

# SECTION 14

## Concrete Repair

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**Sec 14**  
**Concrete Repair**



## TECHNICAL DATA SHEET

In repair and restoration work it is recommended to first take care of the cause before repairing the effect. Many times a condition survey is needed to determine the cause(s) and to plan the proper, most cost-effective approach to correct the problem.

In repair and restoration surface preparation is very important. The best of products with poor surface preparation is no better than the lesser product with the proper surface preparation.

### Surface Preparation

- I.K.E.
  - Identify what the problem is
  - Know and understand the problem
  - Eradicate the cause before addressing the effect
- Surface Preparation: A necessity for a successful application:
  - Water-blast, sand-blast, scabblor, scarifier, grinder, needle gun, hammer chisels, shot-blasting
  - Provide a high profile substrate for a good mechanical bond
  - Remove excessive or complex edge conditions
  - Have a defined edge...saw cut or use a grinding wheel to create a clean defined edge to which you will work the repair mortar
- SSD...concrete substrate to be in a Saturated-Surface-Dry condition so that the concrete will not absorb water from the repair mortar
- Mixing methods: drill & paddle, mortar mixer, concrete mixer (when stone added), pump, by hand
- When mixing less than a full bag always first mix the bag so that a representative sample is obtained.
- Add the powder to the water
- Water requirements stay the same regardless if the material is used neat or if pea gravel is used
- Application methods: by hand, form & pump, form & pour, dry packing, pneumatic (spraying), pneumatic (shotcrete)
- ICRI Guideline No. 03732 and the ACI 546 Concrete Repair Guide provides an in depth description of various types of surface preps, substrate condition surveys, and selection & specifying methods of surface preparation

### DAYTON SUPERIOR REPAIR MORTARS

#### GENERAL USE REPAIRS:

#### ReCrete™ 5 Minute & ReCrete™ 20 Minute

- Cost-effective repair mortar with no polymers or fibers
- Min. thickness 1/8", max. 2", neat
- Extend with clean washed stone > 2" per Data Sheet
- Can be modified with Acrylic Bonding Agent J40 1:1, for enhanced performance

#### Polyfast™ FS

- Rapid setting vertical and overhead applications
- Polymer modified
- Min. thickness 1/4", max. 2", neat
- Extend with clean washed stone > 2" per Data Sheet
- Easily shaped and finished
- Pleasing concrete gray color

#### VERTICAL / OVERHEAD:

#### Architectural Finish™.

- Polymer modified
- Use for rubbing, smoothing, resurfacing repairing vertical surfaces
- Colored blended to a light gray
- 30 minute working time
- Featheredge to 1/8" application depth

#### Perma Patch VO™

- One component W/water or 2-component W/approved admixture
- High strength
- Min. thickness 1/4", max. 2" neat
- Formulated for vertical / overhead applications
- High bond strength
- Shrinkage compensated
- Can be sprayed or pumped through small volume pneumatic equipment
- Rapid strength gain
- Can be extended with aggregate for deep applications
- Very low permeability

#### HD-25 VO

- Designed for vertical and overhead applications
- Polymer modified
- Min. thickness 1/4", max. 2" neat
- Extend with clean washed stone > 2" per Data Sheet
- More rapid initial strength gain than Polyfast

## Civil / Structural VO

- Vertical or overhead applications
- Formulated for use in spray applications using the wet process
- Can also be applied by hand or trowel
- Contains a corrosion inhibitor
- Very high compressive strengths

## FORM & POUR:

### Civil / Structural FPX

- For form & pour or horizontal applications
- Extended with blended aggregate
- Contains a corrosion inhibitor
- Long working time

### Perma Patch™ F/P

- Self finishing
- Up to 40 minute working time
- Ideal for form & pour or form & pump applications

## HORIZONTAL:

### Thin Resurfacer

- Polymer modified
- Min. thickness 1/16", max. 1/2" and cannot be extended
- Substitute 1 qt. Of water with J-40 for enhanced performance

### Special Patch

- Shrinkage compensated
- High early strength
- Good resistance to freeze-thaw and impact

### HD-50

- Pourable consistency
- Very rapid setting
- Polymer modified, fiber reinforced
- Min. thickness 1/2", max. 2", neat
- Extend with clean washed stone > 2" per Data Sheet
- Capable of being extended up to 80% (40# stone) per bag
- Most popular DOT approved repair mortar

### Pave Patch 3000

- Pourable consistency
- Shrinkage compensated
- Very rapid setting
- Min. thickness 1/2", max. 2", neat
- Extend with clean washed stone > 2" per Data Sheet
- Capable of being extended up to 60% (40# stone) per bag

## RESINOUS BASED REPAIR MORTARS

### Rapid Resin Repair

- 100% solids 3-component low modulus repair material
- Non-shrink
- Chemically resistant
- Cures from -20°F to 130°F
- Meets USDA requirements
- "0" VOC
- Low odor

### Sure Patch™

- 100% solids 3-component low modulus repair material
- Trowelable
- Rapid strength gain
- Moisture insensitive

## EPOXY/CEMENTITIOUS BONDING AGENT/REBAR PRIMER

### Perma Prime™ 3C

- True breathable bonding agent
- Long open time
- Epoxy-modified with corrosion inhibitor

## SPECIALTY REPAIRS:

### Snaplugs®

- High Strength cement compound
- Plugs for tie cone holes
- Gray in color
- Saves time and labor

### Anchor All

- Shrinkage compensated
- Pourable
- Fast setting
- Ideal for posts and dowels

### Waterstop

- Rapid setting hydraulic cement
- For plugging & stopping water or fluid leaks in concrete or CMU
- Initial set 2 1/2 min., final set 3 1/2 min.
- Non-corrosive, non-rusting

## TECHNICAL DATA SHEET

### DESCRIPTION

One component, shrinkage compensated Portland-Cement based concrete repair material containing blended coarse aggregate. Civil/Structural FPX is enhanced with a corrosion inhibitor for rebar & steel protection and is designed primarily for large volume placements including structural elements. typically in applications from 1 inch (2.54 cm) to 8 inches (20.32 cm).

### USE

For repair of concrete utilizing form & pour or form & pump applications. Can be used on-grade, above, and below grade; horizontal, vertical and overhead; interior or exterior; structural and general repairs where 1 in. (2.54 cm) to 8 in. (20.32 cm) thickness is required. Excellent for use as a repair material for parking facilities, industrial plants, bridges, tunnels, dams, balconies or any deep section repair of concrete.

### FEATURES

- Pre-extended with coarse aggregate for labor saving.
- Corrosion inhibitor protects steel reinforcement from both chloride intrusion and carbonation.
- High bond strength.
- Compatible with coefficient of thermal expansion of concrete.
- Increased resistance to deicing salts.
- Excellent for deep section structural repairs.
- Freeze/Thaw resistant.
- Extended working time for ease of placement.
- Not a vapor barrier.

### PROPERTIES

Application Time: 45 min.-60 min.  
 Initial set: 1 hr. 30 min.  
 Consistency:  
 Initial: Flowable, Slump at 30 minutes: >4 in. (10.16 cm)  
 Compressive Strength: ASTM C-39  
 1 day: 2,500 psi (17.2 MPa)  
 7 days: 4,500 psi (31.0 MPa)  
 28 days: 5,500 psi (37.9 MPa)  
 Flexural Strength: ASTM C-78: 28 days  
 700 psi (4.83 MPa)  
 Splitting Tensile Strength: ASTM C-496: 28 days  
 750 psi (5.17 MPa)  
 Bond Strength: ASTM C-882, modified: 28 days  
 1,500 psi (10.3 MPa)

**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: Approximately 0.44 cu. ft. (0.0125 cu m) /55 lb. (24.9 kg) bag

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
308765	Bag	55	24.94
308771	Supersak	2500	1133.98

### STORAGE

Civil/Structural FPX should be stored in a cool, dry interior area. At no time, should material be exposed to high moisture, rain or snow conditions. Shelf life of unopened bags, when stored in a dry facility is 12 months.

### APPLICATION

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in. (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface. Supported patches deeper than 2 in. (5.08 cm) may require reinforcement or anchorage. Applications for unsupported repairs exceeding 1 in. (2.54 cm) in thickness may require anchorage. Please consult the engineer of record for special requirements that may be required.

**Mixing:** Never mix partial bags. Mix with a forced action mixer. Use suitable size container with an appropriate paddle at a slow speed (400-500 rpm) with a heavy duty drill. For larger projects use a mortar mixer. Add recommended amount of water into the container followed by the Civil/Structural FPX powder. Mix thoroughly for at least 5 minutes.

**Water Requirements:** Add 4.5 pints (2.1 L) of clean potable water /55 lb. (24.9 kg) bag.

**Placement:** Using freshly mixed Civil/Structural FPX (do not dilute), scrub a thin layer into the SSD substrate with a stiff

brush and place the Civil/Structural FPX before the scrub coat dries. In certain conditions the use of an approved Dayton Superior surface bonding agent, may be required. Contact Technical services for further information. Mix only enough material that can be placed within a 40-minute period. DO NOT RETEMPER.

Apply Civil/Structural FPX by pour or pump into a formed vertical surface or horizontal area. Confirm pump type and hose diameters will accept material with pump manufacturer prior to placement. Place at a minimum depth of 1 in. (2.54 cm) up to 8 in. (20.32 cm). DO NOT FEATHER EDGE.

**Curing:** Formwork should remain in place until material reaches 2500 psi (17.2 MPa) or as specified by engineering documents. To assure maximum durability, moist cure or use approved Dayton Superior curing compound conforming to ASTM C309.

### CLEAN UP

Clean tools and equipment while material is still wet with water. Hardened material requires mechanical or abrasive methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

Application thickness: Minimum 1 in. (2.54 cm) Maximum 8 in. (20.32 cm).

Do not place at temperatures below 40°F(5°C) or if the temperature is expected to drop below 40°F(5°C) in the next 24 hours.

In hot weather follow ACI Committee 305 recommended procedures.

Colder temperatures will extend the setting time and warmer temperatures will reduce the setting time.

Please consult the engineer of record for the project for special requirements.

### PRECAUTIONS

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

### MANUFACTURER

Dayton Superior Corporation  
1125 Byers Road  
Miamisburg, OH 45342  
Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.

