



PHOSCRETE PRIMER

TECHNICAL DATA GUIDE

Rapid Hardening MPC (Magnesium Phosphate Cement) bonding agent for pre-treatment of substrate with superior adhesion when installing Phoscrete Formula 1 [MALP-Series] concrete.

DESCRIPTION

PHOSCRETE® PRIMER is a two-part cementitious MPC (Magnesium-Phosphate-Cement) concrete bonding agent composed of magnesium oxide, potassium phosphate, and fine aggregates (Dry Mix) that must be mixed with pre-measured Phoscrete Primer Activator.

Phoscrete Primer is easy to apply by hand as a scrub-coat and is easy to trowel to a ¼ inch (½ cm) thin layer. Phoscrete Primer bonds to the concrete substrate prior to installation of Phoscrete Formula 1 [MALP-Series] concrete repair materials.

Phoscrete Primer is recommended as a pre-treatment when installing Phoscrete Formula 1 (F1) for concrete repairs when the substrate contains reactive aggregates (notably limestone), and in high stress environments when maximum bond strength is desired.

Phoscrete Primer is suitable as a bonding primer for preparing cementitious concrete substrates for vertical, overhead, and horizontal concrete repairs using Phoscrete Formula 1 [MALP-Series] concretes, including expansion joints.

ADVANTAGES

- ▶ Rapid hardening, ready to accept Phoscrete F1 concrete repair material application within minutes.
- ▶ Easy and accurate mixing in a bucket
- ▶ Two pre-measured components: dry mix in a bag and liquid activator in a jug.
- ▶ Easy to apply and easy to finish using a gloved hand, trowel, or screed.
- ▶ Excellent adhesion to suitably prepared cured concrete.
- ▶ Phoscrete F1 bonds strong to Phoscrete Primer with no cold joints.
- ▶ High shear, flexural, and tensile strengths.
- ▶ Can be used on exterior, slab-on-grade surfaces.
- ▶ Chemically stable: no added chlorides.
- ▶ Environmentally friendly – no VOCs, no odor

Packaging

Small Bag Kit: [1] bag + [1] jug

Dry Mix: 22 lb. (10 kg)

Polyethylene-lined paper bag

Primer Activator: 54 fl. oz. (1.6 l)

LDPE ½-gallon jug

Yield: 2.4 bf, 0.20 ft³, 0.0056 m³

9.6 sf at ¼" thickness

96 bags and jugs per full pallet.

Small Pail Kit: [1] bag + [1] jug

Dry Mix: 11 lb. (5 kg)

Polyethylene-lined paper bag

Primer Activator: 27 fl. oz. (0.8 l)

LDPE jar

Yield: 1.2 bf, 0.10 ft³, 0.0028 m³

4.8 sf at ¼" thickness

64 pail per full pallet.

Mixing Ratio

Pre-measured, pre-extended.

Mix [1] jug into [1] bag.

Use color-matched bags and jugs.

Always add liquid first.

Do not extend with sand or aggregate.

Storage

Store in clean, dry conditions in unopened, original packaging.

Shelf Life

Dry Mix: 24 months

Activator: 12 months

(when properly stored)

VOC Content

0 g/L: Less exempt solvents



LABORATORY TEST DATA

| Fresh Properties | | | | | |
|-----------------------|---------------|---|----------------------|--------------------------|------------------------|
| Test | Specification | Description | Time | Independent Test Results | |
| Set Time | ASTM C403 | Time of Setting by Penetration Resistance | Initial Final | 15 min | 18 min |
| Flow | ASTM C1437 | Consistency (Flow %) | 5 min | 107% | |
| Density | ASTM C387 | Density (Unit Weight) of Concrete | | 140 lb/ft ³ | 2243 kg/m ³ |
| Strength Properties | | | | | |
| Test | Specification | Description | Time | Independent Test Results | |
| | | | | psi | MPa |
| Flexural Strength | ASTM C78 | Flexural Strength of Concrete Using Simple Beam with Third-Point Loading | 1 day | 500 | 3.4 |
| | | | 28 days | 600 | 4.1 |
| Bond Strength | ASTM C882 | Bond Strength by Slant Shear: | 1 day | 2000 | 13.8 |
| | | | 7 days | 2400 | 16.5 |
| | ASTM C1583 | Direct Bond Strength by Pull Off | 28 days | 299 | 2.1 |
| Tensile Strength | ASTM C496 | Splitting Tensile Strength of Cylindrical Concrete Specimens | 28 days | 540 | 3.7 |
| Modulus of Elasticity | ASTM C469 | Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression | 28 days | 4.3 E ⁺⁰⁶ | 3.0 E ⁺⁰⁴ |
| | | | | 0.274 | |
| Durability Properties | | | | | |
| Test | Specification | Description | Test | Independent Test Results | |
| Free Shrinkage | ASTM C157 | Length Change of Hardened Concrete (Std) | 28 Days Wet Dry | +0.006% | -0.042% |
| Chlorides | AASHTO T260 | Chloride Content (%) | 28 days Acid Water | 0.005% | 0.004% |

