



# PHOSCRETE FORMULA 3 [MKP Series]

## INSTALLATION GUIDE

### Installation Overview

Using PHOSCRETE® concrete repair materials is easy, but for best results, it is important to follow the directions provided in this installation guide.

Visit [phoscrete.com](https://phoscrete.com)<sup>i</sup> for the latest versions of this installation guide and all technical documents. Contact our installation support team for help anytime: [install@phoscrete.com](mailto:install@phoscrete.com) +1-561-420-0595.

### What is MPC and What is MKP?

Phoscrete concrete materials are MPC (**M**agnesium **P**hosphate **C**ement) concretes. They are cementitious concretes, but MPC do not contain Ordinary Portland Cement (OPC). PHOSCRETE FORMULA 3 (F3) concretes are MKP [**M**agnesium **P**otassium (**K**) **P**hosphate] concretes, an innovative version of MPC. Phoscrete's MKP concrete materials mix only with Formula 3 Activators.

**Table 1: Phoscrete MKP Products**

Short Name	Dry Mix Product Name	Activator Product Name	Application
F3-HC	PHOSCRETE FORMULA 3-HC	PHOSCRETE F3-HC ACTIVATOR	Horizontal and Castable
F3-VO	PHOSCRETE FORMULA 3-VO	PHOSCRETE F3-VO ACTIVATOR	Vertical and Overhead

### What is PHOSCRETE® ENDURE™?

Phoscrete concrete formulas labeled "3" are delivered with PHOSCRETE ENDURE™ (Endure), a bio-based, liquid soy-methyl-ester polystyrene (SME-PS) concrete durability enhancer. Endure is both a component of the F3 Activator and is applied as a **curing compound** to a Phoscrete repair following initial set. Upon application Phoscrete F3 concretes become hydrophobic, with exceptional freeze-thaw, salt scaling resistance, and low-shrinkage properties.

### Properties of Phoscrete F3 Concretes

Phoscrete MKP Series concrete materials are rapid hardening, with high early strength gain. Phoscrete bonds strong – both chemically and mechanically - to conventional concrete substrates with no cold joints. Phoscrete also bonds to itself, wet or cured, so repairs can be completed in segments or lifts with no cold joints. For reinforced concrete repairs, Phoscrete stops rust on contact, prevents chloride penetration, and resists shrinkage cracking even under severe stress and/or environmental conditions.

At temperatures above 70°F (21°C), Phoscrete MKP Series concretes are traffic-ready in two [2] hours. F3 concretes typically achieve two [2] hour compressive strengths of: 3,500 psi (24 MPa), and two [2] hour bond strength (by slant/shear) of 1,500 psi (10 MPa). Phoscrete's ultimate strengths reach a minimum of 7,500 psi (52 MPa) for compression, 600 psi (4 MPa) for flexural, and 3,000 psi (20 MPa) for bond by slant/shear.

For detailed technical data and performance characteristics, visit [phoscrete.com](https://phoscrete.com).



