



PHOSCRETE MIXING INSTRUCTIONS FOR MATERIALS LABS

The Phoscrete product that you are about to mix is not a traditional cement-based product and cannot be mixed exactly per ASTM protocols.

Phoscrete is a **MALP Concrete**. The dry mix in the Phoscrete bag is a magnesium and an aggregate blend containing FRP composite macrofibers. The liquid in the jug is an Aluminum Phosphate solution. Phoscrete is a neat mix, do not extend.

The manufacturer specifies the liquid be placed in the mixer first and the bag be introduced as mixing begins. The product only requires the wetting of the powder/aggregates which takes a very short time of mixing: one minute or less.

If you are mixing full kits, use a powerful drill and Phoscrete's urethane mixing paddle for best results. If you are mixing partial units with lab equipment, be sure to mix at the appropriate wet-to-dry ratio (18.75% for HC and 16.75% for VO) per Phoscrete technical data sheets.

- Sample immediately once product is wetted out.
- **Best to use plastic molds** (silicone, Plexiglas, etc.) because Phoscrete bonds and reacts to metals. If you are using metal molds, do not use galvanized because Phoscrete reacts to zinc. Metal molds must be coated an appropriate release agent. Metal molds will retain the heat and can lead to inaccurate tests results. Improper coating may cause damage to your molds. Phoscrete recommends [Super Lube¹](#), a food grade multipurpose synthetic grease. Contact Phoscrete if you have a different release agent you wish to use.
- The largest aggregate in Phoscrete HC is 6 mm, however the FRP macrofibers are 20-30mm. Therefore, using a 50mm (2") cube for compressive strength testing may result in anomaly readings if the fibers migrate to the edges of the cube. The recommended compressive strength test for Phoscrete HC is ASTM C-39. If 2" cubes are required for testing per ASTM C-109, it is recommended that a larger form is cast and then sample is saw-cut to the desired cube size. Otherwise prepare additional cubes and discard low (anomaly) readings. For 2" cubes, Phoscrete recommends [this cube-making system²](#) with steel molds and plastic inserts. Phoscrete can loan this system to your lab upon request.

¹ <https://www.super-lube.com/multi-purpose-synthetic-grease-with-synolon-ptfe>

² <https://www.certifiedmtp.com/2-cube-maker-mold-frame/>



- When testing ASTM C-157 (dry and moist shrinkage) 1" x 1" beams will not report accurate shrinkage data for the same reason of fiber length. Use 3"x 3" beams for results is more representative of field installations. We recommend [this 3x3x10 prism mold](#)³. Phoscrete can loan this mold to your lab upon request.
- Phoscrete is *thixotropic*, so use vibration (vibrating table or pencil vibrator) to increase flow and reduce air bubbles when casting forms and bonding to substrates.
- Phoscrete working time and *set times can be controlled* in any ambient field temperature without change to the hardened material properties. Supercool Phoscrete Activator as cold as -5°F to extend set time in warm temperatures. Add Phoscrete Fast-Set Admix to accelerate set time in cold temperatures. Refer to [Phoscrete's All Temperature Guidelines](#)⁴ to find the recommended activator cooling temperature to achieve your desired set time in any temperature.
- Unless specified by the material testing office, produce substrates for bond tests such as ASTM C-882 and ASTM C-1583 with dry Ottawa sand mortars. Prepare the substrate to CSP-7 per ICRI specifications and vibrate Phoscrete into place.
- For maximum bond strength, apply Phoscrete Primer prior to placing fresh Phoscrete. For ASTM C-882 Slant/Shear, remove substrate from cylinder mold before applying Primer. After the thin layer is applied, wipe excess Primer from the outside of the substrate and return to cylinder mold.

Pre-treat the concrete substrate by (1) aggressively scrubbing freshly mixed Phoscrete Primer on the prepared substrate surface with a gloved hand or a hard-bristle brush. Then blow off any loose material. (2) apply a thin ¼" (5mm) layer of Phoscrete over the scrub coat. (3) wait 15 minutes for the scrub coat to set up, then mix, place, and finish the rest of Phoscrete repair material.

- Never apply Phoscrete to an SSD surface. Do not wet cure Phoscrete before 3 days.

Phoscrete recommends the lab manager call and speak with Phoscrete's General Manager or Phoscrete's Installation Support Manager prior to mixing to answer any questions and review the mixing/handling procedures the lab is planning to use:

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³ <https://www.certifiedmtp.com/prism-mold-3x3x10-1-gang/>

⁴ <https://www.phoscrete.com/phoscrete-all-temperature-concrete-repair-guidelines/>