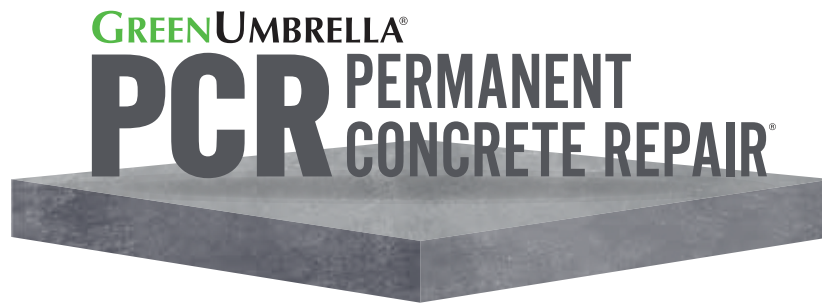


TECHNICAL DATA SHEET

HORIZONTAL - VERTICAL - OVERHEAD / 10K+PSI / QUICK TO TRAFFIC



NOT JUST A PATCH, IT'S PERMANENT

Green Umbrella® PCR®, designed for permanence, not just a temporary fix or patch. Permanent Concrete Repair is an industry-leading, high early strength, zero-shrink, waterproof component that is applied in half the time of tradition patch products. PCR® establishes a unique, tenacious bond for horizontal, vertical, or overhead repairs. Repair cracks, spalling, or trip-hazards with structural strength. Stop the replacement cycle! PCR® is a permanent, economical repair, reducing/eliminating costly concrete replacement.

Basic Use

PCR can be used for repairs on all concrete; early age (post-placement, after 28 days) or mature concrete. Green Umbrella® PCR® can be used horizontally, vertically and overhead. The aggregate and activator can be mixed to the desired consistency - no critical mix ratio. PCR is a zero shrink product. Green Umbrella™ PCR is ideal for virtually any permanent concrete repair: spalling repair, thick-to-scratch coat, pouring into forms, filling cracks and trip hazard repairs.

Versatile Architectural Applications

Ideal For Use On Sidewalks, Docks, Bridges, Roadways, Driveways, Stairs, Potholes, Industrial Floors, Parking Decks And Ramps, Airport Runways, Heavy Industrial Repairs, Dowel Bar Replacement, Concrete Pavement Joint Repairs, Full-Depth Structural Repairs, Setting Of Expansion Device Nosings, Bridge Deck And Highway Overlays, Anchoring Iron Or Steel Bridge And Balcony Railings, Commercial Freezer Rooms, Truck Docks, Horizontal And Formed Vertical Or Overhead Surfaces, Indoor Or Outdoor Applications, And Above Grade.

Features & Benefits

- Permanent Concrete Repair!
- Fast Set Time Open to Foot Traffic In 1 Hour, Open to Any Traffic in 2 Hours
- Bonds Tenaciously to Concrete Will Not Spall or Flake Off
- Incredible Strength 10,000+ psi at Full Cure
- Freeze Thaw Stability Resistant to Chloride (Salts)
- High Impermeability - Resists Oils, Gasoline & Other Potential Contaminants
- Versatile Application - Can be Stamped, Broomed, Trowel Finished
- No Post Treatment Sealer Required Saves Time and Product
- High Impact Resistance - Eliminating Separation from Concrete
- No Critical Mix Ratio - Simple to Apply
- Self Bonding - Eliminates Need for Primers
- Excellent Workability - Horizontal, Vertical and Overhead Application
- Self-Leveler & Sloping Ability - Increase Quality of Repair and Overlayment Options
- Waterproof - Better than Original Concrete

Technical And Product Data

Flash Point: none

Compressive Strength: 45 minutes 2,610 psi 18.0 MPa
24 hours 5,148 psi / 35.5 MPa
7 days 5,815 psi / 40.1 MPa
28 days 11,194 psi/ 77.2 MPa

Set Time: Initial At 68°F (20°C)

Application temp. : minimum 14°F (-10°C) (with Low Temp. Accelerator)
over 100°F (40°C) (with High Temp. Retarder)

Primer: None

Packaging:

Regular grade: 22.7 kg (50lb) Part One with 3.78L (1gal) Part Two
Fine grade: 20.0 kg (45lb) Part One with 3.78L (1gal) Part Two

