

CCS™ HiAmb™ IR

HIGH AMBIENT TEMPERATURE EPOXY ADHESIVE FOR PRESSURE INJECTION GROUTING

TECHNICAL DATA SHEET

FOR PROFESSIONAL CONTRACTOR USE ONLY

DESCRIPTION

CCS™ HiAmb™ IR is a two-component, low viscosity, structural, epoxy adhesive. 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), anchoring bolts, dowels and rebar into concrete, masonry, or stone when the ambient air and/or substrate temperature at the time of installation is greater than approximately 90°F. Applications requiring material thickness in excess of 1/4 inch (250 mils 6.35 mm) may be facilitated by pre-placing aggregate in the void. CCS™ HiAmb™ IR bonds to dry, damp and wet i.e., (free of standing water) substrates. The components do not contain volatile organic compounds (VOC's).

- Meets - ASTM C881 and AASHTO M235: Meets the requirements for Type IV, Grade 1, Class B and Class C
- Meets - ACI 548.15-20 Specification for Cracked Repair by Epoxy Injection
- Meets - ICRI 210.IR Guide for Verifying Field Performance of Epoxy Injection of Concrete Cracks

FEATURES

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, high load bearing strength and excellent adhesion under adverse application conditions, e.g., hot, humid environments. Unlike many other high modulus epoxy adhesives, CCS™ HiAmb™ IR cures to a tough, resilient polymer and has excellent load transfer capability. Exceptional substrate wetting and extended working life ensure penetration and filling of fine fissures and tributary cracks in warm environments. It has a convenient 2:1 (by vol.) mixing ratio and employs special colorants for contrasting component color.

TYPICAL USES

Applications where the ambient installation temperature is above 90°F (32°), including:

- Structural repair of cracks and delaminations in concrete, masonry and wood.
- Filling of porous and honeycombed concrete and grout.
- Adhesive bonding of steel (external reinforcement).
- Anchoring bolts, dowels and rebar into concrete, masonry and stone.

LIMITATIONS

CCS™ HiAmb™ IR is recommended for installation when ambient / substrate temperatures are above 90°F (32°C), but may be installed at temperatures down to 50°F (10°C). For installation temperatures between 50°F and 90°F (10°C and 32°C), consider use of CCS™ Standard IR. For installation temperatures down to 40°F (4°C) or when very narrow cracks are encountered, consider use of CCS™ Low Viscosity IR. The minimum substrate temperature for cure is 50°F (10°C). The maximum in-service temperature should not exceed 20°F (-7°C) below the HDT in bonding applications subjected to substantial

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7 days 73°F (23°C) unless otherwise indicated. Compressive strength of cement mortar 4,500 psi (13.0 MPa).

PHYSICAL PROPERTIES	TEST METHOD	VALUE
Mix Ratio, A:B		2:1 by volume 100:43 by weight
Color: Part A Part B Mixed	VISUAL	Part-A: Clear Amber Part-B: Dark Purple Mixed: Dark Purple
Weight per Gallon: Part A Part B Mixed	ASTM D1475	9.4 lbs 8.1 lbs 9.0 lbs
Viscosity: Part A Part B Mixed	ASTM D2393	550 cp 110 cp 350 cp
Gel Time, 100 g	ASTM D2471	25 minutes
Tensile Strength	ASTM D638	8,300 psi (57.2 MPa)
Elongation at Break	ASTM D638	2.5%
Compressive Yield Strength	ASTM D695	14,000 psi (96.5 MPa)
Compressive Modulus	ASTM D695	364,000 psi (2,509.7 MPa)
Flexural Strength	ASTM D790	9,500 psi (65.5 MPa)
Flexural Modulus	ASTM D790	288,000 psi (1,985.7 MPa)
Heat Deflection Temp	ASTM D648	140°F (60°C)
Wet Slant Shear Strength	AASHTO T-237	Cement mortar failure psi ⁽²⁾



and sustained shear stresses that may cause creep. Installed thickness in excess of 1/4 inch (250 mils 6.35 mm) 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, 15 and 150 gallon (11, 57 and 568 l.) units.

The standard color of the mixed components is dark purple. A clear amber color is available and may require minimum quantities and/or slightly higher cost.

SHELF LIFE

Three years in unopened, original containers when stored between 60°F and 90°F (15°C and 32°C) in a dry place away from sunlight. Remixing of components may be required upon prolonged storage.

CHEMICAL RESISTANCE

CCS™ HiAmb™ IR 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, ambient and solution temperatures, exposure times and housekeeping procedures. For information on specific chemicals and exposure conditions, contact a ChemCo Systems Technical Representative.

SURFACE PREPARATION

Substrate surfaces must be dry or damp, sound and free of all bond inhibiting substances for sealers used as epoxy dams. Prepare surfaces in accordance with International Concrete Repair Institute, ICRI Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair, Concrete Surface Profile, CSP 2 to CSP 4. The concrete surfaces should have a minimum strength of 250 psi (1.72 MPa) in direct tension per ASTM C1583 Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method). Steel surfaces should be cleaned to "white metal" according to SSPC-SP 5/NACE No. 1 White Metal Blast Cleaning is a standard used for white metal blast cleaning put forth by the SSPC (Society for Protective Coatings) and NACE (National Association of Chemical Engineers) international standard.

MIXING

CCS™ HiAmb™ IR is a two-component adhesive. The resin to hardener (Part A: Part B) mix ratio is 2:1, by volume.

CLEAN-UP

All tools and equipment must be cleaned before the mixed material cures. Cleaning can be facilitated with a solvent such as acetone or heavy-duty detergents. Cured material may be removed from equipment and tools by soaking in an epoxy stripper.

SAFETY

This bulletin does not accompany the product when sold. For hazard warnings, safe handling, and first aid instructions. CAREFULLY READ THE 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 an 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. 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.

TECHNICAL SUPPORT

Additional information, technical assistance, and management services are also available from a ChemCo Systems Technical Representative at sales@chemcosystems.com or 650-261-3790.

The properties listed in this bulletin are typical and descriptive of the product and should not be used for specification purposes. For specification preparation, reference the specification of this product available from ChemCo Systems.



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PROJECT NOTES



Limited Warranty: Please read all information in the General Guidelines, Technical Data Sheets, Guide Specifications and Safety Data Sheets (SDS) before applying material. These products are for professional use only and preferably applied by professionals who have prior experience with ChemCo Systems materials or have undergone training in application of ChemCo Systems materials. Published technical data and instructions are subject to change without notice. Contact your local ChemCo Systems representative or visit our website for current technical data, instructions, and project specific recommendations.

ChemCo Systems warrants its products to be free of manufacturing defects and that they will meet ChemCo Systems' current published physical properties. Seller's and manufacturer's sole responsibility shall be to replace that portion of the product which proves to be defective. There are no other warranties by ChemCo Systems of any nature whatsoever expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. ChemCo Systems shall not be liable for damages of any sort, including remote or consequential damages resulting from any claimed breach of any warranty whether expressed or implied. ChemCo Systems shall not be responsible for use of this product in a manner to infringe on any patent held by others. In addition, no warranty or guarantee is being issued with respect to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. ChemCo Systems reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

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