TECHNICAL DATA SHEET

**DESCRIPTION**

Perma Patch™ FP is a specially designed patching and structural repair product for any maintenance and new construction projects where prolonged working time up to 40 minutes and fast strength in two to three hours is required.

**USE**

Can be used for all structural and general horizontal concrete repairs (interior, exterior, above and below grade) where sufficient working time during placement and high early strength is required.

**FEATURES**

- Flowable/self consolidating
- Up to 40 minutes working time
- Ideal for horizontal or formed vertical/overhead applications

**PROPERTIES**

Initial Setting Time (ASTM C-266) 30-40 min.  
Final Setting Time (ASTM C-266) 45-55 min.

Compressive Strength ASTM C-109

- 3 hours >1000 psi (6.89 MPa)
- 1 day >2500 psi (17.24 MPa)
- 7 days >6000 psi (41.37 MPa)
- 28 days >8500 psi (58.62 MPa)

Flexural Strength ASTM C-78

- 7 days 1000psi
- 28 days 1100 psi

Splitting Tensile ASTM C496

- 1 day 200 psi
- 7 days 525 psi
- 28 days 675 psi

Direct Tensile CRD C 164

- 1 day 125 psi
- 7 days 150 psi
- 28 days 190 psi

Modulus of Elasticity ASTM C469

- 28 days 4.5 x 10<sup>-6</sup> psi

Bond Strength ACI 503R

- 1 day 150 psi
- 7 days 175 psi
- 28 days 250 psi

Coefficient of thermal expansion CRD C39 modified

- 4.9 x 10<sup>-6</sup> in/in/degF

Freeze/thaw resistance ASTM C666 procedure A

- 300 cycles >95%

Scaling resistance ASTM C672

- 50 cycles 0 rating

Rapid chloride permeability ASTM C1202  
28 days 770 coulombs

TEST DATA at 75° F (23.9°C)

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: 0.38 cu. ft. /50 lb. (0.0107 cu m /22.7 kg) bag

**PACKAGING**

ITEM #	PACKAGE	SIZE	
		lbs.	kg
308246	Bag	50	22.67

**STORAGE**

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

**APPLICATION**

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in. (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface. Supported repairs deeper than 2 in. (5.1 cm) may require reinforcement or anchorage. Please consult the engineer of record for the project for special requirements.

**Mixing:** Mix with a low speed drill or, for larger projects, a mortar mixer. Add recommended amount of mixing liquid into the container followed by Perma Patch™ FP powder. Do not mix more than 3 minutes. Mix only enough material that can be placed within 40-minute period. Do No Retemper.

**Water Requirements**

**Standard Mix:** Add 7 pints (3.29 L) of clean potable water /50 lb. (22.7 kg) bag.

**Acrylic Admix:** Add 7 pints (3.29 L) of Acrylic Bonding Agent J40 diluted 1:1 with clean potable water per 50 lb. (22.7kg) bag.

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

### PLACEMENT:

**Vertical:** Apply Perma Patch™ FP by pour or pump into a formed vertical surface. Care should be taken to confirm pump and hose diameters would accept material with pump manufacturer. Material can be placed neat to a minimum of ¼ in. (0.6 cm) up to a maximum thickness of 2 in. (5.1 cm) depth. Pour or pump material into formed areas.

**Horizontal:** Using freshly mixed Perma Patch™ FP (do not dilute), scrub a thin layer into the SSD substrate with a stiff brush and place the Perma Patch™ FP before the scrub coat dries. Material can be placed neat to a minimum of ¼ in. (0.6 cm) up to a maximum depth of 2 in. (5.1 cm). Pour or pump material into curbed areas. DO NOT FEATHER EDGE.

**Extending for Volume Placement:** For patches over 2 in. (5.1 cm) in depth add 30-60% by weight 15-30 lbs. (6.8-13.6 kg) clean, SSD, 3/8 in. (0.1 cm) pea gravel. Extension will depend on depth and finish desired. Placement of 6-50 lbs. (22.67 kg) bags is the maximum amount for any one application. For larger applications, contact Technical Services.

### CURING

Perma Patch™ FP is self-curing under most conditions, however, 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 temperatures below 40°F(5°C) or if the temperature is expected to drop below 40°F(5°C) in the next 24 hours.

In hot weather follow ACI Committee 305 recommended procedures.

Colder temperatures will extend the setting time and warmer temperatures will reduce the setting time.

Not for use as a parge coating or stucco type application.

Placement of 6-50 lb. (22.7 kg) bags is the maximum amount for any one application.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

### PRECAUTIONS

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

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1125 Byers Road  
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Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.



TECHNICAL DATA SHEET

**DESCRIPTION**

Polyfast™ FS is a shrinkage compensated, high strength mortar containing portland cement, special polymers and additives to provide an outstanding strength gain along with a fast set. Polyfast™ FS is a single component trowelable material formulated for vertical, overhead and horizontal repairs.

**USE**

Polyfast™ FS is a polymer modified mortar that can be used for vertical, horizontal and overhead repairs of concrete structures for interior or exterior, above or below grade applications. It can be used as a structural repair for bridges, tunnels, parking structures, dams, walls, columns, etc. It is also excellent for the repair of precast concrete products, i.e., pipes, beams, steps, etc.

**FEATURES**

- Ideal for vertical and overhead applications
- Higher strength than typical concrete
- "Built-in" bonding agent/polymer modified
- Very low chloride permeability
- Fast setting
- One component – just add water
- Excellent bond strength
- Shrinkage compensating

**PROPERTIES**

Set Times: ASTM C-266 @ 72°F (22°C)  
Initial Set: 30 minutes  
Final Set: 45 minutes

Compressive Strength: ASTM C-109  
1 Day 4,100 psi (22.2 MPa)  
3 Days 6,500 psi (44.8 MPa)  
7 Days 8,100 psi (55.8 MPa)  
28 Days 9,000 psi (62.0 MPa)

Bond Strength: ASTM C-1042  
7 Days 5,100 psi (35.1 MPa)

Flexural Strength: ASTM C-348  
7 Days 1,100psi (7.6 MPa)  
28 Days 2,000psi (13.8 MPa)

Length Change of Hardened Cement Mortar and Concrete:  
ASTM C-157 and ASTM C-928:

	Water Cure	Air Cure
28 Days	0.027%	-0.030%
ASTM C-928	Max to 0.15%	Max to -0.15%

**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**

Approximately 0 .42 cu. ft. /50 lb.(0.012 cu m /22.67 kg) bag or pail.

**PACKAGING**

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67358	Bag	50	22.67
67359	Pail	50	22.67

**STORAGE**

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

**APPLICATION**

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in (1.3 cm). 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-surface-dry (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.

**Mixing:** Mix only as much product that can be easily placed within 10 minutes. Polyfast™ FS sets initially in approx. 30 minutes. For mixing, Dayton Superior recommends a low RPM drill with a mud paddle. When mixing less than a full unit, always first agitate the bag/pail so that a representative sample is obtained. Always add Polyfast™ FS to the water, thoroughly mixing to a putty-like consistency for at least 2-3 minutes.

**Water Requirements:** 3.5 to 4 quarts. (3.3 - 3.8L)/50 lb. (22.7 kg) bag or pail. Use less water for a stiffer mix.

Sec 14  
Concrete Repair

**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 ¼ 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.

The less Polyfast™ FS is handled the better. Application should always be finished by the time of initial set or stiffening. Never leave excess material lapping over the edges of the repair. The finished repair should be smooth and level with the surrounding concrete. After leveling, Polyfast™ FS can be finished to achieve desired texture with broom, sponge, float or trowel.

For repairs over 2 in. (5.1 cm) thick, rather than applying in lifts, up to 15 lbs. (6.8 kg) of clean, SSD pea gravel /50 lbs. (22.7 kg.) can be added to the Polyfast™ FS.

### CURING

Adequate curing is important, especially during windy, hot or dry conditions. A wet burlap cure or a 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. Minimum thickness for patching is ¼ in. (0.6 cm).

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

### MANUFACTURER

Dayton Superior Corporation  
1125 Byers Road  
Miamisburg, OH 45342  
Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Recrete™ 20 Minute is a general purpose cement based concrete repair and patching material. Recrete™ 20 Minute is specially formulated to provide a fast setting repair mortar with excellent workability. Recrete™ 20 Minute can be used for repair and patching of vertical, overhead and horizontal areas subject to light traffic both interior and exterior.

### USE

Recrete™ 20 Minute is a general purpose concrete patching product which can be used to repair concrete pipe, precast concrete products, large floor cracks, concrete steps, walls, columns, concrete blocks, sidewalks, driveways, etc. The Recrete™ 20 Minute is ideal for vertical and overhead applications because of its "putty-like" consistency and it's ability to be shaped, molded and sanded.

### FEATURES

- Suitable for horizontal, vertical and overhead applications
- Twice the strength of typical concrete
- Can be shaped and molded
- Fast setting
- Rapid strength gain, over 3000 psi (20.7 MPa) in 24 hours

### PROPERTIES

Compressive strength test and setting times have been determined and established in accordance with ASTM C-109 and ASTM C-266.

Compressive Strength - ASTM C-109

1 day	3,000 psi	(20.7 MPa)
7 days	4,500 psi	(31.0 MPa)
28 days	6,500 psi	(44.8 MPa)

Set Time- ASTM C-266

Initial: 15 minutes

Final: 35 minutes

**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: 0.45 to 0.48 cu. ft. /50 lb. (0.0126 - 0.0134 cu m /22.7 kg) bag or pail.

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67311	Bag	50	22.67
67312	Pail	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** Remove all dirt, grease, oil and surface coatings that will come in contact with the repair material. All loose concrete must be removed until firm substrate is exposed. On horizontal patches, best results will be obtained by saw cutting the area to be repaired up to a maximum of ½ in. (1.3 cm) providing uniform depth with a high surface profile. The actual depth of repair can be greater than the ½ in. (1.3 cm) saw cut. All surfaces to be repaired should be in a saturated surface dry (SSD) condition with no standing water on the surface. Using freshly mixed Recrete™ 20 Minute, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the Recrete™ 20 Minute before this bond coat dries.

