

## CCS™ BONDER PASTE LWL

### Long Working Life Epoxy Paste Adhesive For Bonding

CCS Bonder Paste, LWL (Long Work Life) is a two-component, long working life, structural, epoxy paste adhesive designed for application on vertical surfaces and in horizontal and overhead oriented holes. The physical properties of the product allow its use in applications requiring resistance to creep and stress relaxation, maintenance of mechanical properties at high ambient temperatures and high load bearing strength. Primary applications include the filling of wide cracks, gaps and voids in concrete and masonry, bonding of hardened concrete, masonry and stone to themselves and each other and anchoring bolts, dowels and rebar into horizontal and overhead oriented holes in concrete, masonry or stone. The product is ideally suited for applications requiring significant manual labor (due usually to restricted access to the substrate) and when a long cure time is not a constraint. The working/cure time and viscosity of Bonder Paste, LWL can be adjusted by blending with the appropriate companion products (see below). The product is non-sagging in an applied thickness of 1/2 inch, 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 2: 1, by vol. mix ratio
- Long work life for high temperatures, limited access
- Bonds to dry, damp and wet (no free standing water) substrates
- Adjustable work life/viscosity using product blends
- Exceptional substrate wetting/water displacement
- Environmentally safe- No VOC solvents

**Limitation:** The recommended minimum substrate temperature during installation and cure is 50 deg F. (For installation and cure temperatures down to 40 F or when a faster cure is needed, use CCS Bonder Paste, SWL.) The maximum in-service temperature should not exceed 20 deg F below the HDT in applications subjected to substantial and sustained shear stresses that may cause creep. When bonding plastic concrete containing resinous admixtures, establish the suitability of the concrete mix before actual use. Do not add solvents to this material. The viscosity may be decreased only by blending with the appropriate companion product (see below, Blending With Compatible Products).

**Packaging & Colors:** Standard package sizes of Part A & Part B are 3 and 15 gallons. Standard color is Concrete gray (blue-gray)

**Chemical Resistance:** Bonder Paste, LWL 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:** Bonder Paste, LWL is a two-component system. The resin to hardener (Part A : Part B) mix ratio is 2 :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:** For fairing and leveling applications, apply mixed material on the prepared substrate using a margin or finishing trowel. Fill wide cracks, gaps and voids by pumping or caulking the material into place. When bonding two solid surfaces, apply bonding agent to both surfaces. 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. To grout bolts, dowels and rebar into horizontal and overhead 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

**Blending With Compatible Products:** The working life/cure time of Bonder Paste, LWL may be decreased, if required, by pre-blending the Part B with the Part B of the short work life product, Bonder Paste, SWL. The viscosity of Bonder Paste, LWL may be decreased by blending the mixed product with mixed companion liquid product, Bonder Liquid, LWL. The long and short work life and liquid and paste forms of the product employ a 2:1 (by vol.) mixing ratio that must be maintained at all times.

**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 prolonged storage.

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

Property <sup>(2)</sup>	Test Method	Value		
Mix Ratio, A:B,	by vol by wt		2:1 100:35	
Weight per Gallon, lb:	Part A Part B Mixed	ASTM D 1475	12.3 8.4 11.0	
Viscosity, p:	Part A Part B Mixed	ASTM D 2393	@ 50F 7700 4800 6700	@ 73 F @ 105F
Gel Time, 1 quart, hours		ASTM D 2471	4.4	1.4 0.5
Non-Sag Thickness, inches		ASTM D 2730		½
Thin Film Properties:				
Open Time, hours		AASHTO T-237	5	4 0.7
Hard Dry Time, hours		ASTM D 1640	38	10 3
Cure Time, days		AASHTO T-237	14	7 3
Compressive Yield Strength, psi		ASTM D 695		10,000
Compressive Modulus, psi		ASTM D 695		350,000
Flexural Strength, psi		ASTM D 790		10,000
Flexural Modulus, psi		ASTM D 790		450,000
Heat Deflection Temp., deg F		ASTM D 648		120
Bond Strength, psi:	2 day cure @ 60 F 14 day cure @ 60 F	ASTM C 882		1000 (3) 1500 (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.

**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

**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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