

## CCS™ GROUT, LOW EXOTHERM

### STRUCTURAL EPOXY ADHESIVE FOR PRESSURE INJECTION GROUTING

CCS Grout, Low Exotherm is a two-component, low viscosity, epoxy adhesive designed for application with automatic meter, mix and dispense pressure injection equipment. The physical properties allow its use in applications requiring high load bearing strength and excellent adhesion under adverse application conditions. The product has a long working life and a low exotherm reaction (minimal heat generation during cure) that make it suitable for applications where a relatively large mass of adhesive is employed. CCS Grout, Low Exotherm is specifically designed for applications requiring material thickness in excess of ¼ inch. Primary uses include filling wide cracks, gaps and delaminations in concrete, masonry, stone and steel; filling voids in porous and inadequately consolidated (honeycombed) concrete and grout; and, filling wide cracks and delaminations in wood structures. Whenever possible voids should be pre-packed with, clean, dry aggregate prior to pressure injection grouting.

**This product is unique in the high degree of chemical and radiation resistance attained by an ambient temperature curing epoxy adhesive.**

#### Features

- Convenient 2:1, by vol. mix ratio
- Low exotherm for minimal heat build-up in thick cross-sections
- Long working life for filling of large voids and tributary cracks
- Bonds to dry and damp surfaces
- Does not embrittle; stays tough and resilient
- 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 50 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 3 and 15 gallons. Dark purple; clear amber (special order)

**Shelf Life:** 18 months minimum in unopened, original containers when stored between 60 and 90 deg in a dry place away from sunlight. Remixing of components may be required upon prolonged storage.

**Chemical Resistance:** CCS Low Exotherm 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 or damp but must be sound free of all bond-inhibiting substances. Prepare cracks by blowing clean with oil-free compressed air or by flushing clean with an appropriate cleansing solution as required to remove foreign substances and contaminants. Prepare exposed surfaces for bonding in accordance with *ASTM D 4259, "Standard Practice for Abrading Concrete"* or *ACI 503R, Chapter 5, "Preparing Surfaces for Epoxy Compound Application,"* and ChemCo Systems, Inc.'s specific recommendations. Properly prepared concrete surfaces should have a minimum strength of 250 psi in direct "white metal" according to SSPC SP 5.

**Mixing:** CCS Low Exotherm 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. Application equipment should be routinely checked several times a day to determine that the equipment 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. For specific information on repair by pressure injection grouting, see *ACI 503R, Chapter 7, "Applying Epoxy Compounds."* Use only trained workmen with experience in pressure injection repair. 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, 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>**

Property <sup>(2)</sup>		Test Method	Value
Mix Ratio, A:B,	by vol		2: 1
	by wt		100: 46
Color:	Part A	VISUAL	Clear amber
	Part B		Dark purple
	Mixed		Dark purple
Weight per Gallon, lb:	Part A	ASTM D 1475	9.5
	Part B		8.7
	Mixed		9.0
Viscosity, cp:	Part A	ASTM D 2393	580
	Part B		190
	Mixed		300
Gel Time, 1 quart, hours		ASTM D 2471	2.5
Tensile Strength, psi		ASTM D 638	6400
Elongation at Break, %		ASTM D 638	4.9
Compressive Yield Strength, psi		ASTM D 695	10,100
Compressive Modulus, psi		ASTM D 695	250,000
Heat Deflection Temperature, deg F		ASTM D 648	115
Slant Shear Strength, psi: dry		AASHTO T-237	Cement mortar failure (3) 4000
wet			

(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). Toxic if absorbed by skin or ingested. 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.

**DISCLAIMER:** NO EXPRESS WARRANTY IS MADE WITH RESPECT TO THE RESULTS OF ANY USE OF THIS PRODUCT. NO IMPLIED WARRANTIES, INCLUDING AND NOT LIMITED TO AN IMPLIED WARRANTY OF MERCHANTABILITY OR AN IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE ARE MADE WITH RESPECT TO THIS PRODUCT. NO LIABILITIES FOR PERSONAL INJURY, LOSS OR DAMAGE RESULTING FROM THE USE OF THIS PRODUCT IS ASSUMED. CHEMCO SYSTEMS, INC., RESERVES THE RIGHT TO ALTER OR DISCONTINUE THE PRODUCT DESCRIBED HEREIN AT ANY TIME AND WITHOUT PRIOR NOTICE.

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