

DESCRIPTION

PermaRez 333, a 120 mil heavy-duty lining system for concrete and steel substrates, combines vinyl ester novolac resin, inert mineral fillers and fiberglass or synthetic reinforcement to produce a dimensionally stable liner ideally suited for immersion and splash/spillage exposure of concentrated acids and aggressive solvents.

TYPICAL APPLICATION

• Primer	PolySpec 310 (steel) / 320 (concrete) @ 2–3 mils DFT
• Detail Preparation	PolySpec 731
• Basecoat	PermaRez 333 w/F-4 Powder @ 50–60 mils
• Fabric	Type W (10 oz. woven-roving)
• Saturant	PermaRez 333 @ 25 mils
• Topcoat	PermaRez 333 w/F-4 Powder @ 50–60 mils PolySpec Smoothing Liquid #1
• Options	Carbon-Filled, Non-Silica Applications (recommended for fluoride or caustic service) – Powder: F-5 Powder – Fabric: Type V (Nexus Veil)

PERFORMANCE DATA

Compressive Strength (ASTM C-579)	12,000 psi
Tensile Strength (ASTM C-307)	3,000 psi
Flexural Strength (ASTM C-580)	12,500 psi
Hardness, Shore D (ASTM D-2240)	85–90
Bond Strength (ASTM D-4541)	425 psi
Abrasion Resistance (ASTM D-4060)	100 mg
Operating Temperature, maximum ...Dry:	350–400°F
.....Wet: Dependant on chemical exposure	
VOC	1.58 lb/gal; 190 gm/L

STORAGE & INSTALLATION

Storage Environment	Dry area, 65–80°F
Application Temperature, ambient	50–95°F
Application Temperature, substrate	Minimum 5°F above dew point
Shelf Life, PROVIDED STORAGE ENVIRONMENT GUIDELINES ARE FOLLOWED	60 days
Pot Life, @ 77°F	35 minutes
Full Service, @ 77°F	7 days

Material cures more slowly at cooler temperatures, and working time will be substantially reduced at higher temperatures. In hot weather, material should be cooled to 65°F to 80°F prior to mixing and application to improve workability and avoid shortened pot life. The data shown above reflects typical results based on laboratory testing under controlled conditions. Reasonable variations from the data shown above may result.

CONSIDERATIONS & LIMITATIONS

1. For best results, work area should be humidity and temperature controlled.
2. Work area must be well ventilated. Fresh air fed respirators are recommended when working with this product.
3. Do not thin with solvents unless advised to do so by PolySpec.
4. Confirm product performance in specific chemical environment prior to use.
5. Prepare substrate according to “Surface Preparation” portion of this document.
6. Do not apply to slabs on grade unless a heavy unruptured vapor barrier has been installed under the slab.
7. Always use protective clothing, gloves and goggles consistent with OSHA regulations during use. Avoid eye and skin contact. Do not ingest or inhale. Refer to Material Safety Data Sheet for detailed safety precautions.
8. For industrial/commercial use. Installation by trained personnel only.

PermaRez[®] 333

TECHNICAL DATA SHEET

Reinforced Lining for Concrete & Steel, Acid & Solvent Resistant

BENEFITS

- Excellent resistance to aggressive acids, alkalis and solvents; withstands attack from 75% sulfuric acid, 37% hydrochloric acid and 100% phosphoric acid
- Seamless, high tensile strength composite
- Extremely low permeation rate; superior performance to acid-proof brick
- Excellent dimensional stability; withstands wide temperature range
- Temperature resistant: Wet 220°F / Dry 400°F
- Superior compatibility with concrete and steel when compared with conventional coatings

RECOMMENDED USES

- Steel process and storage tanks
- Concrete waste treatment sumps
- Trenches, pedestals, curbs
- Secondary containment
- Truck loading/unloading areas
- Chemical pump pads

GENERIC DESCRIPTION

Vinyl Ester Novolac

STANDARD COLORS

Gray
(Amber liquid, before addition of Powder)

PACKAGING

5-Gallon Unit

Filler Powder sold separately; per 5-Gallon Unit:
– 125 pounds F-4 Powder, sold in 50 lb bags
– 30 pounds F-5 Powder, sold in 30 lb pails

