KEMKO® 165 HiTemp IR

High Temperature Epoxy adhesive for Pressure Injection Grouting

Type:	Two-component, low viscosity, epoxy resin I hardener.
Primary Use:	Applications subject to elevated ambient in-service temperatures, 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.
Substrates:	Concrete, masonry, stone (dry, damp and wet), steel and sealed wood.
Applications:	Cracks, voids, delaminations and annular spaces up to 1/4" width; greater than 1/4" with preplaced aggregate.
Minimum Tamp:	Installation- 50 F, Cure- 40 F (substrate temperature).
Shelf Life:	Three years minimum in sealed containers (see below for conditions).

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, Inc. This product is available only through KIP System™ (KEMKO Injection Process) licensee/applicators.

Description: KEMKO 165, HiTemp IR is a two-component, elevated temperature resistant, structural, epoxy adhesive specifically designed for pressure injection grouting using KIP System automatic meter, mix and dispense application equipment. 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 stone when elevated ambient in-service temperatures are encountered. Applications requiring material thickness in excess of 1/4 Inch may be facilitated by preplacing aggregate in the void. KEMKO 165 bonds to dry, damp and wet (no free standing water) sub. rates. The components do not contain volatile organic compounds (VOC's).

Features: The high heat deflection temperature (165 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, KEMKO 165 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. Exceptional substrate wetting ensures penetration and filling of fine fissures and tributary cracks. It has a convenient 2:1 (by vol.) mixing ratio and employs special colorants for contrasting component color.

Limitations: The recommended minimum substrate temperature during Installation is 50 deg F. The minimum substrate temperature for cure is 40 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 inch may require the use of preplaced aggregate to dissipate heat generated during the cure process. Do not add solvents or otherwise thin this material.

Packaging : Standard package sizes of Part A + Part a are 3, 15 and 150 gallon units.

Shell Life: Three years minimum in unopened, original containers when stored between 60 and 90 deg F in a dry place away from sunlight.

Chemical Resistance: KEMKO 165 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, Inc., technical representative.

Color Selection: 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.

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 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 tension. Steel surfaces should be cleaned to 'white metal' according to SSPC SP 5.

Mixing: KEMKO 165 is a two-component adhesive designed specifically for use with KIP System automatic meter, mix and dispense application equipment. The resin to hardener (Part A: Part B) mix ratio is 2:1, by volume. The KIP System Guideline Specification includes provisions for routine periodic testing of the KIP System grouting equipment to determine that it is metering the components accurately and delivering thoroughly mixed material.

Installing: The KIP System, its products and equipment are only available from KEMKO licensee/applicators. KEMKO 165 is installed in accordance with KIP System Guideline Specification procedures and ChemCo Systems, Inc.'s specific

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Typical Properties (1)

Property			Test Method	Value
Mix Ratio, A:B,	by vol			2: 1
	by wt			100: 42
Color:	Part A		VISUAL	Clear amber
	Part B			Dark purple
	Mixed			Dark purple
Weight per Gallon, lb:		Part A	ASTM D 1475	9.9
		Part B		8.1
		Mixed		9.3
Viscosity, cp:	Part A		ASTM D 2393	1100
	Part B			80
	Mixed			800
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 790	550,000
Heat Deflection Temp., deg F			ASTM D 648	165

(1) Cure schedule, 7 days at 73 ± 4 F and test temperature, 73 ± 4 F.

recommendations. For additional information on repair by pressure injection grouting, see ACI 503R, Chapter 7, "'Applying Epoxy Compounds."

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.

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 severe 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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