**Mixing:** Mix only as much as can be easily placed within 10 minutes. Recrete™ 20 Minute sets initially in approximately 15 minutes depending upon temperature. Always add Recrete™ 20 Minute to the water, thoroughly mixing to a putty like consistency for at least 2 – 3 minutes. For mixing, Dayton Superior recommends a low RPM drill with a mud paddle. When mixing less than a full unit, always first agitate the bag/pail so that a representative sample is obtained.

**Water Requirements:** Mix with water at the rate of 4 – 5 quarts /50 lb. (3.8 – 4.8 L /22.67 kg) bag. For improved performance and greater adhesion, use Dayton Superior Acrylic Bonding Agent J40 for part of the mix water. Dilute the Acrylic Bonding Agent J40 with up to 3 parts water and use the diluted mixture for mixing of the Recrete™ 20 Minute.

Acrylic Bonding Agent J40 is recommended as an admixture for the Recrete™ 20 Minute for all applications subject to frequent freezing and thawing cycles or for projects where enhanced physical properties are desired.

**Placement:** Following proper bond coat application, pack the material firmly into the prepared area, ensuring intimate contact with the bonding surface. Use slightly more material than is

## Repair Mortar

needed and roughly shape during placement. After the initial set, when Recrete™ 20 Minute is surface hard, shave the material to the desired final shape using a steel trowel. Maximum depth of neat repair mortar is 2 in. (5.1 cm) for each lift. For large repairs over 2 in. (5.1 cm) thick, up to 25 lbs. (11.34 kg) of clean, SSD pea gravel should be added per 50 lbs. (22.67 kg.) of Recrete™ 20 Minute.

THE LESS RE-CRETE 20 MINUTE SET IS HANDLED THE BETTER. DO NOT ADD EXCESS WATER OR RETEMPER.

Never leave excess material lapping over edges of repair. Finished patch should be smooth and level with the surrounding concrete. After leveling, Recrete™ 20 Minute can be rubbed with a wet sponge and textured, if desired.

**Curing:** Adequate curing is important, especially during windy, hot and dry conditions. A wet burlap cure or a Dayton Superior water based curing compound or cure & seal is recommended.

### CLEAN UP

Use water prior to material setting hard. Hardened material requires abrasive removal methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

Minimum thickness for repair is 1/8 in (0.3 cm). Do not feather edge.

Do not use for resurfacing or topping large floor areas.

Not for use as a parge coating or stucco type application.

Do not add other cements or additives to this product.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

Cold weather will slow down the set time of Recrete™ 20 Minute and hot weather will accelerate it. The minimum application temperature is 40°F (4°C).

Prepackaged material segregates while in the bag, thus when mixing less than a full bag it is recommended to first agitate the bag to assure it is blended prior to sampling.

### PRECAUTIONS

#### READ MSDS 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
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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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Recrete™ 5 Minute is a general purpose cement based concrete repair and patching material. Recrete™ 5 Minute is specially formulated to provide a very fast setting repair mortar with excellent workability. Recrete™ 5 Minute can be used for repair and patching of vertical, overhead and horizontal areas subject to light traffic both interior and exterior.

### USE

Recrete™ 5 Minute is a general purpose concrete patching product which can be used to repair concrete pipe, precast concrete products, large floor cracks, concrete steps, walls, columns, concrete blocks, sidewalks, driveways, etc. The Recrete™ 5 Minute is ideal for vertical and overhead applications because of its "putty-like" consistency and it's ability to be shaped, molded and sanded.

### FEATURES

- Suitable for horizontal
- Twice the strength of typical concrete
- Can be shaped and molded
- Very Fast setting
- Rapid strength gain, over 3000 psi (20.7 MPa) in 24 hours

### PROPERTIES

Compressive strength test and setting times have been determined and established in accordance with ASTM C-109 and ASTM C-266.

Compressive Strength - ASTM C-109

1 day	3,000 psi	(20.7 MPa)
7 days	4,500 psi	(31.0 MPa)
28 days	6,500 psi	(44.8 MPa)

Set Time- ASTM C-266

Initial: 5 minutes

Final: 12 minutes

**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: 0.45 to 0.48 cu. ft. /50 lb. (0.0126-0.0134 cu m /22.7 kg) bag or pail.

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67300	Bag	50	22.67
67305	Pail	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** Remove all dirt, grease, oil and surface coatings that will come in contact with the repair material. All loose concrete must be removed until firm substrate is exposed. On horizontal patches, best results will be obtained by saw cutting the area to be repaired up to a maximum of ½ in. (1.3 cm) providing uniform depth with a high surface profile. The actual depth of repair can be greater than the ½ in. (1.3 cm) saw cut. All surfaces to be repaired should be in a saturated surface dry (SSD) condition with no standing water on the surface. Using freshly mixed Recrete™ 5 Minute, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the Recrete™ 5 Minute before this bond coat dries.

**Mixing:** Mix only as much as can be easily placed within 5 minutes. Recrete™ 5 Minute sets initially in approximately 5 minutes depending upon temperature. Always add Recrete™ 5 Minute to the water, thoroughly mixing to a putty like consistency. Mix quickly. For mixing, Dayton Superior recommends a low RPM drill with a mud paddle. When mixing less than a full unit, always first agitate the bag/pail so that a representative sample is obtained

**Water Requirements:** Mix with water at the rate of 4 – 5 quarts per 50 lb. (3.8 – 4.8 L /22.67 kg) bag. For improved performance and greater adhesion, use Dayton Superior Acrylic Bonding Agent J40 for part of the mix water. Dilute the Acrylic Bonding Agent J40 with up to 3 parts water and use the diluted mixture for mixing of the Recrete™ 5 Minute.

Acrylic Bonding Agent J40 is recommended as an admixture for the Recrete™ 5 Minute for all applications subject to frequent freezing and thawing cycles or for projects where enhanced physical properties are desired.

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Concrete Repair

## Repair Mortar

**Placement:** Following proper bond coat application, pack the material firmly into the prepared area, ensuring intimate contact with the bonding surface. Use slightly more material than is needed and roughly shape during placement. After the initial set, when Recrete™ 5 Minute is surface hard, shave the material to the desired final shape using a steel trowel. Maximum depth of neat repair mortar is 2 in. (5.1 cm) for each lift. For large repairs over 2 in. (5.1 cm) thick, up to 25 lbs. (11.34 kg) of clean, SSD pea gravel should be added per 50 lbs. (22.67 kg.) of Recrete™ 5 Minute.

THE LESS RE-CRETE 5 MINUTE SET IS HANDLED THE BETTER. DO NOT ADD EXCESS WATER OR RETEMPER.

Never leave excess material lapping over edges of repair. Finished patch should be smooth and level with the surrounding concrete. After leveling, Recrete™ 5 Minute can be rubbed with a wet sponge and textured, if desired.

**Curing:** Adequate curing is important, especially during windy, hot and dry conditions. A wet burlap cure or a Dayton Superior water based curing compound or cure & seal is recommended.

### CLEAN UP

Use water prior to material setting hard. Hardened material requires abrasive removal methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

Minimum thickness for repair is 1/8 in. (0.3 cm). Do not feather edge.

Do not use for resurfacing or topping large floor areas.

Not for use as a parge coating or stucco type application.

Do not add other cements or additives to this product.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

Cold weather will slow down the set time of Recrete™ 5 Minute and hot weather will accelerate it. The minimum application temperature is 40°F (4°C).

Prepackaged material segregates while in the bag, thus when mixing less than a full bag it is recommended to first agitate the bag to assure it is blended prior to sampling.

### PRECAUTIONS

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

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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.



## TECHNICAL DATA SHEET

### DESCRIPTION

Recrete™ Light 20 Minute is a general purpose cement based concrete repair and patching material that dries to a light gray color. Recrete™ Light 20 Minute is specially formulated to provide a fast setting repair mortar with excellent workability. Recrete™ Light 20 Minute can be used for repair and patching of vertical, overhead and horizontal areas subject to light traffic both interior and exterior.

### USE

Recrete™ Light 20 Minute is a general purpose concrete patching product which can be used to repair concrete pipe, precast concrete products, large floor cracks, concrete steps, walls, columns, concrete blocks, sidewalks, driveways, etc. The Recrete™ Light 20 Minute is ideal for vertical and overhead applications because of its "putty-like" consistency and it's ability to be shaped, molded and sanded.

### FEATURES

- Suitable for horizontal, vertical and overhead applications
- Light Gray Color, Ideal for Pre-Cast Concrete
- Twice the strength of typical concrete
- Can be shaped and molded
- Fast setting
- Rapid strength gain, over 3000 psi (20.7 MPa) in 24 hours

### PROPERTIES

Compressive strength test and setting times have been determined and established in accordance with ASTM C-109 and ASTM C-266.

#### Compressive Strength - ASTM C-109

1 day	3,000 psi	(20.7 MPa)
7 days	4,500 psi	(31.0 MPa)
28 days	6,500 psi	(44.8 MPa)

#### Set Time- ASTM C-266

Initial: 15 minutes  
Final: 35 minutes

**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: 0.45 to 0.48 cu. ft. /50 lb. (0.0126 - 0.0134 cu m /22.7 kg) bag or pail.

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67310	Bag	50	22.67
67315	Pail	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** Remove all dirt, grease, oil and surface coatings that will come in contact with the repair material. All loose concrete must be removed until firm substrate is exposed. On horizontal patches, best results will be obtained by saw cutting the area to be repaired up to a maximum of ½ in. (1.3 cm) providing uniform depth with a high surface profile. The actual depth of repair can be greater than the ½ in. (1.3 cm) saw cut. All surfaces to be repaired should be in a saturated surface dry (SSD) condition with no standing water on the surface. Using freshly mixed Recrete™ Light 20 Minute, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the Recrete™ Light 20 Minute before this bond coat dries.

**Mixing:** Mix only as much as can be easily placed within 10 minutes. Recrete™ Light 20 Minute sets initially in approximately 15 minutes depending upon temperature. Always add Recrete™ Light 20 Minute to the water, thoroughly mixing to a putty like consistency for at least 2 – 3 minutes. For mixing, Dayton Superior recommends a low RPM drill with a mud paddle. When mixing less than a full unit, always first agitate the bag/pail so that a representative sample is obtained.

