

TECHNICAL DATA SHEET

DESCRIPTION

Perma Patch VO is a single component, cement based, patching and repair mortar developed for vertical and overhead applications. Perma Patch VO's unique rapid setting, shrinkage compensating formulation offers excellent durability and ease of application without the use of forms.

USE

Perma Patch VO is specifically formulated to repair vertical and overhead concrete. Bridge columns, parking structures columns, spandrels beams, concrete ceilings, tunnels, pipes, pilings and any other vertical or overhead concrete repair application where excellent durability and strength is required.

FEATURES

- Excellent resistance to freeze-thaw and de-icing salts
- Designed for vertical and overhead patching
- Interior and exterior applications
- Rapid set and strength gain for multi-lift and structural repairs
- Is shrinkage compensated, helping to assure a tight contact with surrounding substrate
- High bond strength
- Thermal expansion similar to concrete for long term durability
- For overhead, vertical and horizontal applications
- Meets ASTM C928 R3; Specification for Very Rapid Hardening Cementitious Repair Materials

PROPERTIES

(ASTM C403) Initial Set @ 73°F: 77 min., Final Set @ 73°F: 85 min.

Compressive Strength (ASTM C109)

3 hours: >3,000 psi (>20.6 MPa)
24 hours: >5,000 psi (>34.5 MPa)
7 days: >7,000 psi (>48.2 MPa)
28 days: >8,000 psi (>55.1 MPa)

Flexural Strength (ASTM C78):

1 Day: 850 psi
7 Day: 1,000 psi
28 day: 1,200 psi

Splitting Tensile Strength (ASTM 496)

1 Day: 240 psi
7 Day: 540 psi
28 Day: 650 psi

Direct Tensile Strength (CRD C164)

1 Day: 170 psi
7 Day: 200 psi
28 Day: 240 psi

Modulus of Elasticity (ASTM C469)

28 Days 3.9x10⁻⁶

Bond Strength (ACI 503R Direct Tensile)

1 Day 200 psi
7 Day: 245 psi
28 Day: 300 psi

Coefficient of Thermal Expansion (CRD C39 modified)
4.4x10⁻⁶

Freeze Thaw Resistance (ASTM C666, Procedure A)
300 cycles >96%

Scaling Resistance (ASTM C672)
50 cycles- 0 Rating

Rapid Chloride Permeability (ASTM C1202)
28 Days 430 Coulombs

Length Change % (ASTM C157 modified)

Water cure: +0.056%
Air Cure: -0.100%

Bond Strength (ASTM C882 modified)

1 day: 2,376 psi
7 days: 2,541 psi

Note:

The data shown is typical for controlled laboratory conditions. Reasonable variation from these results can be expected due to interlaboratory precision and bias. When testing the field mixed material, other factors such as variations in mixing, water content, temperature and curing conditions should be considered.

Estimating Guide

Yield: 0.37 cu. ft./50 lbs. (0.01 cu. m/ 22.7 kg)
bag/pail

Packaging

PRODUCT CODE	PACKAGE	SIZE	
		lbs.	kg
308247	Bag	50	22.67
308659	Pail	50	22.67

STORAGE

Shelf life of unopened bags, when stored in a dry facility, is 12 months. Shelf life of unopened pails, when stored in a dry facility, is 18 months. Excessive temperature differential and/or high humidity can shorten the shelf life expectancy. Store in a cool, dry area free of direct sunlight.

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The concrete must be sound and free of all foreign material, including oil, grease, dust, laitance, or other surface contaminants. Surface preparation in accord with ICRI Guidelines is recommended. The edges of the patches should be saw-cut perpendicular to the surface to no more than a depth of 1/2 in. (13 mm) to avoid feather edging the repair material. Best results will be obtained by abrasive blasting the area to be repaired, providing uniform depth, a high surface profile and a firm bonding area. All surfaces to be repaired should be in a saturated-surfacedry (SSD) condition with no standing water on the surface. Supported patches deeper than 2 in. (5.1 cm) may require reinforcement or anchorage. Consult project engineer for specific requirements.