## Important things to know when working with PHOSCRETE FORMULA 3 [MKP Series]

- ▶ **Always mix the appropriate color-matched, labeled pre-measured F3 Activator with the F3-Dry Mix.** Formula 3 is packaged in large bags plus jugs, small bags plus jugs (VO only), and small pails plus jars.
- ▶ **Always add F3 Activator first into an empty pail** when mixing. Next add Phoscrete Admixtures, including Fast-Set, Slow-Set, or Fibers. Then blend in the matching F3 Dry Mix powder.
- ▶ **Do NOT mix partial bags and jugs of Phoscrete F3.** Phoscrete activator contains liquids with different densities. Jugs and jars must be completely emptied for use with the matching pre-measured dry mix. For smaller repairs or final pours that do not require a full bag kit, use Phoscrete F3 2-gallon Small Pails, available for PHOSCRETE F3 Products. Small Pail coverage is [1] board foot (.0833 cf or 12" x 12" x 1").
- ▶ **Do NOT extend Phoscrete F3 with aggregates or sand.** Phoscrete must be used neat.
- ▶ **Chill F3 Activator jugs on ice** for maximum working time unless temperatures are below 68°F (20°C). Use 150-quart coolers to ice down up to 16 jugs of F3 Activator. When working in warmer and sunny climates, keep the cooler lid closed and refresh melted ice.
- ▶ Phoscrete products are commonly mixed one kit at a time in standard 5-gallon (or larger) buckets on installations requiring [1] pallet of material or less (48 kits).
- ▶ **Use a heavy-duty drill designed for mixing concrete materials in a bucket.** Phoscrete recommends the Bosch GBM9-16 mixing drill. Ensure your generator and extension cords can supply sufficient power to the mixing drills.
- ▶ **Use Phoscrete Urethane Mixing Augers** (Small and Large). They are excellent tools for fast and easy mixing of Phoscrete in a bucket.
- ▶ **Larger buckets mix Large Bag kits of Phoscrete faster.** Phoscrete recommends the Collomix 8-gallon tall bucket. Collomix products are available from Phoscrete.
- ▶ On larger volume repairs, multiple kits of Phoscrete F3 can be mixed at once. **For shotcrete and pumping, use the Phoscrete Pan Mixer and ShotPump™** for continuous-feed mixing of [3] kits at a time. For cast-in-place horizontal repairs use the **MultiQuip WM70PH8 mortar mixer** with a HDPE plastic drum to mix and place up to [6] kits at a time.
- ▶ **Do not over-mix Phoscrete.** Mix for approximately two minutes, until fully wetted out (no dry material remains). F3-HC is flowable, and F3-VO mixes to a putty consistency. Then, place and finish immediately. Do not mix for less than two [2] minutes.
- ▶ **Typical working time is 15-25 minutes** (temperature dependent).
- ▶ **In warm temperatures, cool water in ice and/or use PHOSCRETE Slow-Set Admix for longer working time.** Refer to [Phoscrete Best Practices - Warm Temperature Concrete Repair Guidelines](#).<sup>ii</sup>
- ▶ **Use PHOSCRETE Fast-Set Admix in cold temperatures** to accelerate set time. Refer to [Phoscrete Best Practices - Cold Temperature Concrete Repair Guidelines](#).<sup>iii</sup>
- ▶ **Phoscrete F3 concretes prefer a dry substrate for strongest bond.** Phoscrete F3 concretes can be installed on SSD (Saturated Surface Dry) substrates with approximately 25% reduced bond strength.
- ▶ Always clean wet/dry slurry from saw cut demolition prior to application of F3 concrete products.
- ▶ **Phoscrete Endure is a component of F3 Activators and is also applied to F3 concretes after set for curing.**
- ▶ Phoscrete does not bond to polystyrene (foam board), or petroleum products. **Endure dissolves polystyrene** (foam board). When forming Phoscrete with foam board, apply painters' (masking) tape on foam board areas in direct contact with Phoscrete F3 products for easiest removal.
- ▶ Dampen gloves and wipe down tools with water (and shake off) for ease of placement and best finish, but do not pour water directly on wet Phoscrete.
- ▶ Clean tools, buckets, clothing, and boots with water. Clean hands with soap and water.



### Phoscrete Installation Support

Phoscrete technical support personnel are available to travel on-site for application training and start of work. Virtual interactive training is also available, and the most up-to-date documentation and installation videos are published at [phoscrete.com](http://phoscrete.com). Contractors with recent experience working with Phoscrete may receive a letter of qualification upon request.

### Phoscrete Packaging

Phoscrete is manufactured and delivered on pallets in Kits (Large and Small Dry Mix bags plus F3 Activator jugs), in *Small Pails* (containing small Dry Mix bags and F3 Activator jars). Refer to the Technical Data Guides found at [phoscrete.com](http://phoscrete.com) for weights and yields of specific products.

### Labels, Shelf Life, Lot Numbers, Disposal, Health, Safety, and Environmental

**Phoscrete Labels:** All components are labeled with a manufacturing date and a lot number. Refer to the document, [Phoscrete Best Practices - Labels, Lot Numbers, and Shelf Life<sup>iv</sup>](#) to view the label format and how to interpret Lot Numbers for all Phoscrete products.

**Labels for Phoscrete Kits (bag + jug)** are color-coded to match the appropriate dry mix and liquid activator components.

