

## **CP-24CC** **Potassium Silicate Concrete**

### **PRODUCT DESCRIPTION**

Blome CP-24CC is a two component, potassium silicate concrete used for acid resistant pump pads, equipment pads, curbing, floors and sumps. CP-24CC is also used as a monolithic lining in various tank, vessel and hot gas ductwork applications. CP-24CC is well suited for applications requiring resistance to strong mineral acids, solvents and other corrosive chemicals. CP-24CC resists 98% sulfuric acid; 70% and red fuming nitric acid; 37% hydrochloric; oleum; and many aggressive solvents. CP-24CC is resistant to all concentrations of all acids (except HF) and withstands temperatures to 1,800°F.

Blome CP-24CC is available with polypropylene fibers for enhanced physical properties and resistance to hairline cracking.

In addition to field installations, Blome CP-24CC is supplied in Precast Shapes. These include precast acid nozzles, hot acid splash pads, pump pads and other fabrications that are made to fit the exact dimensions of each specific project. Precast shapes are fabricated off site and delivered to jobsite, ready to drop into place. Construction joints in precast pieces are quickly and easily seamed on site. These quick turnaround precast systems minimize downtime.

### **TYPICAL USES**

Blome CP-24CC Potassium Silicate Concrete is suitable for use in a variety of industrial process applications including:

- Sulfuric acid pump tanks and towers
- Incinerator quench chambers
- Hot gas ductwork linings
- Pump pads and tank piers
- Chemical process flooring

### **HANDLING CHARACTERISTICS**

Blome CP-24CC is placed by casting into forms, or by screeding into place as an overlay on floor slabs and concrete pads. CP-24CC flows well into forms and is easily screeded into place for overlay applications and finished immediately with steel finishing trowel. Blome CP-24CC cures rapidly, offering quick turnaround with minimal downtime for maintenance and new construction applications.

While Blome CP-24CC provides excellent resistance to many strong acids and withstands high temperatures, the material provides only a minimal bond to concrete and steel substrates. Therefore, interface areas with concrete and steel substrates are best treated using an appropriate primer or membrane system prior to installation of CP-24CC. Cast in place, vertical installations should be anchored to substrate with studs or mesh to mechanically secure CP-24CC silicate concrete to vertical substrates. Blome CP-24CC is typically installed by casting to a two-inch (2") minimum thickness.

## TYPICAL PROPERTIES

### WET

Components:	Two (2) – Aggregate and Liquid
Wet density:	138 lbs./ft <sup>3</sup>
Mixed consistency:	Castable concrete
Pot life:	50°F 60 minutes 77°F 30 minutes
Initial set:	50°F 12 - 18 hours 77°F 8 - 10 hours
Final cure	50°F 7 days minimum 77°F 5 days minimum

### CURED

Absorption (ASTM C-413)	5.3%
Coefficient of thermal expansion (ASTM C-531)	7.1 x 10 <sup>-6</sup> in/in/°F
Color	Beige to dark grey
Compressive Strength @ 77°F (ASTM C-579) – 24 hours	1700 psi, minimum
- 7 days	3750 psi
- 28 days	4200 psi
Flexural Strength (ASTM C-580)	1050 psi
Tensile Strength (ASTM C-307)	750 psi
Adhesion to self, psi	150/200 (unprimed/primed)*
Adhesion to concrete (sand blasted), psi	120/220 (unprimed/primed)*
Adhesion to steel (3-4 mil profile), psi	400
Temperature Limit	1800°F
Thermal Conductivity	5.5 – 6.5 BTU in/ft <sup>2</sup> /hr/°F
Mix ratio (Aggregate:Solution)	4.3-5.0:1 (sold at 5:1)

-----  
\*Primed with CP-24CC solution, still damp when topped with CP-24CC

### PACKAGING & STORAGE

Blome CP-24CC is supplied as a two (2)-component product, with an Aggregate and Liquid. CP-24CC Components are packaged as follows:

Unit Size	<u>2.2 ft<sup>3</sup></u>
Aggregate (Part A)	250 lbs. (5 x 50 lb. bags)*
Liquid (Part B)	50 lbs. (1 x 50 lb. pail)

*\*Subtract up to ½ - ¾ bag for flowable pours into forms*

Unit Size	<u>26 ft<sup>3</sup></u>
Aggregate (Part A)	3000 lbs. (60 x 50 lb. bags)*
Liquid (Part B)	600 lbs. (1 x 600 lb. drum)

*\*Subtract up to 8 x 50 LB bags for flowable pours into forms*

Unit Size	<u>26 ft<sup>3</sup></u>
Aggregate (Part A)	3000 lbs. (2 x 1500 lb. super sacks)
Liquid (Part B)	600 lbs. (1 x 600 lb. drum)*

*\*Increase up to 4-5 gallons (approximately 50-60 LB) CP-24CC Solution per 1500 LB supersack for flowable pours into forms*

Shelf life for CP-24CC components is one (1) year. Keep CP-24CC components tightly sealed in original containers until ready for use. Store components in a cool, dry place, out of direct sunlight, and on pallets at temperatures between 50°F – 80°F.

