

CP-14G Modified Calcium Aluminate Gunitite

PRODUCT DESCRIPTION

Blome CP-14G is a single component, modified calcium aluminate cement that is designed for installation by the gunitite method. CP-14G is installed as an acid resistant, monolithic lining for chimneys, stacks and molten sulfur pits. CP-14G is also used as a gunitite, monolithic lining in various tank, vessel and hot gas ductwork applications. CP-14G is well suited for high temperature, refractory applications that also require resistance to acidic condensate and vapors. CP-14G resists corrosive vapors and condensate over a pH range of 4.0 – 12.0, as well as many solvents and withstands temperatures up to 2,000°F.

TYPICAL USES

Blome CP-14G Gunitite is suitable for use in a variety of industrial process applications including:

- Chimneys, Stacks and Ductwork
- Incinerator quench chambers
- Molten sulfur pit linings
- Sulfur recovery units

HANDLING CHARACTERISTICS

Blome CP-14G is installed using the “dry gunitite” method. CP-14G Powder is pneumatically conveyed through the dry powder hose, while water is pumped through the water line and the material is mixed at the gunitite nozzle as it is applied to substrate. CP-14G is specially formulated to have excellent gunning properties and minimal rebound. Rebound loss on vertical surfaces typically less than 15%. Blome CP-14G cures rapidly, offering quick turnaround with minimal downtime for maintenance and new construction applications.

Vertical installations should be anchored to substrate with studs or mesh to mechanically secure CP-14G Gunitite to substrates. Blome CP-14G is typically installed at a two inch (2”) minimum thickness.

TYPICAL PROPERTIES

WET

Components:	One (1) – Dry Powder
Wet density:	130 lbs./ft ³
Mixed consistency:	appropriate for gunitite
Initial set:	50°F 12 - 18 hours 77°F 8 - 10 hours
Final cure	50°F 7 days minimum 77°F 5 days minimum

Please refer to Curing/Dry Out Schedule below

CURED

Absorption	7.8%
Coefficient of Thermal Expansion	6.5 x 10 ⁻⁶ in/in/°F
Color	dark gray
Compressive Strength (ASTM C-579)	6,500 psi
Flexural Strength (ASTM C-580)	750 psi
Temperature limit	2,000°F
Thermal Conductivity (C-1117)	5.0–5.5 BTU in/ft ² /hr/°F

PACKAGING & STORAGE

Blome CP-14G is supplied as a single component product, with a dry powder that is mixed with water while gunning. CP-14G Powder is packaged as follows:

CP-14G Powder	50 lb. bags
Blome Curing Compound	5 gallon pails and 55 gallon drums

Shelf life for CP-14G Powder is one (1) year. Keep CP-14G Powder tightly sealed in original containers until ready for use. Store material in a cool, dry place, out of direct sunlight, and on pallets at temperatures between 50F – 80F. Protect Blome CP-14G Powder from water and weather while in storage and on jobsite.

ESTIMATED COVERAGE

Blome Gunitite Materials are estimated and sold by the cubic foot. One cubic foot covers the following areas at stated thicknesses:

½" thickness	24 ft ² /cubic foot
1" thickness	12 ft ² /cubic foot
2" thickness	6 ft ² /cubic foot

BID SPECIFICATION GUIDE

Use Blome CP-14G Modified Calcium Aluminate Gunitite as manufactured by Blome International, O'Fallon, MO.

JOB SITE ENVIRONMENTAL CONDITIONS

Blome CP-14G must be applied while ambient temperatures are between 50°F and 90°F. Blome CP-14G Powder and substrate temperatures must also be maintained in this range. For best results, store CP-14G Powder at 75°F minimum, for 24 – 36 hours prior to installation. Installations of CP-14G should be protected from water and weather during installation and for a minimum of 48 hours after placement to allow proper curing.

SURFACE PREPARATION

Gunitied vertical installations should be anchored to the substrate with studs or mesh to mechanically secure CP-14G Gunitite. Some interface areas with concrete and steel substrates are best treated using an appropriate primer or membrane system prior to installation of CP-14G. Blome CP-14G is typically installed by guniting at a two inch (2") minimum thickness.