**Table 2: Color-Match Labels**

Phoscrete Kit	Label Color
F3-HC - 55 lbs.	Green
F3-VO - 22 lbs.	Purple
F3-VO - 50 lbs.	Gold

**Storage:** Store Dry Mix bags indoors, in low humidity. Store bottled F3-Activator and Endure in temperatures above 41°F (5°C).

**Table 3: Shelf Life when properly stored**

Component	Shelf Life
F3 Dry Mix	[2] years
F3 Activator	[1] year
Endure	[18] months

**Phoscrete STRONGLY advises against installing expired material, material improperly stored, or material opened or damaged.** If you cannot avoid installing a questionable material, first mix a full kit (or pail) in your shop and observe mixing properties, time of set, and maximum temperature to verify the material is consistent with the fresh characteristics reported in the Technical Data Guide.

**Disposal:** Hardened Phoscrete concrete and Phoscrete Dry Mix powder can be disposed of in any dumpster or landfill. Unused F3 Activator can be safely poured down a drain with running water. Please ensure the water is running before, during, and after disposal to properly dilute the activator. Contact your Phoscrete representative for any questions regarding disposal of improperly stored or expired material. Always follow local environmental regulations when disposing of Phoscrete materials.



**Health, Safety, and Environmental:** Read, understand, and follow all Installation Instructions, Safety Data Sheets, and product label information for this product prior to use. The latest SDS can be obtained by visiting [phoscrete.com](http://phoscrete.com), emailing your request to [safety@phoscrete.com](mailto:safety@phoscrete.com), or calling +1 561-420-0595. Use only as directed. For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident, Call CHEMTREC® 24 Hours 800-424-9300 / +1 703-527-3887. Contracted by Phoscrete, CCN 866520.

## Personal Protection Equipment

When mixing, placing, and finishing Phoscrete, wear a particle filtration mask, nitrile-coated gloves, and eye protection. Have water and an eye wash station handy. Wash your hands with soap and water after working with Phoscrete.

## Surface Preparation

- ▶ Follow [ICRI Guidelines 310.1R.v](#) for preparing the surface prior to placing Phoscrete.
- ▶ Remove all loose and damaged concrete from the repair area to reach sound concrete. Remove concrete contaminated by asphalt, oils, or other bond-inhibiting materials. Remove previously installed non-cementitious repair materials.
- ▶ Use appropriate mechanical means to obtain an exposed aggregate surface profile correspondent to a Concrete Surface Profile (CSP) rate 6 according to [ICRI Guidelines 310.2R.vi](#)
- ▶ Remove exposed rust scale with a wire brush or use an angle grinder with a wheel brush. Because Phoscrete naturally stops rust on contact, shotblasting to completely remove rust from rebar is not required. Remove unsound concrete beneath and around rebar.
- ▶ For overlays, insure at least a ½-inch (1.25 cm) depth throughout the repair. Thicker is always better for lasting horizontal repairs. For deck patches, two-inch [2"] (5 cm) minimum thickness is recommended. For expansion joint headers/nosings, four inches [4"] (10 cm) minimum thickness is recommended. For vertical and overhead installations, no minimum depth is required, and Phoscrete F3-VO may be feather-finished.
- ▶ Use an angle grinder with wheel brush to remove slurry from the substrate after wet/dry saw cutting, especially over vertical edges. Blow out any remaining dust.
- ▶ Use a torch and lightly "kiss" the substrate surface to burn off residual oils (after thorough mechanical removal), and to dry damp concrete. Be careful because extended heat on conventional concrete can cause concrete's thermal degradation.



Deck Spall  
Ideal Site Preparation



Vertical Column  
Site Preparation



Use Foam Board to Establish  
Control and Expansion Joints



## Surface Preparation (Continued)

- ▶ Use bond breaking materials such as polystyrene foam board to prevent Phoscrete from bonding across expansion joints. Mark form with a chalk line or tape to establish the level for finishing to substrate. Soak wooden forms and screeds with water, or paint with urethane paint or release agent to prevent bonding to the form and for slip-forming cast repairs. Note that release agents prevent the Phoscrete-to-Phoscrete bond.

## Small Pail Kit Mixing Instructions

Phoscrete F3-HC and F3-VO are available in Small Pail Kits – [2]-gallon pails, each containing a bag of Phoscrete F3 Dry Mix and a jar of Phoscrete F3 Activator. Use Small Pails for small concrete repairs, or for a final, finishing mix to save a full bag. Refer to [Phoscrete Technical Data Guides](#) for coverage details.