**Water Requirements:** Mix with water at the rate of 4 – 5 quarts /50 lbs. (3.8 – 4.8 L /22.67 kg) bag. For improved performance and greater adhesion, use Dayton Superior Acrylic Bonding Agent J40 for part of the mix water. Dilute the Acrylic Bonding Agent J40 with up to 3 parts water and use the diluted mixture for mixing of the Recrete™ Light 20 Minute.

Acrylic Bonding Agent J40 is recommended as an admixture for the Recrete™ Light 20 Minute for all applications subject to frequent freezing and thawing cycles or for projects where enhanced physical properties are desired.

**Placement:** Following proper bond coat application, pack the material firmly into the prepared area, ensuring intimate contact

## Repair Mortar

with the bonding surface. Use slightly more material than is needed and roughly shape during placement. After the initial set, when Recrete™ Light 20 Minute is surface hard, shave the material to the desired final shape using a steel trowel. Maximum depth of neat repair mortar is 2 in. (5.1 cm) for each lift. For large repairs over 2 in. (5.1 cm) thick, up to 25 lb. (11.34 kg) of clean, SSD pea gravel should be added per 50 lbs. (22.67 kg.) of Recrete™ Light 20 Minute.

THE LESS RE-CRETE LIGHT 20 MINUTE SET IS HANDLED THE BETTER. DO NOT ADD EXCESS WATER OR RETEMPER. Never leave excess material lapping over edges of repair. Finished patch should be smooth and level with the surrounding concrete. After leveling, Recrete™ Light 20 Minute can be rubbed with a wet sponge and textured, if desired.

**Curing:** Adequate curing is important, especially during windy, hot and dry conditions. A wet burlap cure or a Dayton Superior water based curing compound or cure & seal is recommended.

### CLEAN UP

Use water prior to material setting hard. Hardened material requires abrasive removal methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

Minimum thickness for repair is 1/8 in. (0.3 cm). Do not feather edge.

Do not use for resurfacing or topping large floor areas.

Not for use as a parge coating or stucco type application.

Do not add other cements or additives to this product.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

Cold weather will slow down the set time of Recrete™ Light 20 Minute and hot weather will accelerate it. The minimum application temperature is 40°F (4°C).

Prepackaged material segregates while in the bag, thus when mixing less than a full bag it is recommended to first agitate the bag to assure it is blended prior to sampling.

### PRECAUTIONS

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

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### WARRANTY

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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.



**TECHNICAL DATA SHEET**

**DESCRIPTION**

HD 50 is a fast setting, fiber reinforced, latex-modified, heavy duty, one component concrete repair material requiring only water to mix and apply. HD 50 is a cement based compound having similar characteristics to normal portland cement mixes and is compatible with portland cement concrete.

**USE**

HD 50 is designed for the repair of heavy duty surfaces such as concrete highways, bridge decks, parking structures, airport runways, freezer rooms, industrial and warehouse floors, and loading docks. HD 50 is a stiff yet flowable material that may be poured into place for horizontal applications or into formed vertical and overhead applications.

**FEATURES**

- Can be opened to use or traffic within 60 minutes.
- High compressive strength quickly – over 2,000 psi in one hour.
- Resists salt penetration and damage from freeze/thaw cycles.
- Contains no chlorides or magnesium phosphate.
- Meets ASTM C-928; Specification for Very Rapid Hardening Cementitious Repair Materials.
- Non Corrosive.
- Compatible with portland cement concrete.
- Aggregate extension – Up to 60% on repairs greater than 2 inches (5cm) deep.

**PROPERTIES**

Meets ASTM C-928: As a Type R-3 mortar which includes the following tests:

Compressive Strength – ASTM C-109

At 75°F (24°C)

- 1 Hour     2000 psi (13.8 MPa)
- 3 Hours    3500 psi (24.1 MPa)

- 1 Day       6145 psi (42.4 MPa)
- 7 Days      7000 psi (48.2 MPa)
- 28 Days     7990 psi (55.1 MPa)

Slant Shear Bond Strength ASTM C-882 (\*modified per ASTM C 928)

- 1 day       2,000 psi (13.8 MPa)
- 7 days      2,750 psi (18.9 MPa)

Length Change of Hardened Cement Mortar and Concrete ASTM C 157 (\*modified per ASTM C 928)

- % Length Change @ 28 days
- Air Cure -0.11%
- Water Cure 0.06%

Scaling Resistance (Freeze/Thaw) - ASTM C-672

- Average of 3 specimens:
- 25 cycles 0 (no scaling)
- Scaling of oven-dry mass @ 25 cycles 0.0 lbs/ft<sup>2</sup>

5. Rapid Freeze/Thaw Test: ASTM C-666 At 300 Cycles - No loss.

6. Scaling Resistance -ASTM C-672  
No scaling @ 25 cycles

At 70°F (21.1°C) Initial Set: 15-20 minutes  
Final Set: 25-30 minutes

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: 0.42 cu. ft. /50 lb. (0.012 cu m /22.7 kg)  
0.60 cu. ft. /50 lb. (0.017 cu m /22.7 kg) bag with 60% extension, 30 lbs. (13.61 kg) with 3/8 in. (1 cm) pea gravel.

**PACKAGING**

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67460	Bag	50	22.67

**STORAGE**

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

**APPLICATION**

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in. (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface.

**Mixing:** Mix with a low speed drill or, for larger projects a mortar mixer with rubber tipped blades, by adding the water first and then the powder. Mixing time should be two to three minutes and placing should not exceed fifteen minutes. Adequate placing and finishing equipment and material should be available for continuous placement of the material.

**Water Requirements** Use 6½ pints (3.07 L) of water /50 lb. (22.7 kg) of powder.

**Placement:** Using freshly mixed material, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the repair mortar before the scrub coat dries. Trowel the repair material onto the surface to a minimum thickness of 1/2 in. (1.3 cm) and a maximum thickness of 2 in. (5.1 cm). For repairs over 2 in. (5 cm) deep, the material should be extended 60% by weight with clean, SSD, pea gravel with an approximate size of 3/8 in (9.5 mm) and conforming to the requirements of ASTM C 33.

**Curing:** Water cure for a minimum of 1 hour or apply a Dayton Superior ASTM C309 water-based curing compound to the repaired area immediately after placement.

### CLEAN UP

Clean tools and equipment immediately with water. Hardened material will require mechanical removal.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

When using less than one bag always drymix the full bag prior to each use.

DO NOT apply at temperatures below 40°F (5°C) without following the cold weather concreting procedures outlined in ACI 306.

For application in temperatures below 45°F (4°C), best results will be obtained by warming the material and mix water as well as the substrate.

Colder temperatures will extend the setting time and warmer temperatures will reduce the setting time.

DO NOT featheredge.

Do not re-temper the mixed material or use admixtures.

Do not use for resurfacing or topping large floor areas.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

### PRECAUTIONS

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

### MANUFACTURER

Dayton Superior Corporation  
1125 Byers Road  
Miamisburg, OH 45342  
Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.

### TECHNICAL DATA SHEET

#### DESCRIPTION

Pave Patch 3000 is a fast setting, latex-modified, heavy duty, one component concrete repair material requiring only water to mix and apply. Pave Patch 3000 is a cement based compound having similar characteristics to normal portland cement mixes and is compatible with portland cement concrete.

#### USE

Pave Patch 3000 is designed for the repair of heavy duty surfaces such as concrete highways, bridge decks, parking structures, airport runways, freezer rooms, industrial and warehouse floors, and loading docks. PAVE PATCH 3000 is a stiff yet flowable material that may be poured into place for horizontal applications or into formed vertical and overhead applications.

#### FEATURES

- Resists freeze-thaw cycles to extend the life of the patch
- Is shrinkage compensated, helping to assure a tight contact with the surround concrete
- Fast setting in 15-25 minutes; normal traffic in one to three hours
- High compressive strength; up to 4000 psi (27MPa) in 3 hours after setting.
- Ready-to-use, just add water
- Meets ASTM C-928

#### PROPERTIES

Flow (ASTM-928)	100% min.
Working Time (72°F)(22.2°C)	7-10 min.
Final Setting Time (ASTM C-266)	15-20 min.
Length change in water (ASTM C-157)	0.09%
Length change in air (ASTM C-157)	0.02%

Compressive Strength (ASTM C-109)\*  
(50 lbs. Pave Patch 3000 and 6 pints of water (6.25 lbs., 2.84 kg)

1 hour*	3000 psi (20.7 MPa)
3 hours	4000 psi (27.6 MPa)
1 day	5500 psi (38.0 MPa)
7 days	6100 psi (42.1 MPa)
28 days	8000 psi (55.2 MPa)

\*1 hour strength tested after set

Slant Shear Bond Strength (ASTM C-882)

24 hours	1000 psi min.
7 days	1500 psi min.
28 days	2500 psi min.

Flexural Strength (ASTM C-78) 800 psi

Freeze-Thaw Resistance -

200 cycles in 10% NaCl (Durability factor)100%  
Scaling (ASTM C-672) 25 cycles Visual Ratings: 0

At 70°F (21.1°C) Initial Set: 15-20 minutes  
Final Set: 25-30 minutes

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: 0.41 cu. ft. /50 lb. (0.011 cu m /22.7 kg)  
0.59 cu. ft. /50 lb. (0.016 cu m /22.7 kg) bag with 60% extension  
30 lbs. (13.6 kg) with 3/8 in. (1 cm) pea gravel.

#### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
143333	Bag	50	22.67

#### STORAGE

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

#### APPLICATION

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of 1/2 in. (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface.

**Mixing:** Mix with a low speed drill or, for larger projects a mortar mixer with rubber tipped blades, by adding the water first and then the powder. Mixing time should be two to three minutes and placing should not exceed fifteen minutes. Adequate placing and finishing equipment and material should be available for continuous placement of the material.

**Water Requirements:** Use 6 pints (2.82 L) of water /50 lb. (22.67 kg) of powder.

**Placement:** Using freshly mixed material, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the repair mortar before the scrub coat dries. Trowel the repair material onto the surface to a minimum thickness of 1/2 in. (1.3 cm) and a maximum thickness of 2 in. (5.1 cm). For repairs over 2 in. (5.1 cm) deep, the material should be extended 60% by weight with clean, SSD, pea gravel.