If CP-14G is being gunitied over a membrane system, install appropriate membrane system to prepared substrate and to anchoring system, as specified. All liquid or sheet applied membrane surfaces should be fully cured, clean and dry prior to installation of Blome CP-14G. These surfaces should be swept clean and be free of dirt, dust, water or other jobsite contaminants immediately prior to gunitite placement of Blome CP-14G.

SAFETY PRECAUTIONS

Blome CP-14G Powder, and mixes of it with water, present various health hazards if handled improperly. CP-14G Powder contains silica dust, mixed CP-14G is an alkaline solution that causes severe eye injury and irritates skin. Wear respirator suitable for silica dust, safety glasses with side shields, gloves and long sleeve shirts to prevent all contact with skin and eyes. After working with Blome CP-14G, wash thoroughly before eating, drinking, smoking or other activities.

APPLICATION EQUIPMENT

Blome CP-14G is applied using a gunite machine that is designed for the dry gunite method. This machine should be equipped to predampen powder, prior to conveying it through the powder hose. Typically, a minimum 650 cfm air compressor is used to feed dry or predampened gunite powder to the nozzle. Water is pumped through the water line using an air operated booster pump, such as diaphragm pump or other pressurized liquid pumping system. The Powder and water are mixed at the gunite nozzle just prior to application onto substrate. For maximum mixing efficiency, a "Spirolet" nozzle should be used. This will better accommodate mixing at the nozzle. All mixing, predampening, application equipment and hoses must be clean, dry and free of contaminants including Portland cement, refractories or other shotcrete materials.

MIXING AND APPLICATION

Blome CP-14G is mixed at the gunite nozzle during application. The mix ratio is adjusted by varying powder and water flow rates from the air compressor and by a water valve at the nozzle. CP-14G should only be applied by an experienced nozzleman and gunite crew, who are familiar with applying specialty, gunite linings. If the material is shot too wet, gunite will sag and run on walls. If the material is shot too dry, excessive rebound will occur and overall physical properties will be adversely affected. Carefully adjust gunite consistency during application to achieve maximum performance.

While applying CP-14G gunite nozzle should be held 18"-24" from substrate and should remain perpendicular to substrate. Apply gunite over reinforcement, moving nozzle in a circular motion, building thickness of the lining slowly to the specified thickness. Minimum thickness two inches (2").

CURING AND DRY-OUT SCHEDULE

Blome CP-14G cures by hydraulic set. It is therefore important to prevent premature dryout of the gunite lining. Blome Curing Compound is typically applied at a rate of 200 ft² per gallon over freshly placed gunite, while still wet. This curing compound retains the required moisture in the gunite for the initial 24 hour curing period for proper hydraulic cure. Curing compound is then burned off during dryout procedure and in elevated temperature service conditions.

Proper curing and dry out of CP-14G is critical. After an initial, 24 hour cure period at a minimum temperature of 70°F, installations that will operate above 200°F should be raised to a temperature of 212°F and held at 212°F for a period of six (6) hours per inch of lining thickness. This holding period will force-dry the gunite installation and remove any remaining excess water in the gunited lining. The temperature should then be elevated at a rate of 50-100°F per hour up to proposed operating temperature and held for a six (6) hour period.

CLEANUP

All tools, mixing equipment, gloves and application equipment should be cleaned up immediately using hot, soapy water. Any material that is allowed to cure prior to clean up should be chiseled or chipped off, then dirty items should be soaked in hot, soapy water overnight and then cleaned and dried.

WARRANTY

We warrant that our goods will conform to the description contained in the order and that we have good title to all goods sold. Our material data sheets and other literature are to be considered accurate and reliable, but are used as guides only. WE GIVE NO WARRANTY OR GUARANTEE, WHETHER OF MERCHANT ABILITY OR FITNESS OF PURPOSE OR OTHERWISE, AND WE ASSUME NO LIABILITY IN CONNECTION THEREWITH. We are happy to give suggestions for applications; however, the user assumes all risks and liabilities in connection therewith regardless of any suggestion, we may give. We assume no liability for consequential or incidental damages. Our liability, in law and equity, shall be expressly limited to the replacement of non-conforming goods at our factory, or at our sole option, to repayment of the purchase price of the non-conforming goods.

Printed: August 8, 2020