Technical
Data Sheet

WVCO

Willamette Valley Company
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Partnering through service, innovation, and integrity

FastPatch HPRE

High Performance Rail Encapsulator

DESCRIPTION

FastPatch HPRE is a composite polyurethane rail encapsulation system with patent pending integrated aggregate. HPRE is specifically designed for embedded rail applications and provides excellent electrical isolation and resilience, along with vibration and sound damping. HPRE is designed to be meter-dispensed but may also be installed using pail kits.

WHERE TO USE

- Embedded Track - between rail and concrete
- Special Track - intersection and stations
- Concrete Repair – spalls and large cracks

FEATURES AND BENEFITS

- Rapid cure - fast return to service
- 100% Solids, No Odor or VOC = safe to use
- Integrated Aggregate – no need for gravel bags
- Excellent Concrete Adhesion
- Electrical Isolation
- Sound and Vibration Damping
- Set Time - fast or slow set times available

PACKAGING

4.0-gallon (0.5 cu.ft.) Kits – Pail & Pouch
200-Gallon (757-Liter) Totes

COLORS

Gray, Black

SHELF LIFE

1 year when properly stored.

STORAGE

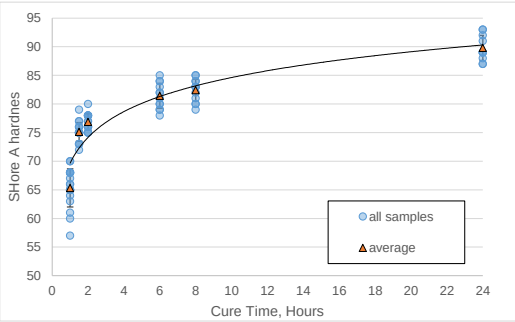
Store and ship this product in clean, dry, low-humidity, and shaded or covered environments between 50 and 90°F (10-32°C)

TYPICAL PROPERTIES

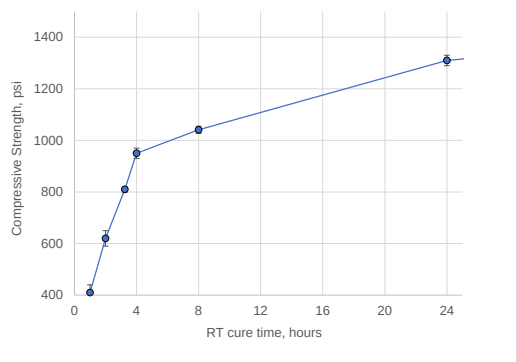
HPRE Full Composite Properties (polymer and aggregate)		
Adhesion to concrete, psi (MPa), ASTM D7234, unprimed		≥300 (2.1)
Adhesion to steel rail, psi (MPa), ASTM D4541, unprimed		≥300 (2.1)
Thermal compatibility to concrete, ASTM C884		pass
Surface resistivity, Ω/square, ASTM D257-14 (500V)		4.56E+14
Volume resistivity, Ω*cm, ASTM D257-14 (500V)		1.66E+14
Kit working time, min.	Kit tack-free time, min.	Kit temp.
8	30	104°F (40°C)
10-12	60	77°F (25°C)
12-14	90	59°F (15°C)
Ultimate hardness, Shore D, ASTM D2240		55-60
Elongation, %, ASTM D412		≥20
Tensile strength, psi (MPa), ASTM D412		400
VOC, lbs/gal (g/L), ASTM D2369		0
Viscosity, cP, ASTM D4878, Mixed		6,000
Service temperature, °F (°C)		-40 - 185 (-40 - 85)
ASTM C579 Compression Strength vs Cure time		
	2" cubes	3"x6" cylinders
3 hours RT	1,500 psi	810 psi
24 hours RT	1,600 psi	1,300 psi
1 week RT	2,900 psi	2,100 psi

HPRE Polymer Only Properties (no aggregate)	
Compressive Set, %, ASTM D395 3rd incremental set (24hr 70°C)	5
Shore hardness, ASTM D2240	85-90A, 40-45D

Hardness Build curve for HPRE kits cured at 65°F



Compression Strength curve for HPRE kits cured at 65°F
ASTM C579 3"x6" cylinders



APPLICATION INSTRUCTIONS

SURFACE PREPARATION:

Concrete

1. The concrete must be structurally sound, clean, and the surface should be dry. HPRE can be applied to concrete newer than 28 days and in some cases as soon as 24 hours from when the concrete was poured. Contact your WVCO representative for more details.
2. Concrete surfaces must be free of dirt, moisture, loose particles, oil, asphalt, tar, paint, wax, rust, waterproofing and curing/parting compounds, membranes, and any previously installed materials or other foreign matter. Laitance and efflorescence must be removed prior to installation.
3. Clean concrete surfaces by grinding, abrasive blasting, wire brushing, saw cutting, or other appropriate method.

Steel

1. Steel surfaces must be cleaned before blasting according to SSPC-SP1. Remove any sharp edges and other surface imperfections.
2. Dry abrasive blast surface according to SSPC SP-6/NACE No. 3 Commercial Blast (minimum).
3. Test the surface for non-visible soluble salt contamination according to NACE 6G186. If necessary treat with CHLOR*RID or equivalent salt remover until less than 3ug/cm2 is detected.

PRIMING:

1. Priming all surfaces is always recommended as it will optimize adhesion and durability. Prime with POLYQuik® POLYPRIME or other WVCO primer. Contact WVCO for more details about appropriate primer selection.
2. Refer to the primer Technical Data Sheet and the POLYQuik Primers Installation Guideline for detailed primer application instructions.

PROCESSING:

1. Use WVCO/Pre-Tec (or equivalent) meter at 6:1 volume ratio. Always use approved static mix tubes
2. For specific questions about your metering equipment contact your WVCO representative or customer support.
3. Whenever possible, condition all HPRE components (resin, iso, and aggregate) to 70°F (21°C) before application.
4. At ambient temperatures ≤40°F (5°C), HPRE components may be conditioned to 100°F (38°C) to aid in cure speed.
5. Mechanically mix the HPRE resin component for at least 30 minutes or until well mixed before application. It is particularly important to mix the HPRE resin if it has been allowed to sit in storage for an extended period of time.
6. Test the performance of the meter and HPRE before applying into the work area. It is recommended a small portion of material is dispensed into a cup and the material cure time and color/mixing monitored for uniformity and conformance at the start of each work period. Do not proceed with application into the work area if the initial test does not cure properly.
7. Static mix tubes should be replaced if application stops for longer than 5 minutes or if material flow is restricted.
8. Rail systems and geometries are varied. It is the responsibility of the installer to determine the most appropriate application method for the specific work project parameters.

NOTE: HPRE is cured to the touch ('tack-free') by approx. 60 minutes at 70°F (21°C). Colder temperatures will extend the cure time, warmer temperatures will shorten the cure time.

NOTE: WVCO recommends installing a transverse control joint every 10-12 ft. for large contiguous HPRE installations. Contact your WVCO representative for more details on recommended installation procedures and practices.

HEALTH AND SAFETY

Before handling, you should become familiar with the Safety Data Sheet (SDS) regarding the risks and safe use of this product. To obtain an SDS, please call 800-333-9826 or send an email to: msds@wilvaco.com.

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