- ▶ Remove all items from the small pail.
- ▶ Empty the entire content of the Activator jar into an empty pail.
- ▶ Add scoop(s) of Fast-Set or Slow-Set admixtures per [Phoscrete's Best Practices for Cold Temperature and Warm Temperature Guidelines](#).
- ▶ Empty the entire contents of the Dry Mix bag into the pail.
- ▶ Insert the PHOSCRETE Small Mixing Paddle or similar into the pail. Slowly power up the 3/8" drive, minimum 18V portable mixing drill and run on the highest torque setting for approximately two [2] minutes, or until the material is completely wetted out (no dry material remains) and shows a uniform consistency. F3-HC mixes to a flowable consistency. F3-VO mixes to a putty consistency.

## Bucket Mixing Instructions (Mix One[1] Kit at a time)

- ▶ PHOSCRETE Dry Mix bags and Liquid Activator jugs are typically mixed as kits in [5] gallon (or larger) buckets. Refer to the [Phoscrete Technical Data Guides](#) for coverage details.
- ▶ When bucket-mixing more than 5 cubic feet (10+ kits of Phoscrete) for a single placement, it is recommended that two [2] persons mix from two [2] buckets each, with a runner steadily delivering freshly mixed material to the finishers. Watch installation videos at [phoscrete.com](http://phoscrete.com) for mixing examples.
- ▶ First, empty full jugs of F3 Activator (chilled to 40°F/5°C when temperatures are above 68°F/20°C) into the bucket.
- ▶ Next, add admixtures (Fast-Set, Slow-Set, Fibers). Refer to [Phoscrete's Best Practices for Cold Temperature](#) and [Warm Temperature Guidelines](#) and [Phoscrete Best Practices for Expansion Joint Installation](#) for admix usage and measures.
- ▶ Then, empty the entire content of the dry mix bag into the bucket while slowly running the mixer.
- ▶ Use Phoscrete's Urethane Mixing Auger with a dual or variable speed drill suitable for mixing, and mix approximately 2 minutes, or until the material is completely wetted out (no dry material remains) and shows a uniform consistency. F3-HC mixes to a flowable consistency, and F3-VO mixes to a putty-like consistency and begins to fold over on itself when fully mixed. Do not overmix. Do not mix for less than two [2] minutes.
- ▶ Empty the bucket into prepared site and finish immediately.
- ▶ Clean the bucket and mix paddle with water after the final mix and pour.



Phoscrete recommends:  
**Bosch GBMg-16**  
9 Amp 5/8" Drill Mixer  
with Side and D-Handles

## Mortar Mixer Instructions (Mix Multiple Kits at once)

- ▶ Use a rubber-tipped, paddle-style mortar mixer like the MultiQuip WM70PH8. A polyethylene drum is recommended for easy cleanup. Refer to the manufacturer's operating instructions for complete details.
- ▶ Position the mortar mixer close to prepared site. Turn on the mortar mixer.
- ▶ First, empty up to six [6] full jugs of F3 Activator (chilled to 40°F/5°C when temperatures are above 68°F/20°C) into the drum.
- ▶ Next, add admixtures (Fast-Set, Slow-Set, Fibers). Refer to [Phoscrete's Best Practices for Cold Temperature](#) and [Warm Temperature Guidelines](#) and [Phoscrete Best Practices for Expansion Joint Installation](#) for admix usage and measures.
- ▶ Then with the mixer running, break an equal number of Phoscrete Dry Mix Bags over the mortar mixer and run paddles until the material is completely wetted out (no dry material remains) and shows a uniform consistency. F3-HC mixes to a flowable consistency, and F3-VO mixes to a putty-like consistency and begins to fold over on itself when fully mixed. Do not overmix. Do not mix for less than two [2] minutes.
- ▶ Stop the mixer and empty the contents directly into the prepared site. Use plywood attached to the mixer to direct the flow of material.
- ▶ Return mixer to upright position turn on mixer, and add the next batch of (chilled) F3 Activator Jugs, to preventing material remaining in the drum from hardening. When ready for the next placement, add admixtures and then F3 Dry Mix and again mix, place, and finish.
- ▶ Clean mixer with water after final mix and pour.



