



VOIDSPAN

500 Series

PHLc Gravity Feed Grout

PRODUCT DATA SHEET

Description/ Uses

VoidSpan PHLc Gravity Feed Grout is a breathable, ultra- low shrinkage, flowable, self consolidating grout for use in filling cracks and voids in older masonry structures. Based on a pozzolanic hydraulic lime as per ASTM C1707, it is a low-to-moderate strength adhesive, filler and mortar replacement material. Uses Include:

- Gravity feeding of cracks and voids in mass masonry construction of 100 mm (4") or greater in width.
- Gravity feeding and low pressure pump filling of cracks as narrow as 6 mm (1/4") in width.
- Creating a pozzolan lime "concrete" for large fills by blending with **VoidSpan "Extend"** coarse aggregate at a ratio of 1 part grout to 1.5 parts aggregate by volume.

Grout Placement

Preparation: Flush out all loose and deleterious materials from cracks and cavities that are to receive grout. Immediately prior to grouting, dampen contact surfaces but avoid leaving standing water.

Mixing: Combine each 23 kg (50-pound) pail with (one gallon) of potable water (this is equivalent to 5.5 parts PHLc to 1 part water by volume). Initially hand mix and then use a helical mixing paddle at 1,000 minimum rpm for several minutes until fully blended and becomes flowable. Coarse aggregate should be added after paddle mixing.

Working Time: Up to 60-minutes with proper agitation. Do not re-temper after 60 minutes.

Placement: Grout shall be placed by gravity feeding or slow action/ slow velocity pumping.

Lift Height: Each lift of **VoidSpan PHLc Graviy Feed Grout** will stiffen sufficiently to support the fluid weight of two successive 1 m (or 36-inch) lifts above it after properly curing for 40 hours.

Clean up: **VoidSpan PHLc Gravity Feed Grout** is primarily a lime-based product and should be cleaned up in the similar manner to a lime and cement mortar.

Bag or Pail Contents / Storage

Each 23 kg (50-lb) bag pail of **PHLc** powder yields 14 liters (0.5 cubic feet) of grout when mixed with 3.8 liters (1 US gallon) of water. Bags must be protected from puncture and stored in a dry place. Use product within 120-days of purchase.

VoidSpan PHLc is also available in 1,350 kg (3,000) totes.

Chemical and Physical Grout Properties

Cement content by weight of binder:	< 15% meeting ASTM C1707 as a "PHLc"
Chloride content by total cured weight:	0.002%
Flowability:	135% per ASTM C230
Dimension change after hardening:	0.06% per ASTM C1090
Standard curing time (CT):	120 days per ASTM C1713
Water vapor transmission:	1.9 g water/ sq meter/ hour per ASTM E96 (modified)
Mean compressive strength:	> 0.55 MPa (80 psi) at 2 days (limited by strain, not fracture) 9.74 MPa (1414 psi) at 28 days, SD= 15% (fracture) 11.95 MPa (1734 psi) at 90 days, SD= 13% (fracture) 12.94 MPa (1877 psi) at 120 days, SD= 10% (fracture)
Mean tensile bond strength:	0.33 MPa (48 psi) at 28 days per ASTM C952 (brick)
Mean lap shear strength:	1.07 MPa (156 psi) at 28 days (Indiana limestone)

Cautions/ Limitations

- Do not inject into unclean, friable or excessively dry and/or absorbent cavities, or into cavities with standing water. Apply when masonry temperatures are between 5 degrees C (40 degrees F) and 32 degrees C (90 degrees F) prior to and for at least 7 days after placement. Do not allow the grout to freeze for at least 14 days after placement.
- Provide and maintain proper and adequate restraint of masonry to safely resist the fluid pressures of grout within the cavities. Provide for fluid pressures of grout to be calculated by the fluid weight of the grout times the height of placement, in addition to injection pressures from pumping if done.
- Because of the high flowability of the grout, unintended leakage may occur and should be avoided.
- Grout lifts should be limited to not more than 1 m (or 36-inches) in height, with proper pressure restraint, and sequenced at intervals of not less than 20-hours. Pressure restraint must be sufficient to resist the fluid pressure of two lifts, the lower, which is stiffening (at > 20-hour maturity), and the upper which is fluid (freshly placed).
- **This product is highly alkaline and may contain small amounts of crystalline silica. Exercise care in using this product, along appropriate eye, skin and breathing protection. Consult Material Safety Data Sheet for additional information.**

Installer Responsibility and Certification

It shall be the Installer's sole responsibility to use good judgment and experience in installing this material and to conform to all Cautions and Limitations, and all requirements that are noted or referenced herein.