

## CCS™ GROUT, STANDARD

### STRUCTURAL EPOXY ADHESIVE FOR PRESSURE INJECTION GROUTING

CCS Grout, Standard is a two component, low viscosity, structural, and epoxy adhesive designed for application with automatic meter, mix and dispense pressure injection equipment. The physical properties allow its use in applications requiring resistance to creep and stress relaxation, maintenance of mechanical properties at high in-service temperatures, high load bearing strength and excellent adhesion under adverse application conditions. Primary uses include the repair of cracks and delaminations in concrete, masonry, stone, wood and FRP; filling of voids in porous and honeycombed concrete and grout; adhesive bonding of steel plates (external reinforcement) and anchoring bolts, dowels and rebar into concrete, masonry or rock. Grout, Standard meets the requirements of ASTM C 881, Type IV, Grade 1 (structural load bearing) and AASHTO M 235.

#### Features

Convenient 2: 1, by vol. mix ratio

Fast cure for short downtime

Bonds to dry, damp and wet (no free standing water) substrates

Exceptional wetting for filling of fine cracks

Does not embrittle; stays tough and resilient

Contrasting A and B component colors

Environmentally safe - No VOC solvents

**Limitations:** The minimum substrate temperature for cure is 40° F. The maximum in-service temperature should not exceed 20° F below the HDT in bonding applications subjected to substantial and sustained shear stresses that may cause creep. For installation temperatures near or below 40° F or when very narrow cracks are encountered, consider use of CCS Grout, Low Viscosity. Installed thickness in excess of ¼" may require the use of pre-placed aggregate to dissipate heat generated during the cure process. Do not add solvents or otherwise thin this material.

**Packaging & Colors:** Standard package sizes of Part A & Part B are 3 and 15 gallons. Standard part B color is dark purple. Clear amber by special order.

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

**Chemical Resistance:** CCS Grout, Standard has excellent resistance to a wide range of commonly encountered chemicals including acids and bases, aircraft and automotive fluids, petroleum fuels, cutting oils, etc. It has limited resistance to hydrocarbon solvents. Performance is a function of the specific chemical, the 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 cracks by blowing clean with oil-free compressed air or by flushing with an appropriate cleansing solution as required to remove foreign substances and contaminants. Prepare exposed surfaces for bonding in accordance with *ASTM D 4259* or *ACI 503R* and ChemCo Systems' specific recommendations. Properly prepared 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, Standard is a two-component system designed specifically for use with automatic meter, mix and dispenses application equipment. The resin to hardener (Part A : Part B) mix ratio is 2:1, by volume. Job specifications should include provisions for routine periodic testing of the grouting equipment to determine that it is metering the components accurately and delivering thoroughly mixed material. Read material safety data (MSDS) information before handling the product. Wear safety glasses and rubber gloves when handling the materials. Premix the individual components before drawing from bulk packaging.

**Installing:** Install material in accordance with established industry procedures and guidelines. Use only trained workmen with experience in pressure injection repair. For additional information on repair by pressure injection grouting, see *ACI 503R, Chapter 7, "Applying Epoxy Compounds."* Allow for adequate cure of the epoxy adhesive before the structure is returned to service.

**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 (1)**

Property (2)		Test Method	Value
Mix Ratio, A:B	by vol		2: 1
	by wt		100: 43
Color:	Part A	VISUAL	Clear amber
	Part B		Dark purple
	Mixed		Dark purple
Weight per Gallon, lb:	Part A	AASTM D 1475	9.4
	Part B		8.1
	Mixed		9.0
Viscosity, cp:	Part A	ASTM D 2393	420
	Part B		160
	Mixed		375
Mixed Viscosity	@ 50° F, cp	ASTM D 2393	1500
Gel Time, 100 g, minutes:	@ 50° F	ASTM D 2471	33
	@ 73° F		13
Tensile Strength, psi		ASTM D 638	10,200
Elongation at Break, %		ASTM D 638	2.1
Compressive Yield Strength, psi		ASTM D 695	16,500
Compressive Modulus, psi		ASTM D 695	569,000
Flexural Strength, psi		ASTM D 790	11,500
Flexural Modulus, psi		ASTM D 790	500,000
Heat Deflection Temperature, deg. F		ASTM D 648	138
Bond Strength, psi:	2 days (moist cure)	ASTM C 882	3050
	14 days (moist cure)		3900

(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.

**Handling and Toxicity:** This bulletin does not accompany the product when sold. For hazard warnings, safe handling and first aid instructions, CAREFULLY READ 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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