

## CCS™ GROUT, DOWEL/REBAR/BOLT, SWL

### Epoxy Paste Adhesive For Dowel, Rebar And Bolt Grouting

CCS Grout, Dowel/Rebar/Bolt, SWL (Short Work Life) is a two - component, high modulus and creep resistant, epoxy paste adhesive designed specifically for grouting dowels, bolts and rebar in concrete, masonry and stone at low ambient temperatures or at moderate temperatures when a short working life/cure cycle is desired (approx. 40 - 85 deg. F). The high heat deflection temperature (140° F) allows for use in applications requiring resistance to creep and stress relaxation, maintenance of mechanical properties at high ambient temperatures and high load bearing strength. Exceptional substrate wetting and water displacement properties ensure excellent adhesion under adverse application conditions, e.g., cold, wet concrete. Its non-sag consistency allows for application in horizontal holes and on vertical surfaces. Additional applications include general bonding of hardened concrete, masonry and stone to themselves or each other and steel plate bonding (external reinforcement). CCS Grout, Dowel/Rebar/Bolt, SWL employs a convenient 1 :1, by volume mix ratio and contrasting component colors that provide a visual check of component proportioning and mixing efficiency. The product bonds to dry, damp and wet (no free standing water) substrates and meets the ASTM C 881 requirements for bonding agents in load bearing applications.

#### Features

- Convenient 1:1, by vol. mix ratio
- Fast cure for short downtime or use at low temperatures
- Bonds to dry, damp and wet (no free standing water) substrates
- No sag or flow at applied thickness of 1/4 inch
- Exceptional substrate wetting/water displacement
- Environmentally safe - No VOC solvents

**Limitations:** The recommended minimum substrate temperature during installation and cure is 40 deg. F. The maximum in-service temperature should not exceed 20 deg. F below the HDT in bonding applications subjected to substantial and sustained shear stresses that may cause creep. Do not add solvents or otherwise thin this material.

**Packaging & Colors:** Standard package sizes of Part A & Part B are 2 and 10 gallons. Color is Concrete gray (blue-gray)

**Shelf Life:** Three years minimum in unopened, original containers when stored between 60 and 90 deg. F in a dry place away from sunlight. Remixing of components may be required upon long-term storage.

**Chemical Resistance:** CCS Grout, Dowel/Rebar/Bolt, SWL has excellent resistance to a wide range of commonly encountered chemicals including acids and bases, aircraft and automotive fluids, cutting oils, etc. Performance is a function of the specific chemical and concentration, exposure times and housekeeping procedures. For information on specific chemicals and exposure conditions, contact a ChemCo Systems, Inc., technical representative.

**Surface Preparation:** Concrete surfaces may be dry, damp or wet (no free standing water) but must be sound and free of all bond-inhibiting substances. Prepare surfaces in accordance with *ASTM D 4259* or *ACI 503R* and ChemCo Systems' specific recommendations. Cleaned concrete surfaces should have a minimum strength of 250 psi in direct tension. Steel surfaces should be cleaned to "white metal" according to SSPC SP 5.

**Mixing:** CCS Grout, Dowel/Rebar/Bolt, SWL is a two-component system. The resin to hardener (Part A: Part B) mix ratio is 1:1, by volume. Read all material safety data (MSDS) information before handling the product. Wear safety glasses and clean neoprene rubber gloves when handling the materials. Premix the individual components before drawing from bulk packaging. Transfer the appropriate quantities of Part A and Part B into a mixing container. Use quantities that can be applied before the pot life of the material expires. Blend thoroughly using a Jiffy mixer blade attached to a low speed (350 - 750 rpm) electric or pneumatic drill. Proper mixing will take 2 - 3 minutes.

**Installing:** When grouting dowels, rebar and bolts into horizontal holes, place the required amount of material in the hole (approx. 40% of hole volume) using a caulking gun with a nozzle of appropriate length. Retract the nozzle tip as the hole fills. Insert the bar slowly while rotating to expel air. Secure the bar in the center of the hole. For general purpose and steel-plate bonding, apply mixed material with a trowel to the surfaces and spread to the specified bond line thickness on both surfaces to be mated. Establish contact between the surfaces using positive contact pressure. Maintain contact pressure until the adhesive has set. Remove excess material (squeeze-out) before the material sets.

**Clean up:** Excess mixed product is best removed from the work area and tools before it hardens. Use of rags and solvents such as acetone or heavy-duty detergents facilitate cleaning. Cured product may be removed from tools by soaking in an epoxy stripper.

**TYPICAL PROPERTIES <sup>(1)</sup>**

| <b>Property <sup>(2)</sup></b>  |               | <b>Test Method</b> | <b>Value</b>              |
|---------------------------------|---------------|--------------------|---------------------------|
| Mix Ratio, A:B,                 | by vol        |                    | 1:1                       |
|                                 | by wt         |                    | 100:135                   |
| Color:                          | Part A        | VISUAL             | White                     |
|                                 | Part B        |                    | Black                     |
|                                 | Mixed         |                    | Concrete blue-gray        |
| Weight per Gallon, lb:          | Part A        | ASTM D 1475        | 10.2                      |
|                                 | Part B        |                    | 13.8                      |
|                                 | Mixed         |                    | 12.3                      |
| Viscosity, p:                   | Part A        | ASTM D 2393        | 6500                      |
|                                 | Part B        |                    | 8100                      |
|                                 | Mixed         |                    | 6900                      |
| Non-Sag Thickness, inches       |               | ASTM D 2730        | 1/4                       |
| Gel Time, 200 g, minutes        |               | ASTM D 2471        | 35                        |
| Compressive Yield Strength, psi |               | ASTM D 695         | 10,500                    |
| Compressive Modulus, psi        |               | ASTM D 695         | 350,000                   |
| Heat Deflection Temp, deg F     |               | ASTM D 648         | 140                       |
| Slant Shear Strength, psi:      |               | AASHTO T-237       |                           |
|                                 |               |                    |                           |
|                                 | dry substrate |                    | Cement mortar failure (3) |
|                                 | wet substrate |                    | Cement mortar failure (3) |

- (1) The properties listed are typical and descriptive of the product and should not be used for specification purposes. For specification preparation, reference the ChemCo Systems, Inc., product guideline specification.
- (2) Cure schedule, 7 days at 73° ± 4 F and test temperature, 73° ± 4 F unless otherwise indicated.
- (3) Compressive strength of cement mortar, 4500 psi.

**Handling and Toxicity:** This bulletin does not accompany the product when sold. For hazard warnings, safe handling and first aid instructions, READ CAREFULLY THE MATERIAL SAFETY DATA SHEETS AND CONTAINER WARNING LABELS.

Part A: Liquid epoxy resin, HMIS Health Hazard Rating - 2 (Moderate Hazard). Warning! Causes eye and skin irritation. May cause allergic skin reaction. Harmful if swallowed. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Avoid prolonged or repeated contact with skin.

Part B: Liquid epoxy hardener, HMIS Health Hazard Rating - 3 (Serious Hazard). Contains alkaline amines. Danger! Causes severe eye and skin burns. May cause allergic skin and respiratory reaction. Combustible, corrosive. Do not get in eyes or skin or on clothing. Avoid breathing vapor. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Keep away from heat and open flame.

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