Phoscrete recommends:  
**MultiQuip WM70PH8**  
Polyethylene-Drum Mortar Mixers  
for mixing up to [6] kits at a time.

## Pan Mixer /ShotPump™ Instructions (Mix Multiple Kits for Pumping and Shotcrete)

- ▶ Use the PHOSCRETE ShotPump™ and Pan Mixer combination or other shotcrete/pumping equipment approved by Phoscrete. Refer to the manufacturer's operating instructions for complete details. The Phoscrete ShotPump operation is easy to learn, and the equipment is easy to maintain. *Phoscrete does not require a ASA-certified shotcrete nozzleman to operate the ShotPump.* However, a Phoscrete technical representative must be on-site for training and guidance at the start of work for a minimum of one full day, or until Phoscrete provides a written statement attesting that the customer is qualified to install F3 concrete using the Phoscrete ShotPump.
- ▶ The Phoscrete Pan Mixer may be used independently of the ShotPump for mixing up to [3] full kits of F3-HC or F3-VO. Follow mortar mixer guidelines above when mixing for direct placement.
- ▶ In general, use F3-VO for shotcrete and F3-HC for pumping applications.
- ▶ Position the Pan Mixer above the ShotPump with hoses and spray nozzle connected, all in reach of the prepared installation site. ShotPump hoses are available in 10-, 20-, and 30-foot (3-, 6-, and 9-meter) lengths. Up to 50 feet (15 m) of hose may be connected using couplers.
- ▶ With Pan Mixer and ShotPump in NEUTRAL, Turn on the air compressor.
- ▶ Spray Endure to coat the inside of the Pan Mixer and ShotPump.
- ▶ Empty up to three [3] full jugs of *chilled* F3 Activator into bucket first.



**Phoscrete**  
**ShotPump™ and Pan Mixer**  
For mixing, pumping, and  
spraying up to [3] kits at a time.

## Pan Mixer /ShotPump™ Instructions (Continued)

- ▶ Next, add admixtures (Fast-Set, Slow-Set, Fibers). Refer to [Phoscrete's Best Practices for Cold Temperature](#) and [Warm Temperature Guidelines](#) and [Phoscrete Best Practices for Expansion Joint Installation](#) for admix usage and measures. *Do not use fibers when spraying shotcrete.*
- ▶ Run paddles at full speed until the material is completely wetted out (no dry material remains) and shows a uniform consistency. F3-HC mixes to a flowable consistency, and F3-VO mixes to a putty-like consistency and begins to fold over on itself when fully mixed. Do not overmix. Do not mix for less than two [2] minutes.
- ▶ With the mixer still running, open the chute to empty the mixed material into the ShotPump. After the material exits the Pan Mixer, shift Pan Mixer into neutral, raise the grate and use the provided silicone spatula to quickly push as much of the remaining material off the fins and out the chute.
- ▶ Close the chute, spray more Endure to coat the pan mixer, and add up to 3 more chilled jugs of F3 Activator, Start the paddles and add the appropriate admixtures, plus the same number of bags of dry mix as activator jugs. Mix until ready. Then open the chute to empty the mixed material into the hopper before the last of the previous batch exits the ShotPump hopper.
- ▶ Once the first batch of material is in the hopper, start the ShotPump on full, and prepare to spray or pump. The material flows through a clear hose at approximately 20 feet per minute, and the nozzleman can see when it is go time. Point the nozzle or hose toward the prepared installation site and begin spraying or pumping.
- ▶ Continue to feed the Pan Mixer and the ShotPump hopper for continuous feed until the nozzleman signals they are ready for the final batch. Turn off the Pan Mixer and empty the last of the mixed material into the ShotPump or discard into a cleanup container nearby.
- ▶ When finished with the continuous feed, or in any circumstance when the hopper is about to run out of material to pump, immediately add [1] bucket of water into the hopper to keep the pump primed.
- ▶ Once the water enters the hose, hand place the two provided sponge balls into the hole at the bottom of the hopper to clean the hose.
- ▶ If the nozzleman is still spraying or pumping, be on the lookout for the water and balls coming through the hose. Before the last of the material is out, shift the ShotPump into neutral, remove the nozzle and place in a bucket of water for immediate cleaning. Turn back on ShotPump and flush the hose into a cleanup receptacle (large bucket). Once the first two balls exit the hose, insert two more balls in the hopper, supplying enough water to flush those balls through the hose.
- ▶ **Ensure that the ShotPump's hopper is continuously supplied with material.** If the ShotPump runs dry and air enters the hose, it will lose its prime, preventing material from being pushed through the hose. Moreover, if the material starts to solidify within the hose, it will cause irreparable damage. Therefore, maintaining a consistent flow of material is crucial for ShotPump operation.
- ▶ If you anticipate the material will run out before the next Pan Mix is ready:
  - Stop the ShotPump and note the time. With fresh material, you have 15-20 minutes to get the material out the hose, You may have enough time to complete the pan mix, or...
  - You can bucket-mix Phoscrete F3 to augment the Pan Mixer and feed material directly into the hopper. Two people mixing is recommended.
  - If time is running out, power on the ShotPump and immediately add water and sponge balls as described above.
- ▶ **Clean all parts with water.** Remove all couplings from the hoses and use buckets of water or a garden hose to clean the nozzle, the couplings, the Pan Mixer, and the ShotPump hopper.



