Blome CS-600
High Modulus Structural Epoxy Adhesive/Saturating Resin

DESCRIPTION AND USES

CS-600 is a two-component, solvent-free, moisture-tolerant, high strength, high modulus structural epoxy adhesive. CS-600 is designed for use as an impregnating resin with carbon fiber and structural glass fabrics of Blome Composite Strengthening Systems. Blome CS-600 is ideally suited for strengthening applications on both concrete and steel substrates. CS-600 is used as a sealer and saturating resin for both the wet lay-up and dry lay-up methods. Use CS-650 for vertical or overhead dry lay-up installations as the tack coat and follow with CS-600 for subsequent saturating coats.

ADVANTAGES

Long pot life and open time
Easy to mix
Tolerant of moisture before, during and after cure
High strength, high modulus adhesive, high abrasion, shock resistance
Excellent adhesion to concrete, masonry, metals, wood
Fully compatible and developed specifically for the Blome "CS" Systems
Solvent-free, VOC compliant

PACKAGING/COVERAGE

7.5 gallon units (smaller units available by special order)

As a sealer /topcoat - 100 s.f. per gallon

As a saturating resin - 50-60 s.f. per gallon

For practical coverage, make allowances for substrate condition, waste, temperatures, jobsite conditions.

TYPICAL DATA ***(Material and curing conditions @ 73°F (23°C) and 50% R.H.)***

Shelf Life	2 years in original, unopened container.
Storage Conditions	Store dry at 40°-95°F (4°-35°C).
Condition material to 65°-75°F (18°-24°C) before using.	
Color	Clear/Amber.
Consistency	Liquid Saturating Resin (approximately 500 cps).
Pot Life	2 - 4 hours depending upon mass and temperature
Tack Free Time	14-16 hours
Service Temperature range	-40°F – 140°F

MECHANICAL PROPERTIES

Tensile Strength (ASTM D-638)	**7 day**	8,000 psi (55 MPa)
Tensile Modulus (ASTM D-638)	**7 day**	2.5 x 10^5 psi (1,724 MPa)
Elongation @ Break (ASTM D-638)	**7 day**	3%
Flexural Strength (ASTM D-790)	**7 day**	11,500 psi (79 MPa)
Flexural Modulus (ASTM D-790)	**7 day**	5 x 10^5 psi (3,450 MPa)

APPLICATION GUIDELINES

TEMPERATURE CONSIDERATIONS

The temperature of the substrate and the ambient air temperature should be at least 40°F while applying CS-600 and while it cures. If you wish to attempt to apply CS-600 in cooler temperatures, tarp and heat the area to be coated to create and maintain the minimum 40°F conditions. Stop application if the temperature falls within 5°F of the dew point.

SURFACE PREPARATION - GENERAL

Surface must be clean and sound. It may be dry or slightly damp, but free of standing water and frost. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles, disintegrated materials and other bond inhibiting materials from the surface. Consult Blome for additional information on surface preparation.
Existing uneven surfaces must be filled with an appropriate repair mortar. The adhesive strength of the concrete must be verified after surface preparation by random pull-off testing (ACI 503R) at the discretion of the engineer. Minimum tensile strength must be 200 psi (1.4 MPa) with concrete substrate failure.
Preparation Work: Concrete - Blast clean, shotblast or use other approved mechanical means to provide an open roughened texture. In certain applications and at the engineer's discretion, the intimate contact between the substrate and the fabric may be determined to be non-critical. In these cases, a thorough cleaning of the substrate using low pressure sand or water blasting is sufficient.

Preparation Work: Steel (Tank Interiors) - Abrasive blast steel surfaces to white metal finish with a 2 to 3 mil anchor profile. (Ref. SSPC-SP-5) All welds should be continuous and should be ground to remove sharp edges, laps, under cuts and other surface irregularities. Relatively smooth, ripple finished welds are acceptable. Blome CP-83MP Epoxy can be used to smooth out any irregular welds just prior to applying CFRP System.

Preparation Work: Steel (Exterior Wrapping) - Abrasive blast steel surfaces to a near white metal finish with I to 2 mil anchor profile. (Ref. SSPC-SP-10) All welds should be continuous and should be ground to remove sharp edges, laps, under cuts and other surface irregularities. Relatively smooth, ripple finished welds are acceptable. Blome CP-83MP Epoxy can be used to smooth out any irregular welds just prior to applying CFRP System.

MASKING

Mask surfaces that are not to be coated. CS-600 is difficult to remove, once cured.

CLEANUP

Before material gels, tools and equipment should be cleaned using hot, soapy water or a biodegradable citrus based cleaner. After CS-600 begins to cure, xylene or MEK will be required.