Protect Blome CP-24CC Aggregate from water and weather while in storage and on jobsite. Protect Blome CP-24CC Liquid from freezing. If Liquid does freeze, thaw frozen material back to a liquid solution and then thoroughly remix prior to use, as settling will occur during the thawing procedure. It is important to completely remix thawed liquid to achieve a uniform solution for use. **Make a small mix with the thawed, mixed solution and aggregate to ensure that the material will achieve an initial set no more than 8-10 hours at 77°F. If it does not, then the solution must not be used.**

## ESTIMATED COVERAGE

CP-24CC yield is as follows.

One 2.2 cubic foot unit (300 LBS) will cover 13 ft<sup>2</sup> at 2" and 8.8 ft<sup>2</sup> at 3".

One 26 cubic foot unit (3600 LBS) will cover 156 ft<sup>2</sup> at 2" and 104 ft<sup>2</sup> at 3".

## BID SPECIFICATION GUIDE

Use Blome CP-24CC Potassium Silicate Concrete as manufactured by Blome International, O'Fallon, MO.

## JOB SITE ENVIRONMENTAL CONDITIONS

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

## SURFACE PREPARATION

While Blome CP-24CC provides excellent physical properties and chemical resistance, the material provides only a minimal bond to concrete and steel substrates. Therefore, interface areas with concrete and steel substrates are best treated using an appropriate primer or membrane system prior to installation of CP-24CC. Cast in place, vertical installations should be anchored to the substrate with studs or mesh to mechanically secure CP-24CC silicate concrete. Blome CP-24CC is typically installed by casting at a two inch (2") minimum thickness.

If a bond is required at interface areas with steel, these steel substrates should be primed using Blome 75 Epoxy Primer prior to installation of CP-24CC polymer concrete. Apply Blome 75 to prepared steel substrates using brush or roller. Allow primer to cure until tacky prior to installing CP-24CC polymer concrete.

If CP-24CC is being cast in place over a membrane system, install appropriate membrane system to prepared substrate. All liquid or sheet applied membrane surfaces should be fully cured, clean and dry prior to installation of Blome CP-24CC. These surfaces should be swept clean and be free of dirt, dust, water or other jobsite contaminants immediately prior to placing CP-24CC.

## **SAFETY PRECAUTIONS**

Blome CP-24CC Aggregate, Liquid, and mixes of them present various health hazards if handled improperly. CP-24CC Aggregate contains silica dust, CP-24CC Liquid and mixed silicate concrete are alkaline solutions that cause severe eye and skin irritation. 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-24CC, wash thoroughly before eating, drinking, smoking or other activities.

## **APPLICATION EQUIPMENT**

Blome CP-24CC is best mixed with a paddle type mortar mixer or in a pail using a drill motor driven paddle blade. All mixing and application equipment must be clean, dry and free of any contaminants including Portland cement, other mortars or resins. When mixed, CP-24CC is transferred to placement area using a clean, dry wheelbarrow or buckets. Forms are filled using clean, dry shovels or buckets. CP-24CC is screeded into place using a clean, dry screed board to reach desired thickness. When placed, CP-24CC is finished using a clean, dry, steel finishing trowel to desired surface texture.

## **MIXING AND APPLICATION**

Pour one (1) – 50 lb. pail of Blome CP-24CC Liquid (Part B) into the clean, dry, paddle type mortar mixer and turn the mixer on. Add five (5) – 50 lb. bags of Aggregate (Part A) to the mixer and mix to a uniform castable consistency. Mix for 1-2 minutes minimum, making sure there are no lumps or dry pockets of powder on the paddles or in corners of mixer. The amount of aggregate should not be varied as the catalyst system is in the aggregate.

Large units (26 cubic feet) may be mixed whole or in part depending on the capacity of the concrete mixer. Do NOT mix more material than can be thoroughly blended and poured into place within 30 minutes at 77 °F.

When casting into forms it is important that all forms be sealed “water tight” to prevent weeping of liquid from forms. Forms must be treated with a wax or petrolatum based form release agent, or wrapped with Mylar, polyethylene or other plastic sheet to prevent CP-24CC from permanently bonding to forms. Vibration is recommended to remove entrained air from polymer concrete castings. Maximum pour depth for typical concrete pad construction is twenty-four inches (24”). Cast in place, vertical installations should be anchored to substrate with studs or mesh to mechanically secure CP-24CC silicate concrete.

For floor overlay applications, CP-24CC should be installed over an appropriate primer or membrane system. Consult Blome for primer or membrane system recommendations. When mixed, the material is poured onto tacky primer or membrane system and screeded into place at desired thickness. All finishing must be done immediately after placement. Within 5-10 minutes, a skin will form on surface of CP-24CC and subsequent trowelling will tear skin and result in poor surface texture. Smooth the cast material using steel, finishing trowel to work the aggregate into place, and bring sufficient liquid to the surface for required finish texture. If a non-skid texture is desired, broadcast clean, dry silica sand onto wet surface of silicate concrete immediately after placement. Minimum thickness for installations on concrete floor slabs is two inches (2”).

## **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.

REVISED: May 9, 2025  
Supersedes: January 17, 2024