Phoscrete ShotPump  
Empty Hopper



## Placing and Finishing Phoscrete

Plan on between 15-25 minutes working time (ambient and Activator temperature dependent) to place and finish each batch of Phoscrete.

After mixing, place into/onto prepared site immediately. If a delay causes Phoscrete to begin setting up in the bucket/pail/mixer, discard the mix. When mixing in a mortar mixer, whenever possible, empty the material directly into the prepared site.

**Blend multiple pours:** Before the material has set, use vibration, or wiggle your trowel in the Phoscrete F3 mix to blend each new pour with the previous pour at the point of contact to get a nice finish.

**On inclines,** start at the bottom of the slope and work your way up. On steep inclines, allow the material placed first to begin setting up to control the slump from subsequent pours. Remember, Phoscrete bonds to itself wet or cured with no cold joints and may be installed in lifts.

**On Vertical and Overhead surfaces,** begin by hand-packing or spraying a thin layer to fill all voids and use a trowel or a ramming tool to press the material deep into the crevices. Vibration from spraying, ramming, or tapping with the trowel will increase flow of Phoscrete's *thixotropic* materials. Follow with additional spray or hand-packing of the material until flush with the surface. Phoscrete bonds to itself wet or cured with no cold joints.



Expansion Joint Header Installation



Bridge Deck Spall Repair



Vertical Column Repair

Place and finish Phoscrete using standard concrete tools (magnesium or plastic floats, steel margin trowels, and screeds). Phoscrete recommends Kraft Tools' Orange Thunder plastic floats. Push material edges for maximum bond. Wipe trowels and rinse gloves with water to prevent Phoscrete from sticking to the trowel or gloves for the smoothest finish. Be sure to shake off excess water. DO NOT pour water directly onto wet Phoscrete.

**Install in lifts:** When installing Phoscrete F3 concretes greater than [4] inches (10 cm) thick, install Phoscrete in lifts, and leave at least one half [ $\frac{1}{2}$ ] in. (1.25 cm) for the final lift to achieve the best finish (less is okay for F3-VO). When trowel-finishing, scarify the surface of each lift to improve the mechanical bond. For the best finish, wait for the material to begin cooling down before placing the final lift.

Use a **concrete pencil vibrator** to increase material flow in tight spaces, to blend multiple batches. Vibration reduces voids at the substrate interface and increases density by allowing air bubbles to escape.

Once the Phoscrete surface begins to harden, stop finishing. Initial and final set times are imminent.



## Curing Phoscrete

After Phoscrete F3 achieves the initial set (you can't press a nail into the center of the material), Spray or paint a thin coat of Phoscrete Endure onto the exposed surface of the finished material. Endure penetrates below the concrete surface and prevents evaporation of the liquid in the mix, allowing F3 to fully cure and achieve maximum strength, with minimum drying shrinkage.

## Grinding Phoscrete

For horizontal patches subject to heavy traffic, and for headers of expansion joints, Phoscrete will last longer when finished level to the concrete approach. When finished too high, constant vehicular impact will ultimately damage Phoscrete, same as any concrete. In addition, smoother rideability enhances user satisfaction and reduces truck impacts that can ultimately damage the joint.