All tests were performed at lab temperature



GENERAL INSTALLATION GUIDELINES

- › Refer to [Phoscrete Formula 1 \[MALP Series\] Full Installation Guide](#), for the complete documentation on best installation practices using Phoscrete Primer with Phoscrete Formula 1, including recommended tools and mixing equipment.
- › Cool Activator on ice to 40°F for additional working time during placement and finishing in hot temperatures.
- › Warm Activator in hot water when working in cold temperatures for faster set in cold temperatures.

SURFACE PREPARATION

- › The concrete surface must be sound and fully cured.
- › Remove loose, damaged, and concrete contaminated by oil, grease, and other bond-inhibiting materials.
- › Surface must be frost-free, dry, and free of standing water. Gently apply heat (torch) to eliminate surface moisture.
- › Concrete profile should reach minimum CSP (Concrete Surface Profile) of 6 per ICRI Guidelines.
- › When saw-cutting or shot-blasting, remove surface dust and slurry with air or water (allow to dry prior to application).

MIXING

- › Mix Phoscrete Primer at the placement site.
- › Mix [1] jug of Primer Activator into [1] bag Primer Dry Mix. Match colored labels on bags and jugs to insure proper mixing ratio. *Note: 22 lb. Kits of Primer have red labels and pair with ½-gallon jugs. 11 lb. Small Pails of Primer also have red-colored labels.*
- › DO NOT MIX USING PARTIAL BAGS OR JUGS. *Note: Primer Activator jugs contain liquids with different densities. Using a partial jug does not guarantee equal distribution of liquids.*
- › For small bag kits, use a heavy-duty five [5] gallon bucket for mixing bags.
- › For small pail kits, mix components in the provided Small Pail container.
- › Mix with a paddle (Phoscrete's urethane auger is highly recommended), and a dual or variable speed drill suitable for mixing (Bosch GBM-9-16 is highly recommended).
- › Agitate, then empty the entire jug or jar into a clean bucket first.
- › Then add Dry Mix into the bucket while slowly running the mixer.
- › Mix for at least two [2] minutes and until the material is fully wetted out. Do not under-mix or over-mix.

APPLICATION

- › A batch of Phoscrete Primer must be applied within 15 - 25 minutes from mixing, temperature dependent.
- › Phoscrete Primer is a thixotropic material: vibration and tapping with a trowel increases flow.
- › Scrub in a thin layer of Primer into the area to be repaired using a gloved hand, being careful to fill all voids and cover all exposed aggregates.
- › Apply Primer to maintain at least ¼" (~½ cm) uniform thickness over the bond interface using gloved hands, concrete margin trowels, floats or screeds.
- › Wipe Primer from tools with a water-dampened cloth. Do not pour water on the repair.
- › If rain begins prior to final set, protect the repair area with plastic sheeting.
- › Phoscrete Primer is ready for the next step after at least 15 minutes, and once it hardens to the point where pressing with a finger does not leave an indent, indicating it is no longer malleable.

APPLY PHOSCRETE FORMULA 1 ONTO HARDENED PHOSCRETE PRIMER

- › Install Phoscrete F1 according to [Phoscrete Formula 1 \[MALP Series\] Full Installation Guide](#).
- › Phoscrete bonds quickly to cured Phoscrete Primer with no cold joints.

CLEANING

- › When the job is completed, clean the tools with water. Clean hands with soap and water.



LIMITATIONS

- › Do not use Phoscrete Primer with any other product than Phoscrete Formula 1 materials.
- › Do not extend Phoscrete Primer with aggregate. Do not add sand and/or any type of cement.
- › Do not mix partial units.
- › Minimum recommended thickness for Primer: ¼ inch (½ cm). Primer can be feather finished.
- › Minimum ambient temperature: 40°F (5°C), unless material is preconditioned.
- › Proper application is the responsibility of the user. Field visits by Phoscrete personnel are for the purpose of making technical recommendations, not for supervising or providing quality control on the jobsite.

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HEALTH, SAFETY, AND ENVIRONMENTAL

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