**Curing:** Water cure for a minimum of 1 hour or apply a Dayton Superior ASTM C309 water-based curing compound to the repaired area immediately after placement.

### CLEAN UP

Clean tools and equipment immediately with water. Hardened material will require mechanical removal.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

When using less than one bag always dry mix the full bag prior to each use.

DO NOT apply at temperatures below 40°F (5°C) without following the cold weather concreting procedures outlined in ACI 306.

For application in temperatures below 45°F (4°C), best results will be obtained by warming the material and mix water as well as the substrate.

Colder temperatures will extend the setting time and warmer temperatures will reduce the setting time.

DO NOT featheredge.

Do not re-temper the mixed material or use admixtures.

Do not use for resurfacing or topping large floor areas.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

### PRECAUTIONS

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

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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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Special Patch is a polymer-modified cementitious two-component concrete repair mortar for use in thin and thick-section concrete patching and overlays. Special Patch is ideal for repairing interior warehouse slabs or exterior concrete pavements.

### USE

For all horizontal concrete and general repairs (interior and exterior, above and below grade). . Ideal for parking deck repairs, ramps and roadways, as well as interior warehouse floors subjected to heavy loads and abrasion.

### FEATURES

- Excellent abrasion resistance to heavy loads and traffic
- High early strength for fast repair and turnaround
- Versatile, Easy to trowel consistency for horizontal applications
- Does not form a vapor barrier for durable exterior repairs
- Rapid-hardening mortar that accepts foot traffic in 1-2 hours and pneumatic tire traffic in 4-6 hours

### PROPERTIES

Set Times: ASTM C-266 @ 72°F (22°C)

Initial Set: 25 minutes

Final Set: 45 minutes

Flow: 125%

Compressive Strength (ASTM C-109)

3 hours after set 1200 psi (8.3 MPa)

3 days 3500 psi (24.1 MPa)

7 days 5200 psi (35.8 MPa)

28 days 7000 psi (48.6 MPa)

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 per unit. 0.41 cu. ft. (0.011 cu m)

Coverage: 20 sq. ft. (1.9 sq m) at ¼ in. (.6 cm) thickness /50 lbs. (22.67 kg) kit

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs	kg
139952	Bag and Jug	50	22.67
139951	Pail and Jug	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** Proper surface preparation is critical. Surfaces must be sound, clean, roughened and absorptive. All loose concrete must be removed until a firm concrete substrate is exposed. For best results, follow the ICRI standards for concrete surface preparation, removing all residue, grease, dirt, oil, etc. from the surfaces to be in contact with the repair material. Remove all previous coatings such as cures, cure and sealers or coatings. Surfaces should be roughened by sandblasting, shotblasting or other mechanical methods. The surface should be cleaned with high pressure water >1500 psi (10.3 MPa) before proceeding. Special Patch will not bond to a dirty or slick, smooth surface.

All cracks within the substrate should be properly repaired prior to installation. Cracks that exhibit movement will reflect through the Special Patch. Joints within the concrete should be carried through the Special Patch application to avoid cracking and shear back. Saw cut the perimeter of the repair to a maximum depth of ½ in. (1.3 cm). All surfaces to be repaired should be in a saturated-surface-dry (SSD) condition with no standing water on the surface.

**Mixing:** Add approximately 7 pints (3.29 L) of Special Patch Liquid into mixing container. Slowly Add Special Patch powder while mixing with a low-speed drill and paddle or suitable mortar mixer. Mix for 2 to 3 minutes to a smooth consistency. Do not mix more than 3 minutes. Add the remaining Special Patch liquid if a more flowable, self-leveling consistency is desired.

**Placement:** Using freshly mixed Special Patch, scrub a thin layer in to the SSD substrate with a stiff fiber brush and place the Special Patch before the scrub coat dries. Trowel the Special Patch into the surface to a minimum thickness of 1/8 in. (0.3 cm)

and a maximum of 2 in. (5.1 cm). For applications over 2 in (5.1 cm) Special Patch should be extended 60% by weight with clean, SSD, 3/8 in. (1 cm) pea gravel. Material should be placed within a 20 minute period.

### CURING

Water cure the treated area for a minimum of one hour or apply an ASTM C-309 Dayton Superior water-based curing membrane.

### CLEAN UP

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

### LIMITATIONS

#### FOR PROFESSIONAL USE ONLY

When using less than one bag or pail always dry mix the powder and liquid separately prior to each blending together.

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 toweled surfaces without first roughening the surface.

DO NOT featheredge. Minimum thickness for patching is ¼ in. (0.6 cm).

Do not re-temper the mixed material or use admixtures.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

### PRECAUTIONS

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

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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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Thin Resurfacer is a multi-purpose single component repair and resurfacing product designed for use inside or outside in thicknesses ranging from feather edge up to 1/2 in. (1.3 cm). Thin Resurfacer is a polymer modified cement based material that can be placed with a trowel and requires only the addition of water. Thin Resurfacer will accept light foot traffic in 1 day at 72°F (22°C) and above. Wait 2 to 3 days for heavy vehicular traffic.

### USE

Thin Resurfacer is ideal for thin resurfacing of rain damaged new concrete surfaces or for badly spalled older concrete surfaces. It is used for leveling and repairing floors and resurfacing concrete areas such as sidewalks, plaza areas, driveways, parking decks, and loading docks.

### FEATURES

- Thin repair/resurfacing material
- Single component, only requires water
- Resists salt penetration and damage from freeze/thaw cycles
- Superior abrasion resistance
- Polymer modified
- Can be broom finished
- Dries to a medium gray color

### PROPERTIES

Compressive Strength – ASTM C-109

1 day	2500 psi (17.2 MPa)
3 days	4000 psi (25.6 MPa)
7 days	6500 psi (44.8 MPa)
28 days	7500 psi (51.7 MPa)

Initial Set Time: approximately 1 hour at 70°F (21.1°C)

Working Time: approximately 30 minutes at 70°F (21.1°C)

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: 0.42 cu. ft. /50 lbs. (0.012 cu m /22.67kg)  
 20 sq. ft. at 1/4 in. (1.9 cu m /.6 cm) thickness  
 10 sq. ft. at 1/2 in (0.9 cu m /1.3 cm) thickness

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67483	Bag	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** Proper surface preparation is critical. Surfaces must be sound, clean, roughened and porous. All loose concrete must be removed until a firm concrete substrate is exposed. For best results, follow the ICRI standards for concrete surface preparation, removing all residue, grease, dirt, oil, etc. from the surfaces to be in contact with the repair material. Remove all previous coatings such as cures, cure and sealers or coatings. Surfaces should be roughened by sandblasting, shotblasting or other mechanical methods. The surface should be cleaned with high pressure water (>1500 psi, 10.3 MPa) before proceeding. Thin Resurfacer will not bond to a dirty or slick, smooth surface. All cracks within the substrate should be properly repaired prior to installation. Cracks that exhibit movement will reflect through the Thin Resurfacer. Joints within the concrete should be carried through the Thin Resurfacer application to avoid cracking and shear back. All surfaces to be repaired should be in a saturated-surface-dry (SSD) condition with no standing water on the surface.

**Mixing:** When mixing less than a full unit, always first agitate the bag / pail so that a representative sample is obtained. Thin Resurfacer requires only water for mixing. During hot weather use cold water for mixing and during cold weather use hot water for mixing. Put the water into the mixing container and then add the material to the vessel containing the water. The product can be mixed with a jiffy mixer in a pail, or in a mortar mixer with rubber tipped blades. Continue mixing until the material is free of lumps (minimum of 2-3 minutes). Mix as close as possible to the area to be repaired. Using freshly mixed Thin Resurfacer, scrub a thin layer onto the SSD substrate with a stiff fiber brush and place the Thin Resurfacer before this bond coat dries.

**Water Requirements:** 3 qt. per 50 lbs. (2.8 L /22.67 kg) of material. Less water can be used if a stiffer mix is desired, but do not use more than 3 qt. (2.8 L) of water per bag.

**Placement:** Following proper surface preparation and bond coat application, place immediately after mixing, troweling the material firmly into place, eliminating any air pockets assuring the maximum bond. Material can be broom finished prior to initial set.

Thin Resurfacer can be used in thickness ranging from a feather edge up to 1/2 in. (1.3 cm). However, for improved performances, maintain at least 1/8 in. (0.3 cm) thickness.

### CURING

Cure with wet burlap for 12 hours. (Do not use sprinklers or soaker hoses.) then air dry, or use a Dayton Superior curing compound or cure & seal. Installed material will accept light foot traffic in approximate 6 – 7 hours at 72°F (22°C) and above. Wait 2 to 3 days for heavy vehicular traffic.

### CLEAN UP

Use water prior to material setting hard. Hardened material requires abrasive removal methods.

### LIMITATIONS

#### FOR PROFESSIONAL USE ONLY

Not for application to a slick or smooth substrate

Do not retemper Thin Resurfacer after initial mixing.

Do not add other cements or admixtures.

Mixing equipment should be cleaned with water frequently and prior to material hardening.

Minimum application temperature is 40°F (4°C).

Joints or cracks in base concrete will reflect through Thin Resurfacer.

Protect from rain for twenty-four hours. Rain on newly placed material may cause color streaking or pitting of surface.

### PRECAUTIONS

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

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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.



## TECHNICAL DATA SHEET

### DESCRIPTION

Rapid Resin Repair is a 100% solids, low modulus, three-component, all weather, non-shrinking epoxy/urethane hybrid concrete repair and patching material. Rapid Resin Repair utilizes 100% solids epoxy/urethane technology along with specialty graded aggregates for achieving rapid turn around concrete repairs in all weather conditions.

### USE

Rapid Resin Repair is specifically formulated, designed and engineered for use as an all weather, interior/exterior concrete spall and crack patching and repair mortar where a rapid turn around time is critical or cold conditions are a concern. Rapid Resin Repair can be used for patching of bridge decks, overpasses and roadways surfaces, freezers and cold room floors, airport runways, warehouse floors and any concrete slab or floor traffic way in need of repair or patching where cold temperatures are present or rapid turn around time is required.