As soon as 15 minutes following the final set of the last finishing pour, Phoscrete can be milled using a walk-behind grinder or an angle grinder. Grind before Phoscrete achieves ultimate strength if possible.

When installing Phoscrete for expansion joint headers, grind the exposed corner to a 45° angle prior to installing the joint seal. Refer to [Phoscrete Best Practices for Expansion Joint Installation](#).<sup>vii</sup>

## Sealing Phoscrete

Film-forming sealers, such as epoxies can be applied as soon as 15 minutes following the final set of the last pour of Phoscrete since Phoscrete does not outgas after cure.

In many instances, sealers can be applied 15 minutes following the final set. Wait until the temperature of the installed Phoscrete material drops below 100°F (38°C) before applying any type of sealers.

## Expansion Joints

Phoscrete Formula 3-HC is an excellent material for installation and repair of expansion joint headers. Because Phoscrete mixes, places, and finishes fast, joint seals can be installed as soon as 15 minutes following initial set of the final pour, allowing an expansion joint installation to be completed in one lane closure. Refer to [Phoscrete Best Practices for Expansion Joint Installation](#).

## Opening Phoscrete to Traffic

Phoscrete achieves set when a nail can no longer be pressed into the corner of a Phoscrete repair area. Phoscrete F3 typically achieves final set less than five [5] minutes after working time is ended and is ready for heavy traffic less than three [3] hours following set of the final pour.

When ENDURE is used, the surface of the repair may be slippery. After allowing one hour for the Endure to penetrate, broadcast sand, concrete dust, or baking soda to absorb any Endure remaining on the surface, sweep off, and ensure the road is safe for vehicular traffic.

Prior to installing any type of sealers, and prior to leaving the job site, hammer-test the Phoscrete repair and listen for any hollow spots. Common reasons Phoscrete may not adequately bond to the concrete substrate include:

- ▶ Placed Phoscrete that already began to set in the bucket/mixer.
- ▶ Contaminated substrate (oils, dirt, moisture), resulting in excessive voids in the bond interface.
- ▶ Phoscrete placed against unsound concrete substrate.

If you detect delamination in your Phoscrete repair, quickly remove the delaminated areas, and correct the cause (e.g., mechanically remove contaminated substrate), then mix, place and finish with additional Phoscrete. The fresh Phoscrete will bond to the adjacent Phoscrete that remains in place with no cold joints.



## Phoscrete Repairs Last!

When properly installed, Phoscrete is fast, easy to use, and it lasts. The more often you use Phoscrete, the better experienced you become, and the more you will turn to Phoscrete to fix damaged concrete once and for good.

## Phoscrete Technical Support

Visit our website for the latest installation guides and technical data.

Contact Phoscrete installation support anytime for guidance for your concrete repair projects:

[install@phoscrete.com](mailto:install@phoscrete.com)

+1-561-420-0595

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## URLs for Referenced Hyperlinks in this Document

This document is published at phoscrete.com where you can click on the referenced hyperlinks in the document. If you have a printed version, full URLs are end-noted below.

<sup>i</sup> Refer to the latest published Phoscrete Technical and Safety Data Guides Phoscrete Quick Start Guides, Full Installation Guides, Best Practices, and Videos: <https://www.phoscrete.com/technical/>

<sup>ii</sup> <https://www.phoscrete.com/phoscrete-best-practices-warm-temperature-concrete-repair-guidelines/>

<sup>iii</sup> <https://www.phoscrete.com/phoscrete-best-practices-cold-temperature-concrete-repair-guidelines/>

<sup>iv</sup> <https://www.phoscrete.com/phoscrete-best-practices-labels-lot-numbers-and-shelf-life/>

<sup>v</sup> <https://icri.ce21.com/item/3101r2008-english-pdf-guideline-surface-preparation-repair-deteriorated-concrete-resulting-reinforcing-steel-corrosion-342512>

<sup>vi</sup> <https://icri.ce21.com/item/3102r2013-english-pdf-selecting-concrete-surface-preparation-sealers-coatings-polymer-overlays-concrete-repair-342521>

<sup>vii</sup> <https://www.phoscrete.com/phoscrete-bridge-expansion-joint-installation-guidelines-1/>