power mixer for an additional 2 minutes. Do not dilute Advanced FRP products.

HP-400 AR can be applied via brush, roller, conventional airless spray equipment or plural component, airless spray equipment. Consult Advanced FRP Application Guidelines for information on spraying HP-400 AR.

Stripe coating of all crevices, weld seems, corners and sharp angles is an essential part of good coating practices and should be done for all immersion services. Heavily pitted areas should be filled with **FRP Repair Putty** or other Advanced FRP resurfacing material prior to coating.

HP-400 AR should be applied at 10 – 30 mils per coat in 1 – 3 coats according to the specification for your project. Abrasion resistance will increase with multiple coats. HP-400 AR can be applied up to 90 mils DFT. For higher build coatings please contact Advanced FRP.

After the coating system has cured, the dry film thickness should be measured by non-destructive dry film thickness gauges to verify minimum application thickness. The coating system should be free of all pinholes and holidays which can be tested through high voltage spark testing. The cured film should be essentially free of runs, sags, inclusions, and other defects. All coating deficiencies should be repaired and allowed to cure prior to return to service.

Surface Preparation

Steel (Immersion Service): Remove all oil and grease from surface with an SSPC-SP 1 Solvent Wipe prior to blasting. Abrasive Blast to an SSPC-SP 10 Near white metal blast with a sharp angular profile of 2 – 3 mils (50 – 75 microns).

Steel (Atmospheric Corrosion): Remove all oil and grease from surface with an SSPC-SP 1 Solvent Wipe. Minimum surface preparation of SSPC-SP 2 Hand Tool Cleaning must be performed. For enhanced performance, an SSPC-SP 6 Commercial Blast Cleaning with an angular surface profile of 1.5+ mils should be used.



Concrete (Immersion/Secondary Containment): Refer to SSPC-SP 13/NACE No. 6, Section 4.3.1 or ICRI No. 310.2, CSP 1-3 for concrete preparation guidelines. Surface should be thoroughly cleaned and dry. Concrete and mortar must be cured at least 28 days @ 75 °F. Surface must be free of laitance, concrete dust, dirt, form release, curing aids and other foreign material. **Advanced FRP Sealer 200** should be applied prior to coating at 3-5 mils to increase adhesion and reduce outgassing.

Concrete (Atmospheric Corrosion): Refer to SSPC-SP 13/NACE No. 6, Section 4.3.1 or ICRI No. 310.2, CSP 1-3 for concrete preparation guidelines. **Advanced FRP Sealer 200** is not required but recommended for improved adhesion and aesthetics.

Previously Coated Surfaces: Consult with Advanced FRP to ensure previous coating is compatible. If compatible and previous coating is in good condition, remove all loose coating and foreign materials. Brush blast or grind all glossy areas to a uniform dull finish. Remove dust, oil and debris with SSPC-SP 1 Solvent Wipe prior to coating.

Storage and Shelf Life

HP-400 AR must be stored between 45 – 110 °F, out of direct sunlight. If stored in these conditions, the product will have a 24-month shelf life.

Safety Precautions

Please consult up-to-date Safety Data Sheets (SDS's) prior to use. An SDS should be available on site whenever Advanced FRP products are being used.

Warranty Information

Advanced FRP Systems, Inc. warrants that our products are free of manufacturing defects in accordance with applicable Advanced FRP quality control parameters. Liability for products proven defective, if any, is limited to replacement of defective product or refund of purchase price as determined by Advanced FRP Systems. Additional warranties and protection are available. Contact Advanced FRP for more information.

Disclaimer

The information and recommendations set forth upon this data sheet are based on years of laboratory and field analysis. This information is intended to be used as guidance only as many factors affect the performance of polymeric systems. Actual exposure conditions are the best test of suitability and Advanced FRP Systems will generally provide complimentary samples for field testing.

Revision Date: 04/2017