Clean-up: Water

Water Shelf Life: 12 months in storage

No. of Components: 2 (Part One & Part Two)
Available in fine or regular grade

Yield:

Regular grade: 1 unit = 0.45 cu. ft. of mixed material 78 units = 1 cu. meter
Fine grade: 1 unit = 0.40 cu. ft. of mixed material

Technical Information PCR Part One

Chemical Family.....Silica, Crystalline Quartz;
Magnesium Oxide
Substrate Location.....Topical
Physical State.....Solid
Odor/Appearance.....None / Powder
Active Ingredients.....Proprietary
pH..... N/A
Boiling Point..... N/A
Packaging.....45, 50 lb sack
Shelf Life..... 1 Year
VOC.....0 g/L
Freezing Point..... N/A

Technical Information PCR Part Two

Chemical Family.....Activator
Substrate Location.....Topical
Physical State.....Liquid
Odor/Appearance..... Slight Ammonia,
Greenish color
Active Ingredients..... Proprietary
pH.....5.9-6.1
Boiling Point..... 104-110C
Packaging..... Gallon
Shelf Life.....1 Year
VOC.....0 (g/L)
Freezing Point..... N/A

Manufacture & Product Consulting

Green Umbrella
20 Jetview Drive
Rochester, NY 14624
(844) 200-7336

Website & Documents Available At:

GreenUmbrellaSystems.com
CutSheet, Application Sheet, Feature Brochure, Technical Data Sheet, Safety Data Sheet

Product Consulting Email:

Info@GreenUmbrellaSystems.com

Estimating

Container Size: Part Two Liquid Activator, available in 1 Gallon (128 oz.), 5 Gallon & 55 Gallon quantities. Part One Dry Mix available in 50 lbs. Dry Mix to be combined with Liquid Activator. Each container is clearly labeled with information indicating product name, description and simplified application instructions.

Dilution: Do Not Dilute Liquid Activator. DO NOT ADD WATER at any time. Dry Mix may be supplemented with an approved aggregate, never limestone.

Suggested Mix: Dry Mix may be mixed in as little as 90 oz. of Liquid Activator, adjust mix to achieve desired slump. Up to 135 oz. of Liquid Activator may be combined with 50 lbs. Dry Mix when using PCR as a leveler. The addition of aggregate may supplement Liquid Activator + Dry Mix, aggregate not to exceed 25 lbs. per 50 lb. Dry Mix. Do Not use Limestone. Do Not add water.

Coverage Rates: The combination of 1 Gallon of Liquid Activator and a single 50 lb. Dry Mix will yield approximately 20 square feet at 1/4" inch thickness. For applications of 3/4" or greater, the use of an approved aggregate is recommended for benefits including increased coverage ratio.

Specifications



For CSI Specifications, go to
www.GreenUmbrellaSystems.com

DIVISION/SECTION 03700

Product Quick Specification:

GreenUmbrella® CUTSPEC:

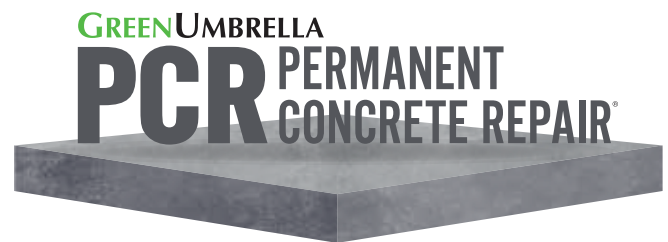
Early Age Conventional Concrete:

Green Umbrella® PCR® cannot be applied to @EarlyAge™ conventional concrete. PCR® may only be installed where there will be zero moisture at the time of placement. It is recommended that any installation @EarlyAge™ concrete delay until 28 days after placement.

Mature Age Conventional Concrete:

Green Umbrella® PCR® can be applied to any structurally sound @MatureAge™ concrete. Prior to installation, thoroughly clean and sweep all debris and potential contaminants—including sealers, wax, coatings, and oil or food spills—prior to concrete repair. All exposed rebar should be inspected for rust and treated; rust should be removed and a rust inhibitor applied. Apply Green Umbrella® PCR®, a Permanent Concrete Repair to restore concrete's impervious strength, durability and aesthetics. From skim coats to repairs using forms, PCR is a versatile concrete repair solution. For best results apply PCR in temperatures from 50-70°F (10-21°C).

