

## CCS™ GROUT, HIGH TEMPERATURE

### Structural Epoxy Adhesive For Pressure Injection Grouting

CCS Grout, High Temperature is a two - component, elevated temperature resistant, structural, epoxy adhesive designed for application with automatic meter, mix and dispense pressure injection equipment. The high heat deflection temperature (165 deg F) of the product allows its use in applications requiring resistance to creep and stress relaxation and maintenance of mechanical properties and high load bearing strength at elevated ambient in service temperatures. Unlike most other elevated temperature resistant epoxy adhesives, CCS Grout, High Temperature cures to a tough, heat resistant polymer at conventional ambient cure temperatures and does not require in-situ, elevated temperature curing procedures to attain in-service heat resistance. Primary uses include the structural repair of cracks and delaminations in concrete, masonry, stone and sealed wood; 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 when elevated ambient in-service temperatures are anticipated. CCS Grout, High Temperature bonds to dry, damp and wet substrates.

#### Features

- Convenient 2:1, by vol. mix ratio
- Attains high HDT at conventional ambient cure temperatures
- Fast cure for short downtime
- Bonds to dry, damp and wet (no free standing water) substrates
- Exceptional wetting for filling of fine cracks
- Contrasting A and B component colors
- Environmentally safe- No VOC solvents

**Limitations:** The recommended minimum substrate temperature during installation is 50 deg F. The minimum substrate temperature for cure is 40 deg F. For service temperatures near or above the HDT, careful consideration should be given to long-term loads that might induce creep. Installed thickness in excess of 1/4" 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 color is Dark purple. Clear amber by special order.

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

**Chemical Resistance:** CCS Grout, High Temperature 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 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 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, High Temperature is a two-component system designed specifically for use with automatic meter, mix and dispense 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 motoring the components accurately and delivering thoroughly mixed material. 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.

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

<b>Property <sup>(2)</sup></b>	<b>Test Method</b>	<b>Value</b>
Mix Ratio, A:B, by vol by wt		2: 1 100: 42
Color: Mixed	Part A Part B	VISUAL Clear amber Dark purple Dark purple
Weight per Gallon, lb:	Part A Part B Mixed	ASTM D 1475 9.9 8.1 9.3
Viscosity, cp:	Part A Part B Mixed	ASTM D 2393 2000 95 600
Gel Time, 100 g, minutes		ASTM D 2471 16
Tensile Strength, psi		ASTM D 638 8000
Elongation at Break, %		ASTM D 638 1.5
Compressive Yield Strength, psi		ASTM D 695 16,500
Compressive Modulus, psi		ASTM D 695 340,000
Flexural Strength, psi		ASTM D 790 11,600
Flexural Modulus, psi		ASTM D 7905 50,000
Heat Deflection Temperature, deg F		ASTM D 648 165

(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,

**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- 2 (Moderate Hazard). Contains alkaline amines. Warning! Causes eye and skin irritation. 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. Repeated contact with skin. Part B: Liquid epoxy hardener, HMIS Health Hazard Rating- 2 (Moderate Hazard). Contains alkaline amines. Warning! Causes eye and skin irritation. 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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