### FEATURES

- Non-shrink
- Chemically resistant
- Easy 1:1 mixing ratio for Parts A & B
- Cures in temperatures as low as -20°F (-29°C)
- Open to traffic within 20 minutes
- Meets FDA and USDA requirements
- Low Odor

### PROPERTIES

#### Colors:

Component A – Dark Amber; Component B - Light Amber, Component C - Natural Aggregate

Mix Ratio: 1:1 (liquids A & B)

Mix Ratio 1:3 (liquid to sand)

Viscosity (mixed neat):

Part A (resin): 150 cps

Part B (hardener): 250 cps

Gel Time: (100g mass) 3 minutes @ 73°F (23°C)

Compressive Strength (ASTM C 579) 3,500 psi (24 MPa)

Tensile Strength: (ASTM D 412) 1,500 psi (10.3 MPa)

Bond Strength: (ASTM C 882) 2,000 psi (13.7 MPa)

Hardness Shore: (ASTM D 2240) D Scale = 60-70

Elongation %: (ASTM D 412) 30%

Adhesion (ACI 503R) 400 psi concrete break

### VOC

V.O.C. Compliant – 0 g/l

### ESTIMATING GUIDE

Yield: 1 unit yields 0.45 cu. ft. (0.013 cu m)

### PACKAGING

ITEM #	PACKAGE	SIZE	
		cu. ft	(cu m)
309087	Unit	0.45	(0.013)

### STORAGE

Rapid Resin Repair should be stored in a dry temperature controlled environment between 50°F to 85°F (10°C to 29°C). Do not store in direct sunlight. Shelf life is 1 year if cans are unopened, undamaged, and stored properly.

### APPLICATION

**Surface Preparation:** Rapid Resin Repair is moisture sensitive and should not be applied to wet surfaces. New concrete must be a minimum of 28 days old and dry at the time of installation. Clean the area of all debris and contaminants; oil, grease, dust, dirt, unsound concrete etc. Expose clean roughened concrete for best results. Cut or chip a vertical edge, minimum ½ in. (1.3 cm) deep, around perimeter of the area to be patched. Make sure the area is clean dry and sound. Sandblasting may be necessary to expose clean concrete. Vacuum or blow off concrete dust and debris with oil-free compressed air.

**Mixing:** For temperatures below 10°F (-12.20C) kit contents should be preconditioned to 65°F - 85°F (18.30 - 29.40C). Have all components and tools ready and patch area properly prepared prior to mixing/placement. Mixing container, tools and patch area must be clean and dry prior to use. Mix only as much Rapid Resin Repair as can be used within the pot life of the material approximately 3-5 minutes at room temperature. Stir/shake each component A & B for 30 seconds.; Mix each component A & B together for 30 seconds then add component C aggregate and mix for an additional 30 seconds until all of the aggregate is wetted out. PLACE IMMEDIATELY.

**MIXING LESS THAN FULL KIT QUANTITIES:** Shake component B for 30 seconds. Mix equal parts (1:1 ratio) of components A and B vigorously for 30 seconds. Add 3 parts by volume of component C to 1 part mixed A & B components and stir for 30 seconds until aggregate is wetted out. PLACE IMMEDIATELY.

**Placement:** Pour and place the Rapid Resin Repair immediately after mixing. Use a clean steel trowel to force the Rapid Resin Repair down into the repair area and then to strike off the top surface to match the surrounding concrete. Steel trowels may be slicked off using Xylene to add a degree of lubricity to troweling

and clean off the trowel surface. After reaching set in about 20 minutes, the Rapid Resin Repair may be ground flat and level with the surrounding concrete using a flexible 7 in. (17.8 cm) grinding wheel to grind smooth and level with the finished grade. Rapid Resin Repair may also be shaped by scraping or cutting with a razor knife scrapper before reaching full set.

### CLEAN UP

Clean tools with Xylene or Acetone before the material has set. Excess Part A and Part B material should be mixed together and allowed to reach hard set, then discarded in the hardened form.

### LIMITATIONS

#### FOR PROFESSIONAL USE ONLY

New concrete must be at least 28 days old.

For temperatures below 10°F (-12.20C) kit contents should be preconditioned to 65°F - 85°F (18.30 - 29.40C).

Temperature of the substrate must be above -20°F (-28.9°C) during installation and for initial cure period.

Rapid Resin Repair is moisture sensitive and should not be installed on wet or damp concrete.

### PRECAUTIONS

#### READ MSDS PRIOR TO USING PRODUCT

- Component A – Irritant
- Component B – Corrosive
- Component "C" Irritant: Contains Portland cement.
- Product is a strong sensitizer
- 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
- Dispose of waste material in accordance with federal, state and local requirements
- Cured Epoxy Resins Are Innocuous

### MANUFACTURER

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TECHNICAL DATA SHEET

**DESCRIPTION**

Sure Patch™ is a 100% solids, low modulus epoxy resin system containing specially selected aggregates. A unit consists of three parts: component "A" epoxy resin, component "B" modified amine curing agent and component "C" specially graded aggregate.

**USE**

Use for epoxy interior or exterior concrete repair and overlays on interior horizontal surfaces. For interior industrial / commercial applications subjected to abrasion and or chemical spills.

**FEATURES**

- Pre-measured proportions
- Trowelable
- Rapid strength gain
- Open to foot traffic in 8 hours
- Superior ultimate strength
- Moisture insensitive
- Solvent free
- Superior wearing surface
- Chemically resistant
- Two convenient packaging sizes

**PROPERTIES**

**Resin Properties:**

% Solids: 100%  
 Gel time: 15 minutes @ 73°F (23°C)  
 Bond Strength, ASTM C-882: 14 day cure 3,200 psi (22.6 MPa)  
 Compressive Modulus, ASTM D-695: 80,000 psi (551.6 MPa)  
 Tensile Strength, ASTM D-638: 3,000 psi (20.7MPa)  
 Tensile Elongation, ASTM D-638: 50.0%  
 Flexural Yield Strength, ASTM D-790: 2,500 psi (17.2 MPa)  
 Absorption, ASTM D-570: 0.2%

**Mortar Properties:**

Compressive Strength, ASTM C-579  
 3 hrs. 1,500 psi (10.3 MPa)  
 24 hrs. 7,000 psi (48.3 MPa)  
 48 hrs. 7,000 psi (48.3 MPa)

**VOC**

V.O.C. compliant: 0 g/l

**ESTIMATING GUIDE**

Small unit mixed yields 0.5 cu. ft. (0.014 cu m) of patching mortar.  
 Large unit mixed yields 2.0 cu. ft. (0.056 cu m) of patching mortar.

**PACKAGING**

ITEM #	PACKAGE	SIZE	
		cu. ft.	(cu. m)
139890	Unit	0.5	(0.014)
139891	Unit	2.0	(0.056)

**STORAGE**

Sure Patch™ should be stored in a dry environment between 40°-95°F (4.4°-35°C). Under these conditions the shelf life is 24 months in unopened, damage-free containers

**APPLICATION**

**Surface Preparation:** Surface to receive the Sure Patch™ must be clean and sound. Remove oil, dirt, grease, laitance, curing compounds and other foreign matter that may cause a problem with bond. Saw cut approx. 1/2 in. (1.3 cm) deep around perimeter of area to be patched and remove all deteriorated and unsound concrete with chipping hammers not to exceed 30 lb. (13.6 kg). Thoroughly clean patch area and exposed reinforcing steel by sandblasting to white metal finish. Abrasive blast cleaning or other mechanical removal methods are recommended for providing a roughened profile. Vacuum all dust and loose particles from area.

**Mixing:** Condition material to 65°-85°F (18°- 29°C) before using. Premix each component after which you mix equal volumes of Part A and Part B for three minutes, or until thoroughly blended, with a low speed drill using a Jiffy mixer or paddle, then slowly add the entire amount of aggregate (component C). Keep mixer at bottom of pail to avoid introducing air. Mix complete units only.

**Placement:** Place the material immediately after mixing. Trowel material into the prepared area then tamp well (the blunt end of a 2x4 board works well for this) to eliminate any voids. Screed or float to the desired level, strike off then thoroughly compact and finish the surface.

**CLEAN UP**

Clean tools and equipment before the epoxy sets up, using Xylene or the Dayton Superior Citrus Cleaner J48.

**LIMITATIONS**

For professional use only  
 Mix complete units only  
 Do not expose stored product to cold or freezing temperature (below 35°F, 1°C)  
 Precondition material to 65°-85°F (18.3°-29.4°C).

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The air, material, and surface temperatures are to be a minimum of 40°F (4°C); preferable application temperature is 55°F (12.8°C).

Do not thin with any solvents

Epoxies may yellow, discolor, or chalk upon exposure to strong sources of Ultra-Violet radiation such as from sunlight, and some types of industrial artificial lighting.

Minimum age of hardened concrete for bonding should be 5 - 7 days

## PRECAUTIONS

### READ MSDS PRIOR TO USING PRODUCT

- Component A – Irritant
- Component B – Corrosive
- Component "C" Irritant: Contains Portland cement.
- Product is a strong sensitizer
- 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
- Dispose of waste material in accordance with federal, state and local requirements
- Cured Epoxy Resins Are Innocuous

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## TECHNICAL DATA SHEET

### DESCRIPTION

Fast setting, shrinking compensated anchoring cement. Pourable and fast setting, Anchor All provides a durable high strength anchor for interior and exterior applications.

### USE

Use for anchoring bolts, rails, posts and dowels into concrete where a non-shrink, rapid-setting anchoring cement is required.

### FEATURES

- Sets in 15-20 minutes
- Controlled expansion mechanically locks in
- Pourable; fills voids and crevices
- Use interior or exterior

### PROPERTIES

Compressive Strength (ASTM C-109)

1 hour	1000 psi (6.9 MPa)
24 hours	4500 psi (31 MPa)
7 days	6000 psi (41.3 MPa)
28 days	7,500 psi (51.7 MPa)
Setting Time (neat)	15-20 minutes

**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: 0.43 cu. ft. (0.012 cu m)/50 lb. (22.67 kg)

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs	kg
143407	Pail	50	22.67

### APPLICATION

**Surface Preparation:** The concrete surface must be sound and free of all foreign material, including oil, grease, dust, laitance, or other surface contaminants. Anchors should have a washer for greater pull out strengths and the washers should be sized to fit within the drilled hole, but not touch edges or bottom of the holes to allow material to flow around the washer and lock anchor into place. Fill the hole with water and scrub sides and bottom with stiff brush just prior to placing. Remove all standing water, but ensure the substrate is damp prior to application of Anchor All.

