

# SRS-1000



## STRUCTURAL EPOXY ADHESIVE

A two-component, high modulus structural epoxy formula designed to provide maximum adhesion of SRS carbon fiber fabric to concrete substrates. SRS 1000 is specially formulated for long pot life, providing extended workability during CFRP application. The ultra-low viscosity formula is also ideal for gravity fed repair of fine to medium cracks in concrete.

### FEATURES & ADVANTAGES

- Ultra low viscosity formula optimized for carbon fiber saturation and bond strength to concrete substrates.
- Long pot life for extended workability and design strengths in CFRP applications.
- Pressure injection of fine to medium size cracks of approximately 1/8 in. to 1/4 in. (3.2 mm to 6.4 mm) width.
- Self-leveling, low viscosity and surface tension allows product to deeply penetrate into cracks.

### APPLICATIONS

- Saturation and adhesion of carbon fiber fabric to concrete substrates
- Repair of spalling concrete
- Bonding fresh concrete to hardened concrete or a bonding agent for repairing concrete spalls
- Gravity feed crack repair for horizontal applications
- Low pressure crack injection for vertical, horizontal and overhead structural repair

### APPROVALS AND CERTIFICATIONS

ASTM C881 / AASHTO M235  
Type I, II\*, IV & V\* Grade 1  
Class C. \* With exceptions.

## TECHNICAL DATA

### CURE SCHEDULE

Working Time:  
60 °F (15 °C) - 45 min;  
75 °F (24 °C) - 30 min;  
100 °F (38 °C) - 22 min.  
NOTE: Working and full cure times are approximate

### APPLICATION TEMPERATURE

60 °F and 95 °F (15 °C and 35 °C).

### STORAGE AND SHELF LIFE

24 months when stored in unopened containers in dry conditions.  
Store between 40 °F (4 °C) and 90 °F (35 °C).

### COLOR AND RATIO

Part A (Resin)  
Clear:  
Part B (Hardener)  
Amber, Mix  
Ratio - 2:1  
by volume,  
Mixed Color  
– Amber.

### LIMITATIONS

Do not thin with solvents, as this may prevent cure. Not intended to repair cracks subject to movement. Product not designed to stop seeping or flowing water. New concrete should be a minimum of 28 days old prior to application



## STRUCTURAL EPOXY ADHESIVE

### TECHNICAL DATA

**TABLE 1: SRS-1000 Structural Epoxy Adhesive performance to ASTM C881-151.2.3**

PROPERTY	CURE TIME	ASTM STANDARD	UNITS	SAMPLE CONDITIONING TEMPERATURE
				CLASS C 75 °F (24 °C)
Gel Time - 60 Gram Mass <sup>4</sup>	----	C881	min	53
Viscosity	----		cP	1,336
Pot Life <sup>5,6</sup>	----		min	45

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property. 2. Full cure time is listed above to obtain the given properties for each product characteristic. 3. Results may vary due to environmental factors such as temperature, moisture and type of substrate. 4. Gel time may be lower than the minimum required for ASTM C881. 5. Property not referenced in ASTM C881. 6. Pot life is measured as the workable and applicable time of 1.0 gallon (3.8 L) when mixed.

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### TECHNICAL DATA

**TABLE 1: SRS-1000 Structural Epoxy Adhesive performance to ASTM C881-151,2,3**

PROPERTY	CURE TIME	ASTM STANDARD	UNITS	SAMPLE CONDITIONING TEMPERATURE
				75 °F (24 °C)
Compressive Yield Strength	7 day	D695	psi (MPa)	11,783 81.2
Compressive Modulus			psi (MPa)	457,243 ----- 3,153
Tensile Strength		D638	psi (MPa)	8,609 59.4
Tensile Elongation			%	1.8
Bond Strength Hardened to Hardened Concrete	2 day	C882	psi (MPa)	1,800 12.4
	14 day		psi (MPa)	3,300 22.8
Bond Strength Fresh to Hardened Concrete	14 day		psi (MPa)	-----
Heat Deflection Temperature	7 day	D648	°F	121
			(°C)	49.4
Water Absorption	14 day	D570	%	0.49
Linear Coefficient of Shrinkage	48 hr	D2566	%	0.003

1. Results based on testing conducted on a representative lot(s) of product. Average results will vary according to the tolerances of the given property. 2. Full cure time is listed above to obtain the given properties for each product characteristic. 3. Results may vary due to environmental factors such as temperature, moisture and type of substrate. 4. Gel time may be lower than the minimum required for ASTM C881. 5. Property not referenced in ASTM C881. 6. Pot life is measured as the workable and applicable time of 1.0 gallon (3.8 L) when mixed.

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### INSTALLATION INSTRUCTIONS

#### SURFACE PREPERATION

Surface preparation will be dependent upon the application of the product. Old concrete must be clean and profiled or textured. New concrete should be a minimum of 28 days old. All dirt, oil, debris, wax, grease or dust must be removed. Prepare the surface mechanically using a scarifier, sandblast, shotblast or other equipment that will give the surface profile needed for the application. A roughened surface is imperative for good adhesion. Always be sure the bonding surfaces are prepared in advance before starting a new cartridge or mixing product. If possible, schedule dispensing to consume an entire cartridge at one time with no interruption of epoxy flow.

