



Procedural Bulletin / Concrete Pumping

No. 33-4

Gill 33® - Superbond

Purpose: This procedural bulletin No. 33-4 details the correct procedure in pumping concrete modified with Gill 33® or Gill 33 MCI®. All references to Gill 33® also include the MCI® variant.

Planning: Concrete containing Gill 33® has a 52% quicker set time (ASTM C-403) and requires appropriate planning to ensure a trouble free placement and finishing. The decreased set time allows Gill Modified Concrete to be top coated with a protective coating in 24 to 48 hours depending upon dosage, temperature, and mix design. Gill Modified Concrete is significantly less expensive per cubic foot than epoxy and bagged cementitious grouts, plus may be placed in large quantities subject to this Procedural Bulletin.

Labor: Labor requirements may need to be increased if bonding to an existing concrete slab in order to compensate for the extra step in applying the bond coat as detailed in Procedural Bulletin No. 33-1. In full depth and thin overlay placements, additional labor may be required to compensate for decreased set time and greater surface area occurring in less than full depth placements respectively.

Equipment Considerations: Due to decreased set time, ready mix trucks should be limited to 5 yards maximum and should be discharged from truck between 30-60 minutes depending upon temperature. Projects requiring more than one truck should plan for additional trucks to arrive no later than 10 minutes from complete discharge of the previous truck. This should include time required to dose trucks. Additional transport equipment such as wheelbarrows and power buggies may be needed to place concrete in allotted time.

Mix Design: Unless specifications require otherwise, order 4000 PSI concrete with a 1-2 inch slump, 5 yards maximum per truck and in most cases when pumping grout, 2 yards may be the maximum. Fly ash should be added up to 15% of the cement weight to assist in the lubrication of the pump. **Do not use in place of cement!** Air-entraining admixtures are encouraged when concrete is placed in freeze thaw environments. No water reducers are needed.

Dosage Rate: For non-shrink concrete repairs and overlays, the dosage rate is 3 gallons per yard. For non-shrink grout, the dosage rate is 6 gallons per yard. For concrete to be top coated in 24 hours (at 70° F), dosage is 4 gallons per yard. In warmer temperatures, the dosage is 3 gallons per yard of concrete. The actual time for applying a coating is dependent upon moisture sensitivity of the coating, temperature at time of placement of the concrete, permeability of the concrete, and moisture content of the sub-grade. Follow ASTM D-4263 (Plastic Sheet Test) and consult the coating manufacturer before applying coating.

Procedure: Prior to the arrival of the ready mix truck, have the correct amount of Gill 33® for each truck (i.e., 4 gallons per yard x 5 yards = 20 gallons). **Each Gill container should be thoroughly shaken to ensure the micro-silica is fully dispersed in solution and does not adhere to the bottom of the container.** With the drum turning, slowly add Gill 33® to the truck at the job site. Then turn the drum 75 high speed revolutions, test the slump and adjust if needed. **In hot weather the concrete should be out of the ready mix truck in 30 minutes.** After the truck is empty, add approximately 20-30 gallons of water, continue to turn the drum, and proceed to clean out area.

Curing: After placement, immediately cover using plastic, burlap, or some other membrane sealing system such as Gill 86 Gill Cure. See Technical Bulletin No. 86 for additional information. This must remain for 4 hours. Do not use spray membrane coatings unless specified by the manufacturer. Failure to cure properly may result in plastic shrinkage cracks, slab curl and/or improper bond.

Equipment Clean Up: Gill 33® will not damage ready mix drum, pumping equipment, or hand tools. To neutralize Gill 33® add approximately 20-30 gallons of water to ready mix drum and pump. For hand tools, wheelbarrows, and pumps, clean with water.

Please contact a Gill representative for your specific applications.

MCI® is a registered trademark of the Cortec Corporation, St. Paul, MN.
Gill 33® is a registered trademark of Gill Industries, Inc., Lancaster, SC.

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