To find a certified contractor, call (844) 200-7336. A ten-year limited warranty will be issued to the owner upon receipt of a completed and signed project survey form, detailing the steps and products used in the processing of the floor. Other requirements may be necessary.



Environmental Responsibility and LEED Considerations

The Green Umbrella Architectural Concrete Systems specified process is specially designed to require less labor and downtime while lowering environmental impact. Green Umbrella® Permanent Concrete Repair (PCR) is easy to apply virtually anywhere concrete needs repair including vertical and overhead. The simple application process reduces laborers required to install and downtime before traffic can be restored. Green Umbrella® PCR has zero VOC's and will not harm the environment or add to landfill.

Human Health - Indoor Environmental Quality (IEQ)

- Architectural Concrete may be finished so as to dramatically reduce bacterial adhesion and the presence of biofilms, creating a healthier environment free of harmful bacteria and viruses.

Human Health - Indoor Air Quality (IAQ)

- Many studies indicate that indoor air quality is enhanced with properly maintained Architectural Concrete vs. carpet or other floor coverings
- Architectural concrete does not support combustion, nor does it produce smoke or toxic fumes (LEED v4.1 Operations and Maintenance, propane equipment)
- Architectural Concrete can eliminate moisture issues, shrinking possible growth of mold and fungus.

Human Health - Indoor Air Quality (IAQ)

- Green Umbrella Architectural concrete has zero Volatile Organic Compounds (VOC) content.

Optimize Energy Performance

- Architectural concrete utilizes the thermal mass of concrete, providing advantages in heating and cooling.
- Architectural concrete may be finished in a way that increases light reflectivity - amplifying the benefits of ambient (natural) lighting and reducing process loads from light fixtures.

Building Reuse/Construction Waste Management/Recycled Content

- Existing Buildings — Environmental stewardship through the use and/or refurbishing of existing concrete.
- New or Existing Buildings — No additional materials, labor or energy required to produce or introduce a floor covering or topical coating. No tear out and replacement of worn, weakened or otherwise damaged concrete when repaired using PCR.

Long-term Maintenance

- Concrete repaired by PCR will not require repair following a common repair/replace cycle, extending life and use substantially.

Life Cycle Cost

- Sources show Architectural Concrete to be the lowest life-cost flooring option available

Testing



For all independent lab testing contact us at Info@GreenUmbrellaSystems.com

ACI Standard 302.IR-89 Chemical concrete hardeners can be used to increase concrete resistance to chemicals including , but not limited to the following:
(3 Column List Follows)

ASTM C1583/C1583M-20: Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

AASHTO T259: Standard Test Method of Test for Resistance of Concrete to Chloride Ion Penetration (Salt Ponding Test)

ASTM C1202: Standard Test Method for Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration

ASTMC1556: Standard Test Method for Determining the Apparent Chloride Diffusion Coefficient of Cementitious Mixtures by Bulk Diffusion

ASTM C1152: Standard Test Method for Acid-Soluble Chloride in Mortar and Concrete

Product Placement

Ambient Parameters:

Do Not store or leave Liquid Activator or Dry Mix in direct sunlight.

For best results PCR may be installed in temperatures from 50-70° F (10-22° C).

When installing PCR in temperatures ranging from 14-49° F (-10 - 9°C) a third component is required - Accelerator.

If installing PCR in temperatures below 14°F (-10°C) Green Umbrella recommends the use of a temporary, heated shelter in an attempt to increase ambient air temperature

as well as a torch to increase concrete substrate temperature. It is preferred not to install PCR at these low temps, however steps may be taken to achieve success.

When installing PCR in temperatures above 70°F (21°C) a third component is required - Retarder.

Proper surface prep requirements:

Clean and dry, free of all loose material and potential contaminants. Any exposed rebar must be cleaned using a wire brush or sand blasted, a rust inhibitor is recommended. Substrate temperature should be within the preferred window of 50-70°F (10-22°C), if necessary use of a torch may be required.

Early Age Concrete - Green Umbrella recommends a period of 28 days prior to installation to reduce moisture migration and ensure the best bond possible.

Tools Required:

- Mixing Drill
- Mixing Paddle
- Clean, Dry Bucket
- Measuring Cup
- Finishing Trowel
- Pool Trowel
- Clean Towels
- Wire Brush
- Broom/Vacuum
- Torch
- Temporary Shelter/Pop-Up Canopy

Mixing

Each one gallon (128 oz.) of Activator (Part One) blends with one 50 lb. (22.7 kg) bag of Dry Mix (Part Two). Additional Activator (Part One) may be required during installations outside of the ideal temperature window when using the Accelerator or the Retarder.