Water Requirements:

Standard Mix: Add 6.25 - 6.75 pints (2.94 - 3.19 L) of clean potable water /50 lbs. (22.7 kg) bag.

For improved performance and greater adhesion, use Dayton Superior Acrylic Bonding Agent J-40 for part of the mix water.

Acrylic Admix: Add 6.5-6.75 pints (3.08 - 3.19 L) of Acrylic Bonding Agent J40 diluted 1:1 with clean potable water /50 lbs. (22.7 kg) bag.

Mixing

Mix with a low speed drill or, for larger projects, a mortar mixer. Add recommended amount of mixing liquid noted below into the container followed by the Perma Patch VO. Mix 2 to 3 minutes. Mix only what can be applied within the working time of approximately 15-25 minutes.

Placement:

Using freshly mixed material, scrub a thin layer into the SSD substrate with a stiff fiber brush and place the repair mortar by trowel or hand before the scrub coat dries. Trowel the material onto the surface to a minimum thickness of 1/4 in. (0.6 cm) and a maximum neat thickness of 2 in. (5.1 cm). Additional lifts can be placed up to 6 in. (15.2 cm) and between each lift, the substrate must be left roughened or scarified. Prior to each lift, the surface must be in a SSD condition and a scrub coat applied immediately prior to the next lift being applied.

CURING

Perma Patch VO is self-curing under most conditions. To assure maximum durability under severe drying conditions (wind, high temperature, low humidity), water cure or use approved ASTM C-309 Dayton Superior water- based curing compound.

CLEAN UP

Use water when material is wet. Hardened material requires abrasive methods.

LIMITATIONS**FOR PROFESSIONAL USE ONLY**

When using less than one bag always dry mix the full bag prior to each use.
DO NOT place at unprotected temperatures below 40°F(5°C) or if the temperature is expected to drop below 40°F(5°C) in the next twenty-four hour period. Ideal installation temperatures are from 50°F (10°C) to 80°F (27°C).
Cooler temperatures will slow set-time and strength gain.
Hot temperatures will accelerate set time. In hot weather, follow ACI Committee 305 recommended procedures.
Do not apply over a smooth hard troweled surfaces without first roughening the surface.
DO NOT featheredge.
Do not re-temper the mixed material or use admixtures.
Mixing equipment should be cleaned with water frequently and prior to material hardening.
Not for use as a parge coating or stucco type application.

PRECAUTIONS**READ SDS PRIOR TO USING PRODUCT**

- Product contains Crystalline Silica and Portland Cement – Avoid breathing dust – Silica may cause serious lung problems
- Use with adequate ventilation
- Wear protective clothing, gloves and eye protection (goggles, safety glasses and/or face shield)
- Keep out of the reach of children
- Do not take internally
- In case of ingestion, seek medical help immediately
- May cause skin irritation upon contact, especially prolonged or repeated. If skin contact occurs, wash immediately with soap and water and seek medical help as needed.
- If eye contact occurs, flush immediately with clean water and seek medical help as needed

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- Dispose of waste material in accordance with federal, state and local requirements

MANUFACTURER

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WARRANTY

Dayton Superior Corporation ("Dayton") warrants for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Dayton, the product is free of manufacturing defects and conforms to Dayton's product properties in force on the date of acceptance by Dayton of the order. Dayton shall only be liable under this warranty if the product has been applied, used, and stored in accordance with Dayton's instructions, especially surface preparation and installation, in force on the date of acceptance by Dayton of the order. The purchaser must examine the product when received and promptly notify Dayton in writing of any non-conformity before the product is used and no later than 30 days after such non-conformity is first discovered. If Dayton, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the non-conforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only a Dayton officer is authorized to modify this warranty. The information in this data sheet supersedes all other sales information received by the customer during the sales process. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

Dayton shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injury), or economic losses of any kind; or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, its obligations under any contract for sale of product, even if Dayton could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this contract, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.