#### CARTRIDGE PREPARATION

1. Shake the cartridge vigorously for 60 seconds, then stand cartridge upright for at least 1 minute allowing any bubbles to rise to the top.
2. Insert cartridge into the dispenser. Make sure it is properly positioned with the shoulder of the cartridge flush with the front/top bracket of the dispenser. Point upward at about a 45° angle. Remove the plastic cap and plug from the top of the cartridge.
3. Continue to point the upward away from yourself and others while slowly applying pressure to dispenser moving any bubbles and product up through the nozzle until it reaches the tip. Dispense this first full stroke of material into disposable container. The cartridge is now purged and ready for flow control installation.
4. Find the flow control inside the threaded end of the mixing nozzle attached to a tape strip. Insert flow control into the two holes at the top of the cartridge where the product comes out. Make sure it is securely seated in place. Install mixing nozzle onto cartridge. Holding the dispenser straight up, slowly apply pressure to the dispenser moving any bubbles and product up through the nozzle until it reaches the tip. Tilting only slightly, dispense this first full stroke of material into a disposable container.
5. NOTE: Schedule dispensing to consume an entire cartridge at one time with no interruption of flow to prevent material from hardening in mixing nozzle. If problems arise during dispensing product, replace the nozzle; the product may have begun to cure in the nozzle which will affect the mix ratio. Never transfer a used nozzle to a new cartridge. Repeat the cartridge balancing steps listed above after replacing the nozzle.

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### INSTALLATION INSTRUCTIONS

#### MIX INSTRUCTIONS FOR BULK PACKAGING

Thoroughly stir each component separately before mixing them together. Mix only the amount of material that can be used before the working time expires. Proportion parts by volume into a clean pail at the exact and proper mix ratio. Use 2 parts by volume of component A and 1 part by volume of component B. Mix thoroughly with a low speed drill (400 – 600 rpm) with a mix paddle attachment (i.e. Jiffy Mixer). Carefully scrape the sides and the bottom of the container while mixing. Keep the paddle below the surface of the material to avoid entrapping air. Proper mixing will take at least 3 minutes. For bulk, mix only enough product that can be used within the pot life.

#### BONDING AGENT

Bonding fresh concrete to hardened concrete or when used as a bonding agent for repairing concrete spalls: Using a brush, roller or airless sprayer, apply an even coat of the bulk mixed CEP61 to the clean and prepared concrete surface. While the epoxy is still tacky, place fresh concrete over the top of the mixed epoxy.

#### SPALL REPAIR

To avoid a feathered edge, cut around the spall into sound concrete with a grinder or circular saw using a diamond or concrete abrasive blade. The edge cut should be equal to the maximum depth of the spall or to at least, a minimum depth of 3/4 in. (19 mm). Chip out all loose concrete within the entire spall to a minimum depth of 3/4 in. (19 mm). Follow surface preparation instructions above to clean the spall. Estimate the amount of bulk product needed and mix Part A and Part B: 2 to 1 by volume. Mix part A and B thoroughly. Slowly add 3-4 parts by volume of kiln-dried sand or aggregate of choice and mix well, pour and trowel until smooth/level. Note: The low viscosity of CEP61 and CEP62 will aid in wetting out aggregate to create a repair mortar. Maximum mortar thickness is 1.5 in. (38 mm per lift)

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### INSTALLATION INSTRUCTIONS

#### GRAVITY FEED CRACK REPAIR FOR HORIZONTAL APPLICATIONS

SRS-1000 is formulated for fine to medium cracks - 0.0025 in. to 0.125 in. (0.06 mm to 3.2 mm). For best results, cut a groove to open up the crack using an abrasive or diamond blade to a width of 1/8 in. (3.2 mm) and minimum depth of 3/8 in. (9.5 mm). Use wire brush to abrade and then blow out the crack to remove all dust, dirt, grease, wax, oil or any other contaminants. Pour or inject into the crack and its self-leveling ability will fill the entire area. Repeat application if necessary to completely fill crack. Follow the cartridge preparation set-up.

#### LOW PRESSURE CRACK INJECTION FOR VERTICAL, HORIZONTAL AND OVERHEAD STRUTURAL REPAIR

Before repairs are attempted, examine the crack to determine the type of repair that is required. Cracks in concrete and wood members are classified as either dynamic (moving) or static (dormant). Static cracks may occur from a one-time overload event such as an earthquake or flood. For static cracks in a structure that is to be rehabilitated, structural crack injection is recommended. By contrast, dynamic cracks are those which are caused by inadequate design, seasonal heaving, temperature swings or repeated over-loading. Dynamic cracks CANNOT effectively be repaired using crack injection. Dynamic cracks can be sealed using a flexible repair material.

#### CRACK INJECTION PREPERATION

Clean the surface surrounding the crack with a wire brush to achieve proper bond. Remove all dust, debris, oil and any other contaminants from the crack by blowing out with clean, oil-free compressed air. For best results crack must be dry at the time of injection. If water is seeping from crack, steps must be taken to stop the flow of water in order to achieve desired repair.