Fabric sold separately:
– Type W (10 oz cloth) sold in 2,231 ft² rolls
– Type V (Nexus Veil) sold in 6,000 ft² rolls

PolySpec 731 and PolySpec Smoothing Liquid #1 sold separately

COVERAGE

15 ft² / gallon @ 120 mils
(Includes two 60 mil coats and saturant)

SEE SYSTEM DETAILS IN “TYPICAL INSTALLATION”
PORTION OF THIS DOCUMENT

PolySpec

SURFACE PREPARATION

Concrete: Apply only to clean, dry and sound concrete substrates that are free of all coatings, sealers, curing compounds, oils, greases or any other contaminants.

- *New concrete should be cured a minimum of 28 days.*
- *Concrete that has been contaminated with chemicals or other foreign matter must be neutralized or removed.*
- *Remove any laitance or weak surface layers.*
- *Concrete should have a minimum surface tensile strength of at least 300 PSI per ASTM D-4541.*
- *Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60-grit sandpaper or coarser. Prepare surface by mechanical means to achieve this desired profile.*
- *Moisture vapor transmission should be 3 pounds or less per 1,000 square feet over a 24 hour time period, as confirmed through a calcium chloride test, as per ASTM E-1907. Quantitative relative humidity (RH) testing, ASTM F-2170, should confirm concrete RH results <75%.*
- *All surface irregularities, cracks, expansion joints and control joints should be properly addressed prior to application.*
- *Outgassing may occur due to the porosity of some concrete surfaces. To reduce the effect of outgassing, the primer and coating should be applied when the temperature of the concrete substrate is dropping. This usually occurs in the evening; however, the concrete substrate temperature should be measured with a surface thermometer for verification. Double priming will greatly reduce the effects of outgassing by additionally filling the pores in the concrete.*

Steel: For immersion service, "White Metal" abrasive blast with an anchor profile of 2–4 mils in accordance with Steel Structures Painting Council Specification SP-5-63 or NACE No. 1 is required. For splash and spillage exposure, "Near White" SP-10-63 or NACE No. 2 is required.

Refer to PolySpec Surface Preparation Guidelines for more details.

INSTALLATION STEPS

1. Prime surface with PolySpec 310 (steel) or PolySpec 320 (concrete) Primer. See data sheet for application details.
2. Use PolySpec 731 to round the corner radius of vertical to horizontal transitions, to smooth weld seams, and to patch holes and irregularities. See data sheet for application details.
3. Pour Hardener #3 into PermaRez 333 Resin pail. Mix thoroughly using a jiffy-type mixer operated at low speed until a proper blend is attained. Scrape the sides of the pail to ensure the product has been properly mixed; any unmixed material left on the side of the pail will not cure.
NOTE: Mix ratio is 2.5 ounces Hardener #3 to one gallon PermaRez 333 Resin.
4. Stir in F-4 or F-5 filler powder and mix well until all particles are wetted out.
NOTE: Mix ratio is approximately 25 pounds F-4 (or 12 pounds F-5) filler per mixed gallon of binder.
5. Spread basecoat mixture onto surface by trowel to a thickness of 1/16". Immediately lay the reinforcement fabric into the basecoat and press out all air pockets with a dry paint roller.
6. Saturate the reinforcement with a coat of catalyzed PermaRez 333 Resin (without powder). Roll out saturant coat until the whiteness of the reinforcement disappears.
7. After the saturated basecoat has dried, grind down any burrs that have appeared on the surface.
8. Spread topcoat mixture (PermaRez 333 with filler powder) with a steel trowel as evenly as possible to a thickness of 1/16".
NOTE: Recoat time over saturant coat is normally 24 hours.
9. Before topcoat is allowed to dry, smooth with a paint brush dipped lightly in PolySpec Smoothing Liquid #1.
10. For best results, clean tools and equipment with PolySpec® All Purpose Cleaner, a nonflammable and non-evaporating cleaner. Always wear gloves when using this product.

1 gal R: 2.5 oz H / DOC PR333-TDS

Rev 04/08

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