**Mixing:** Mix with low speed drill and paddle mixer in a suitable container. DO NOT mix more than three minutes. Mix only what can be used in five to ten minutes. Add water first, and then add the powder. DO NOT over mix or retemper. By using less water than noted (never use more water), this material can be varied to produce a stiff to pourable consistency.

**Water Requirements:** Mixing ratio: 6.75 pints (3.19 L) /50 lbs. (22.67 kg) of powder or 1:7 water to powder by weight.

**Placement:** Ensure all standing water has been removed from the hole. Place anchor in prepared hole then fill with the properly mixed Anchor All. For horizontal applications, pour the flowable mixture in the hole. For vertical applications, mix to a stiff, not sag consistency and tamp the material in place ensuring no voids exist. Provide support for the anchor if needed. Do not disturb anchor until such time as the Anchor All has developed sufficient strength. Adjusting or disturbing the anchor too soon can result in cracking.

**Curing:** Adequate curing is important, especially during windy, hot and dry conditions. A wet burlap cure or Dayton Superior water based curing compound or a cure & seal is recommended.

### CLEAN UP

Use clean water. Hardened material will require mechanical removal methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

Not for use for anchoring aluminum

DO NOT place at temperatures below 40°F(5°C) or if the temperature is expected to fall below 40°F(5°C) in the next twenty-four hour period.

DO NOT place when temperature exceeds 90°F (32.2°C).

Do not re-temper after initial mixing.

Do not add other cements or additives.

Setting time will slow during cooler weather and speed up during hot weather.

Prepackaged material segregates while in the bag, thus when mixing less than a full bag it is recommended to first agitate the bag to assure it is blended prior to sampling.

### PRECAUTIONS

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

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TECHNICAL DATA SHEET

**DESCRIPTION**

Snaplugs® are precast, high strength cement compound plugs designed to plug tie cone holes in concrete. Snaplugs® provide faster installation than conventional patching methods with less mess and waste. Snaplugs® are gray in color, have a smooth surface and can be painted or sealed. Snaplugs® are watertight and can be used interior or exterior, above or below grade. Available in 3 styles to fit most application requirements.

**USE**

Snaplugs® are used to fill the holes created by tie cones.

**FEATURES**

- Saves time and labor
- Quick, easy installation

**PROPERTIES**

Color: Gray

**ESTIMATING GUIDE**

Coverage Snaplugs® – 1 per tie hole  
Snaplugs® Bonder – 1 pint (0.47 L) will install approximately 500 Snaplugs®

**PACKAGING**

ITEM #	DESCRIPTION	PACKAGING
304121	Snaplugs® Flush Gray 1 inch	1000
304122	Snaplugs® Reveal Gray 1 inch	2000
304124	Snaplugs® Reveal Gray 1 1/4 inch	500
303004	Snaplugs® Bonder	12 pint (0.47 L) jugs Per case

**STORAGE**

Keep Snaplugs® Bonder from freezing. Store Snaplugs® and Snaplugs® Bonder in a cool dry location.

**APPLICATION**

**Surface Preparation:** Tie holes should be clean and dry prior to installation.

**Mixing:** Shake or stir the Snaplugs® Bonder prior to use.

**Placement:** Coat the Snaplugs® with the Snaplugs® Bonder by inserting the Snaplugs® into the top of the Snaplugs® Bonder container. Invert container to coat the Snaplugs®. Return the container to an upright position and remove the Snaplugs®. Ensure the Snaplugs® is coated well with the Snaplugs® Bonder. Insert the Snaplugs® into the tie hole. Ensure Snaplugs® &

Snaplugs® Bonder are in full contact with the tie hole and a tight fit is achieved.

**CLEAN UP**

Snaplugs® Bonder can be cleaned with water prior to drying. After drying, mechanical methods such as sanding can be utilized.

**LIMITATIONS FOR PROFESSIONAL USE ONLY**

Do not install if temperature is below 40°F (4.4°C) or expected to fall below 40°F (4.4°C) within 24 hours.

**PRECAUTIONS**

**READ MSDS PRIOR TO USING PRODUCT**

- 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
- Dispose of waste material in accordance with federal, state and local requirements
- Contains Portland cement. Use protective gloves. Avoid contact with skin and eyes.

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**Concrete Repair**

**MANUFACTURER**

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Concrete Repair



TECHNICAL DATA SHEET

**DESCRIPTION**

Waterstop™ is a non-corrosive, non-rusting, extremely fast setting hydraulic cement compound for plugging and stopping active water leaks in concrete structures or masonry surfaces. When mixed with water to a thick consistency and hand formed into a plug, it will stop active leaks even under water.

**USE**

Waterstop™ is designed to be used to stop water flow through non-moving cracks, crevices and holes in concrete or masonry surfaces; it stops leaks into or out of basement walls, concrete blocks, tubs, swimming pools, concrete pipe, culverts, manholes, elevator pits, and storm drains. Waterstop™ can be used as a plug for cisterns, sewers, tunnels, mines and dams.

**FEATURES**

- Stops Active Water Leaks
- Extremely Fast Setting
- Strong & Durable
- Interior or Exterior use

**PROPERTIES**

Compressive Strength ASTM C-109  
1 Hour 1500 psi (12.4 MPa)

Setting Times ASTM C-226

Initial: 1-3 Minutes  
Final: 2-4 Minutes

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: Approx. 0.5 cu. ft /50 lbs. (0.014 cu m /22.67 kg) pail

**PACKAGING**

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67375	Pail	50	22.67

**STORAGE**

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

**APPLICATION**

**Surface Preparation:** Slightly undercut the hole to be plugged and enlarge small cracks to permit embedment of material. Recommended minimum size of hole or crack is 0.75 in. (1.9 cm) wide and deep. Remove all loose dirt or aggregate. Surfaces should be wet prior to placement.

**Mixing:** Mix Waterstop™ in a small container by adding Waterstop™ to clean mix water, mixing no more than can be placed at one time. When mixing less than a full unit, always first agitate the pail so that a representative sample is obtained. Cold water or material will decrease set time, hot water or material will increase set time.

**Water Requirements:** Approximately 22% by weight or 1 pint (0.47 L) water per 10 lbs. (4.54 kg), use only enough water to bring material to a stiff putty consistency.

**Placement:** Form the mix in the hand by shaping a ball or wedge shape to the consistency of putty and force into the opening with a gloved hand or trowel. Accelerated hydration will cause the material to feel warm to the touch. The material will reach final set in about 2-4 minutes so it must be placed immediately. Material may be shaved after initial set to conform to substrate contour.

**Curing:** Keep material wet with water until final set and material has cooled, approximately 15 minutes.

**CLEAN UP**

Use clean water. Hardened material will require mechanical removal methods.

**LIMITATIONS FOR PROFESSIONAL USE ONLY**

Always mix Waterstop™ to a stiff, putty like consistency.

Quickly mix and apply Waterstop™ as it will begin to harden immediately.

Do not mix more than can be placed immediately.

Care should be taken to plan mixing and placing.

Always keep container tightly sealed when not in use.

Not for use in moving cracks.

Not for use as a surface applied material or coating. Maintain minimum application widths and depths.

Wet substrate prior to placement keeping the material wet for a minimum of 15 minutes after placement.

Sec 14  
Concrete Repair

### PRECAUTIONS

#### READ MSDS 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
- Dispose of waste material in accordance with federal, state and local requirements.

### MANUFACTURER

Dayton Superior Corporation  
1125 Byers Road  
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Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Architectural Finish™ is a single component, cement based, polymer-modified material specially formulated for rubbing, smoothing, repairing and restoring vertical or overhead concrete surfaces.

### USE

Architectural Finish™ is a trowel applied mortar designed to eliminate small concrete surface blemishes, rough areas, bug holes, form marks on poured walls, tilt-up and precast. The material dries a light gray color and can be sanded to provide a smooth finish. The Architectural Finish™ develops a high strength that is compatible with concrete and is not sensitive to water after curing. Applications are on vertical or overhead surfaces interior or exterior and above or below grade.

### FEATURES

- Fine silica aggregate provides smooth surface
- Easy To Use; Just Mix With Water
- Color Blended To dry Light Gray
- 30 Minutes Working Time
- Interior or exterior applications
- Can be left exposed, not sensitive to moisture.
- Self-Curing in 70° F (21° C), 50% Relative Humidity

### PROPERTIES

TEST DATA @ 75° F (23.9°C)

Compressive Strength ASTM C-109

7 days 4000 psi (27.5 MPa)

28 days 5000 psi (34.4 MPa)

**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

40 lbs. (18.1 kg) will cover 40 sq. ft. (3.7 sq m) at approximately 1/8 in. (0.32 cm) thickness.

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs	kg
308236	Bag	40	18.14
308237	Pail	40	18.14

### STORAGE

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

### APPLICATION

**Surface Preparation:** The substrate must be sound and free of all foreign material including curing compounds, bond breakers, oil, grease, paint, etc. Surfaces should have a slight profile to ensure good adhesion. All surfaces to be repaired should be in a saturated surface- dry (SSD) condition with no standing water on the surface.

**Mixing:** If less than a full container is used, the material should be mixed dry to insure all ingredients are evenly dispersed. Mix by hand or with a slow speed drill in a clean container. Mix only what can be placed in 30 minutes. Add Architectural Finish™ to water and slowly mix until a putty-like consistency is reached. Do not mix more than 3 minutes. Do not over mix or retemper.

**Water Requirements:** Mixing Ratio: 40 lbs. (18.1 kg) of Architectural Finish™ will require: 1.05 - 1.25 gallons (3.97-4.73 L) or approximately 24% By Weight

**Placement:** When placing by trowel, or sponge float force the material into cracks, voids bug holes and honeycomb areas to eliminate any voids. Architectural Finish™ retains its moisture prior to curing and will spread easily. Do not exceed 1/8 in. (0.32 cm) thickness per lift. Not for use as a parge coating or stucco type application.