APPLICATION

Blome CS-600 (and CS-650) Epoxies can be used for installing various fabrics for either the dry or wet lay-up methods.
Dry Lay-Up: Apply mixed Blome CS-650 epoxy resin directly onto the substrate at a rate of 40-50 $ft.^2$/gal. (32-40 mils), depending on the surface profile. Carefully place the fabric into the resin with gloved hands and smooth out any irregularities or air pockets using a plastic laminating roller. Allow the resin to squeeze out between the rovings of the fabric. If more than one layer of fabric is required apply additional Blome CS-600 at a rate of 100$ft.^2$/gal. (16 mils) and repeat as above. Apply a final coat of Blome CS-600 to the exposed surface at a rate of 160$ft.^2$/gal. (10 mils).

Wet Lay-Up: Seal the entire prepared concrete surface with Blome CS-600 epoxy resin. Material may be applied by spray, brush or roller. Specified fabric is then impregnated using Blome CS-600 epoxy. For best results, the impregnation process should be accomplished using an automated saturation device. Once saturated, apply fabric to the sealed concrete surface and smooth out any irregularities or air pockets using a plastic laminating roller. If required, apply additional layers of fabric while epoxy on previous layer is still tacky. For overhead or vertical applications, prime concrete with Blome CS-650 to improve tack. Saturate fabric with Blome CS-600. Apply a final coat of Blome CS-600 to the exposed surface at a rate of 160ft.^{2}/gal. (10 mils). Installation of Blome CFRP Systems should be performed only by specially trained and approved contractors.

CUTTING FABRIC

Fabric can be cut to appropriate length by using a commercial quality heavy duty scissor. Since dull or worn cutting implements can damage, weaken or fray the fiber, their use should be avoided. Consult MSDS for proper handling procedures.

LIMITATIONS

Design calculations must be made and certified by an independent licensed professional engineer. System is a vapor barrier. Saturated concrete should not be encapsulated in areas of freeze/thaw. Minimum age of concrete is 21-28 days, depending on curing and drying conditions. All repairs required to achieve a level surface must be performed prior to application. Minimum substrate temperature 40°F (4°C). Maximum application temperature 95°C (35°C). Do not thin with solvents. Material is a vapor barrier after cure. Do not encapsulate saturated concrete in areas of freezing and thawing. Color of Blome CS-600 may alter due to variations in lighting and/or UV exposure. Fabric must be saturated/impregnated manually when the wet lay-up process is used. At low temperatures and/or high relative humidity, a slight oily residue (blush) may form on the surface of the cured epoxy. If an additional layer of fabric, or a coating is to be applied onto the cured epoxy, this residue must first be removed to ensure adequate bond. The residue can be removed with either a solvent wipe (e.g. MEK) or with water and detergent. In both cases, the surface should be wiped dry prior to application of the next layer or coating.

CAUTION

Component 'A' - IRRITANT, SENSITIZER: Contains Modified Epoxy Resin (CAS 25068-38-6) and Aromatic Hydrocarbon Blend (Mixture). Causes eye irritation. May cause skin/respiratory irritations. Prolonged and/or repeated contact with skin may result in allergic reaction/ sensitization. Harmful if swallowed. Deliberate concentration of vapors for purposes of inhalation is harmful and can be fatal.

Component 'B' - CORROSIVE, IRRITANT, SENSITIZER: Contains Amines. Contact with skin and eyes causes severe burns. Causes eye/ skin/respiratory irritations. Prolonged and/or repeated contact may cause allergic reaction/sensitization. Harmful if swallowed. Deliberate concentration of vapors for inhalation is harmful and can be fatal.

FIRST AID

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin:** Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation:** Remove person to fresh air. **Ingestion:** Do not induce vomiting. **In all cases, contact a physician immediately if symptoms persist.**

HANDLING

Avoid direct contact with eyes and skin. Wear chemical resistant gloves/goggles/clothing. Avoid breathing vapors. Use with adequate general and local ventilation. In absence of adequate ventilation, use properly fitted NIOSH approved respirator. Wash thoroughly after handling product. Remove contaminated clothing and launder before reuse. Blome CS Carbon or Structural Glass fabrics are non-reactive. However, caution must be used when handling since a fine “carbon or glass dust” may be present on the surface. Gloves must therefore be worn to protect against skin irritation. Caution must also be used when cutting Blome CS Carbon and Glass fabrics to protect against airborne carbon and glass dust generated by the cutting procedure. Use of an appropriate, properly fitted NIOSH approved respirator is recommended. Avoid contact with skin & eyes; do not ingest material or inhale vapors. When mixing or applying Blome CFRP Systems, always wear chemical goggles, appropriate rubber gloves, and other appropriate safety clothing. When spraying in confined areas, wear a fresh air hood and make provisions for forced air ventilation. When spraying in open areas, a NIOSH approved respirator suitable for organic vapors can replace fresh air hood. Prolonged or repeated exposure to Blome CFRP System components may cause skin irritation and/or allergic reactions. Refer to Blome material safety data sheets on individual components.

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 MERCHANTABILITY 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: July 15, 2012
Supersedes all previous literature