



COLD TEMPERATURE CONCRETE REPAIR GUIDELINES

Refer to the **FAST-SET ADMIX USAGE CHART** on the last page of this document!

Phoscrete Concretes set fast, even in cold temperatures. Phoscrete MKP-Series concrete mix with water and work in temperatures above the freezing point of water: 32°F (0°C).

Phoscrete MALP-Series concretes do not mix with water, but instead mix with a Liquid Activator and work in temperatures above as the activator's freezing point: -17°F (-27°C).

Use **Phoscrete Fast-Set Admix** (accelerator) with Phoscrete concrete repairs to achieve traffic ready[†] strength one hour after the final bucket pour, even in sub-freezing temperatures.

Considerations for using Phoscrete Fast-Set Admix:

On the job site, many factors impact working and set times, including:

• Ambient temperature	• Liquid Activator temperature	• Volume of material placed
• Substrate temperature	• Dry Mix temperature	

Most important is the temperature of the Dry Mix and the Liquid Activator. If the two components are stored at warmer than ambient temperature, less Fast-Set Admix is required.

The next important consideration is the temperature of the substrate. Frozen concrete acts as a heatsink, slowing the exothermic reaction between the Dry Mix and the Liquid Activator.

If the substrate is significantly colder (freezer floor) than Phoscrete's two components, consider that the heatsink from the cold substrate will slow the set time down.

In cold storage facilities and/or cold climates, heating the substrate allows the exothermic reaction to set faster. Use a blow torch and gently "kiss" the substrate surface prior to placement of Phoscrete to evaporate moisture and ice crystals, and warm the surface. *Be careful not to heat the substrate for an extended period to avoid loss of compressive strength!* Placed Phoscrete may also be gently heated to accelerate the set.

When Phoscrete Dry Mix and Liquid Activator are mixed, an exothermic reaction occurs, and the placed material gets very hot, oftentimes reaching a temperature greater than 150°F (70°C). Large volumes of material placed in cold temperatures suggests using less Fast-Set Admix toward the end of the placement.

Note that the heat from Phoscrete's exothermic reaction may allow use of sealants at the extreme low-end temperature of their recommended range. Be sure to keep sealants warmed prior to use.

Basic instructions for mixing Phoscrete in a bucket or pail using Fast-Set Admix:

- Only apply Phoscrete MPC to clean, dry concrete substrates.
- Remove slurry from saw-cuts that may inhibit bond between Phoscrete and substrate.
- Empty the entire contents of Phoscrete Liquid Activator into the bucket. **Always add liquid first!**
- Next, add the appropriate number of level scoops of Fast-Set into bucket.
- Never exceed 10 scoops of Fast-Set Admix. Better to warm the two components, Dry Mix and Liquid Activator, prior to mixing in very cold temperatures.
- Next add appropriate measure of Endure Admix to the liquid.
- Finally, add the entire Dry Mix bag to the liquid, and mix for approximately 45 seconds or until no dry material remains. **Do not over mix!**
- Refer to the Phoscrete Full Installation Guide for complete mixing/finishing instructions.



Fast-Set Admix Usage for Phoscrete MPC Concretes

Scoops are provided with all Phoscrete Admixtures. Be careful to use the correctly labeled scoop!

Phoscrete Fast-Set Admix Scoop Sizes				
Packaging	Lbs	Kg	Fast-Set Scoop (1/4%)	
			grams	scoop label
HC Pail	9.7	4.4	11	[A] 10 cc (0.33 oz)
HC Bag	55	25	62	[B] 53 cc (1.8 oz)

The following usage chart recommends the number of scoops of Fast Set Admix to use to allow traffic opening one hour following the final bucket pour. When material is kept warm and the substrate is warmed prior to placement, less Fast-Set Admix is needed.

Phoscrete Fast-Set Admix Usage Chart					
Dry Mix Temperature	Activator Temperature	Admix Scoops	Working (min)	Initial (min)	Traffic Ready† (min)
Below +15°F [Below -10°C]	same as dry	8 – 10 Fast-Set	12-15	30	75+
15°F to 25°F [-10° to -5°C]	same as dry	6 – 8 Fast-Set	11-14	20	60
25°F to 32°F [-5°C to 0°C)	same as dry	4 - 6 Fast-Set	11-14	20	60
32°F to 40°F [0°C to 5°C]	same as dry	2 - 4 Fast-Set	11-14	17	60
40°F to 50°F [5°C to 10°C]	same as dry	1 - 2 Fast-Set	10-13	15	60
50°F to 70°F [10°C to 20°C]	same as dry	None	7-13	10-15	30

Never add more than 10 scoops of Fast-Set Admix!

Working Time is how long Phoscrete can be moved with a trowel to improve the finish.

Initial Set Time is when the central core of the placed Phoscrete material begins to harden.

Final Set Time is when Phoscrete is hardened to the point that a carpenter nail cannot be pressed into the edge of the placed material.

† Phoscrete MALP concretes typically achieve compressive strengths of 4,000 psi in less than one hour.
 Phoscrete MKP-Series concretes typically achieve compressive strengths of 4,000 psi in two hours.
 FHWA advises >2,000 psi to open a repaired concrete road or bridge deck to heavy-duty rubber-tire traffic.

**If you have questions, contact your local Phoscrete representative
 or call our corporate offices for application assistance.**