Do Not add water.

For applications with a depth of 1/2" (12 mm) or less, the use of Silica as an aggregate is approved.

For applications with a depth greater than 3/4" the use of a clean, dry aggregate is recommended. Aggregate usage of 20-25 lb. is acceptable per 50 lb. bag of PCR Dry Mix. The addition of an aggregate does not substantially impact the quantity of Liquid Activator required.

For best results:

1. Introduce Liquid Activator (Part Two) liquid to a clean, dry mixing bucket. The use of a mortar mixer may be practical for large scale projects and those demanding unusual depth.

Note: Overuse of Liquid Activator will result in an altered final appearance.

2. If Retarder is used, mix with Activator first.

3. Gradually add Dry Mix (Part One) and blend at a low rpm. To avoid clumping, consistently add Dry Mix. PCR does not require extensive mixing; however, all materials should be mixed thoroughly.

4. If adding an aggregate, introduce at the recommended ratio of 40-50% of the Dry Mix. Blend at a low rpm. (Aggregate recommended for depths exceeding 3/4".) DO NOT USE LIMESTONE. The use of aggregate will reduce the thermal yield and facilitate improved finish-ability. Mix thoroughly; aggregate should be wet.

5. If including a colorant, introduce approved/recommended dry pigment and mix thoroughly but not excessively. Liquid colorants should never be used.

6. If ambient temperatures are below 50°F (10°C), introduce the Accelerator. Green Umbrella recommends using a temporary, heated shelter in an attempt to increase ambient air temperature and a torch to increase concrete substrate temperature prior to PCR application. Allow the surface to return to ambient temperature before application. It is preferred not to install PCR at these low temps, however, steps may be taken to achieve success.

Application

Standard Spalled Repair Procedure:

1. Saw cut 1/4" deep around all damaged area, remove damaged concrete to sound concrete. Don't leave any foreign material.

Note: Any broken areas of concrete around posts etc., should be completely cut out. The cutouts should mirror any footings underneath or at least 6" out from the post.

2. Clean surface thoroughly with a bio-degradable etcher, pressure washer, or wash several times with water and scrub brush/floor machine. All etcher residue must be flushed off. If oily, use GreenClean and Degreaser™ to remove oil and grease.

3. Treat weakened or damp concrete with 1 application of HydroShield™.

4. Allow to dry for 8 hours if concrete was saturated.

5. Introduce PCR to the clean and dry repair surface and finish to desired look (trowel, broom or stamp). Apply PCR to 1/4" depth or as needed. Deeper repairs, more than 1", can be bulked out with clean, dry pea gravel. Add to the PCR with a 50% by weight addition of clean, dry pea gravel.

Maintenance

PCR requires no sealer and no special maintenance. Care for concrete surfaces using Green Umbrella GreenClean & Degreaser™ or DeepClean with SlipResist™ following a regular maintenance program. For a detailed maintenance program tailored to the needs of your facility contact Green Umbrella.

Warranty & Limitations

It is the responsibility of the contractor to follow all directions and requirements, as outlined in the Green Umbrella® installation specifications. A completed Project Survey form or equivalent document outlining the steps and products used in the process must accompany this warranty request. Green Umbrella Companies (GU) solely and expressly warrants that its products shall be free from defects in materials and workmanship for six months from the date of purchase. Unless authorized in writing by an officer of GU, no other representations or statements made by GU or its representatives, in writing or orally, shall alter this warranty. GU MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR ORDINARY OR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES THE SAME. Green Umbrella PRODUCT APPLIED TO SUBSTANDARD CONCRETE IS EXCLUDED FROM ANY KIND OF WARRANTY. If any Green Umbrella® product fails to conform to this warranty, GU will replace Green Umbrella® product at no cost to the Buyer. Replacement of any Green Umbrella® product shall be the sole and exclusive remedy available, and the Buyer shall have no claim for incidental or consequential damages. Any installation of Green Umbrella® products that fail to conform to such installation information and instructions shall void this warranty. Product demonstrations, if any are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. The Buyer shall be responsible for determining the suitability of Green Umbrella® products for the Buyer's intended purposes.

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