**Deep Placement:** For deep applications apply in 1/8 in. (0.32 cm) lifts and allow five to six hours between applications, or use Dayton Perma Patch™ V/O that will meet most deep patching needs with one application.

Application in detrimental or extreme weather conditions should be avoided including high heat, strong wind or freezing conditions.

**Finishing:** Architectural Finish™ may be smooth troweled or sponge floated prior to material setting hard or may be sanded after it hardens.

**Curing:** Protect from rain or excess water for twenty-four hours. In extreme hot and windy conditions moist curing may be required.

### CLEAN UP

Use water prior to material setting hard. Hardened material requires abrasive removal methods.

### LIMITATIONS

#### FOR PROFESSIONAL USE ONLY

Do not place at temperatures below 40°F (5°C) or if the temperature is expected to drop below 40°F (5°C) in the next 24 hours.

In hot weather follow ACI Committee 305 recommended procedures.

Do not exceed 1/8 in. (0.32 cm) in thickness per lift.

Not for use as a parge coating or stucco type application.

Protect from rain or excess water for twenty-four hours. Water run down on surfaces may cause color streaking.

### PRECAUTIONS

#### READ MSDS 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
- Dispose of waste material in accordance with federal, state and local requirement

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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.

## TECHNICAL DATA SHEET

### DESCRIPTION

Civil/Structural VO is a cement based mortar designed for structural repairs of vertical or overhead concrete substrates. Civil/Structural VO is enhanced with a corrosion inhibitor for rebar & steel protection and is especially formulated for use in spray applied applications using wet spray process equipment. Civil/Structural VO has excellent finishing characteristics making it very user friendly to screed and finish. Due to its superb workability, Civil/Structural VO may also be applied by trowel or hand.

### USE

For repairing of concrete above and below grade on both vertical and overhead applications. Typical applications include repair of columns, bridges, tunnels, parking structures, retaining walls, dams, etc.

### FEATURES

- One-component; just add water
- Unique corrosion inhibitor protects steel reinforcement from both chloride intrusion and carbonation
- Excellent resistance to freeze-thaw and de-icing salts
- Designed for vertical and overhead applications without the need for forming
- Interior and exterior applications
- Shrinkage compensated
- High bond strength
- Thermal expansion similar to concrete for long term durability
- Can be pumped and sprayed through small volume pneumatic equipment

### PROPERTIES

Unit weight (ASTM C185/C138): 133.5 lbs. per cu. ft. (2138.46 kg/cu m)

Setting times (ASTM C266/C191):

Initial: 60 minutes Final: 5-6 hours

Compressive Strength (ASTM C109)

1 day: 5500 psi (37.9 MPa)

7 days: 8500 psi (58.6 MPa)

28 days: 11,200 psi (77.2 MPa)

Flexural Strength (ASTM C78):

7 days: 600 psi (4.1 MPa)

28 days: 1000 psi (6.9 MPa)

Splitting Tensile Strength (ASTM C496):

3 days: 950 psi (6.6 MPa)

7 days: 1000 psi (6.9 MPa)

28 days: 1200 psi (8.3 MPa)

Modulus of Elasticity (ASTM C469):

28 days: 5.5x10<sup>-6</sup>

Bond Strength: (ACI 503R)

1 day: 250 psi (1.7 MPa)

7 days: 300 psi (2.1 MPa)

28 days: 350 psi (2.4 MPa)

Length Change (ASTM C157 modified):

28 days: <0.07%

Freeze/Thaw (ASTM C666 procedure A, modified):

300 cycles: 95.5%

Salt Scaling Resistance (ASTM C672):

50 cycles, rating = 0

Rapid Chloride Permeability (ASTM C1202):

28 days: 175 coulombs, very low

Sulfate Resistance (ASTM C1012):

28 days: < 0.025

**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: 0.41 cu. ft. (0.012 cu m) /50 lb. (22.7 kg) bag

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
308762	Bag	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in. (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface. Reinforcing steel should be cleaned and repaired as required and as determined by the engineer of record for the project.

**Mixing:** Mix with a low speed drill or, for larger projects, a mortar mixer. Add clean water into the container followed by the Civil/Structural VO. Mix 2 to 3 minutes to a uniform, lump free consistency. Mix only what can be applied within the setting period. Work time is approximately 45 minutes. Wet process mix/spray equipment is recommended.

**Water Requirements:** Each 50 lb. (22.7 kg) bag requires approximately 2.75 qt. (2.6 L) of clean potable water

**Placement:** Spray or hand applied. For hand applied applications apply a scrub coat of the mixed material to the dampened substrate. Minimum application thickness is 3/8 in. (0.95 cm); maximum is 2 in. (5.1 cm)

**Curing:** Civil/Structural VO is self-curing under most conditions. To assure maximum durability under severe drying conditions (wind, low humidity and/or high temperature), moist cure or use approved ASTM C-309 Dayton Superior water based curing compound.

### CLEAN UP

Clean tools and equipment prior to material hardening with clean water. Hardened material requires mechanical/abrasive methods.

### LIMITATIONS FOR PROFESSIONAL USE ONLY

When using less than one bag always dry mix the full bag to eliminate segregation that can occur during shipping.

Minimum application temperature is 40°F (5°C).

In hot weather, follow ACI Committee 305 recommended procedures.

Do not apply over smooth hard troweled surfaces without roughening.

Supported patches deeper than 2 in. (5 cm) may require reinforcement or anchorage.

Render applications for unsupported repairs exceeding 1 in. (2.54 cm) in thickness may require anchorage.

### PRECAUTIONS READ MSDS 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
- Dispose of waste material in accordance with federal, state and local requirements

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## TECHNICAL DATA SHEET

### DESCRIPTION

HD 25 VO is a high strength mortar containing portland cement, special polymers and accelerators to provide an accelerated strength gain and set time. HD 25 VO is a single component trowelable material formulated for vertical and overhead repairs of concrete. HD 25 VO is a specially formulated dry, cementitious product that needs only water for mixing.

### USE

HD 25 VO is a polymer modified mortar that can be used for vertical and overhead repairs of concrete structures. HD 25 VO can be used inside or outside and above or below grade. It can be used as a structural repair for bridges, tunnels, parking structures, dams, walls, columns, etc. It is an excellent repair material for precast concrete products, such as pipes, beams and steps.

### FEATURES

- Ideal for vertical and overhead applications
- Built in bonding agent/polymer modified
- Can be shaped and molded
- Fast setting, 4,000 psi (27.6 MPa) in 24 hrs.
- One component, just add water
- Excellent bond strength
- Compatible with the thermal expansion of concrete

### PROPERTIES

Set Times – ASTM C-266 @ 72°F. (22°F.)

Initial Set – 20 minutes

Final Set – 30 minutes

Compressive Strength – ASTM C-109

3 Hours 2,400 psi (16.5 MPa)

1 Day 4,100 psi (28.3 MPa)

7 Days 4,900 psi (33.8 MPa)

28 Days 6,200 psi (42.8 MPa)

Bond Strength – ASTM C-882 Modified

7 Days 1,100 psi (7.6 MPa)

Flexural Strength – ASTM C-348

28 Days 1,100 psi (7.6 MPa)

**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: Approx. 0.46 cu. ft. /50 lb. (0.013 cu m /22.7 kg) bag

### PACKAGING

ITEM #	PACKAGE	SIZE	
		lbs.	kg
67458	Bag	50	22.67

### STORAGE

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

### APPLICATION

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in (1.3 cm). 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-surface-dry (SSD) condition with no standing water on the surface. Supported patches deeper than 2 in. (5 cm) may require reinforcement or anchorage. Consult project engineer for specific requirements.

**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 HD 25 VO. Mix 2 to 3 minutes. Mix only as much material as can be easily placed within 15 minutes. HD 25 VO sets initially in approximately 20 minutes and reaches final set in less than 30 minutes.

**Water Requirements:** 3.5 – 3.75 qt.(3.3 to 3.6 L) /50 lb. (22.7 kg) bag,

**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 ¼ 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.

THE LESS HD 25 VO IS HANDLED THE BETTER. Application should always be finished by the time of initial set or stiffening. Never leave excess material lapping over the edges of the repair. The finished repair should be smooth and level with the surrounding concrete. After leveling, HD 25 VO can be finished to achieve desired texture with sponge, float or trowel.

For repairs over 2 in. (5.1 cm) thick, rather than applying in lifts, up to 15 lb. (6.8 kg) of clean, SSD pea gravel can be added to a 50 lb. (22.7 kg.) bag of HD 25 VO.

### CURING

HD 25 VO is self-curing under most conditions. Thin applications will require actions for curing. To assure maximum durability under severe drying conditions (wind, high temperature, low humidity), water cure or use an 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. Minimum thickness for patching is ¼ in. (0.6 cm).

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

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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.



## 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
- Available with proven calcium nitrite corrosion technology
- Designed for vertical and overhead patching
- Interior and exterior applications
- Can be extended for deep patches
- 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

### PROPERTIES

Initial Set; 30 minutes

Final Set; 60 minutes

#### Compressive Strength (ASTM C - 109)

24 hours	>4500 psi	> (31 MPa)
7 days	>7000 psi	> (48 MPa)
28 days	>8000 psi	> (55 MPa)

#### Flexural Strength (ASTM C -78)

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

#### Splitting Tensile Strength (ASTM C-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
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#### Bond Strength (ACI 503R Direct Tensile)

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

#### Coefficient of Thermal Expansion (CRD C-39 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

**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 / 22.67 kg) bag/pail

### PACKAGING

ITEM #	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. Excessive temperature differential and/or high humidity can shorten the shelf life expectancy. Store in a cool, dry area free of direct sunlight.

### APPLICATION

**Surface Preparation:** 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. Saw cut the perimeter of the repair to a maximum depth of ½ in (1.3 cm). 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-surface-dry (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.

**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.

### 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

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.

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

**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 ¼ 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 MSDS 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
- Dispose of waste material in accordance with federal, state and local requirements

### MANUFACTURER

Dayton Superior Corporation  
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Customer Service: 888-977-9600  
Technical Services: 866-329-8724  
Website: [www.daytonsuperior.com](http://www.daytonsuperior.com)

### 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.

