ChemCo Systems
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CCS™ GROUT
STANDARD - HIGH AMBIENT TEMPERATURE

Structural Epoxy Adhesive For Pressure Injection Grouting

CCS Grout, Standard - High Ambient Temperature is a two - component, low viscosity, structural, epoxy adhesive designed for application with automatic meter, mix and dispense pressure injection equipment when the ambient and/or substrate temperature at the time of installation is greater than approximately 90 deg. F. 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 high ambient and/or substrate temperature repair of cracks and delaminations in concrete, masonry, stone and sealed wood, filling of voids in porous and honeycombed concrete and grout, grouting keyways, adhesive bonding of steel plates (external reinforcement) and anchoring bolts, dowels and rebar into concrete, masonry or rock. Standard - High Ambient Temperature meets the requirements of ASTM C 881, Type IV, Grade 1 for structural load bearing applications.

Feature

Convenient 2:1, by vol. mix ratio
Fast cure for short downtime
Bonds to dry, damp and wet (no free standing water) substrates
Extended work life for high ambient temperature application
Does not embrittle; stays tough and resilient
Contrasting A and B component colors
Environmentally safe - No VOC solvents

Limitations: CCS Grout, Standard - High Ambient Temperature is recommended for installation at ambient temperatures above 90 deg. F but may installed at temperatures down to 60 deg. F. (For installation temperatures between approx. 50 and 90 deg. F, consider use of CCS Grout, Standard. For installation temperatures down to 40° F or when very narrow cracks are encountered, consider use of CCS Grout, Low Viscosity.) The minimum substrate temperature for cure is 60 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. 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.

Chemical Resistance: CCS Grout, Standard - High Ambient Temperature 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.

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.

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. 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, Standard - High Ambient 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 metering 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.

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	ASTM D 1475	9.4
	Part B		8.1
	Mixed		9.0
Viscosity, cp:	Part A	ASTM D 2393	425
	Part B		100
	Mixed		325
Gel Time, 100 g, minutes @ 73° F		ASTM D 2471	26
Tensile Strength, psi		ASTM D 638	9400
Elongation at Break, %		ASTM D 638	2.5
Compressive Yield Strength, psi		ASTM D 695	15,500
Compressive Modulus, psi		ASTM D 695	410,000
Flexural Strength, psi		ASTM D 790	10,500
Flexural Modulus, psi		ASTM D 790	310,000
Heat Deflection Temperature, deg. F		ASTM D 648	135
Bond Strength, psi: 2 day moist cure		ASTM C 882	1650
14 day moist cure			2800

(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.

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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