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Type:	Two-component, non-sag, paste epoxy resin / hardener.
Primary Use:	Bonding hardened concrete, masonry and stone. Anchoring bolts, dowels and rebar into concrete, masonry or stone. Adhesive bonding of steel plates to concrete (external reinforcement).
Substrates:	Concrete, masonry, stone (dry, damp and wet), steel and sealed wood. Suitable for vertical surfaces; horizontal and overhead oriented holes.
Minimum Temp:	Installation- 40 deg. F, Cure-40 deg. F (substrate temperature).
Color:	Concrete gray (blue-gray).
ASTM C 881:	Meets Type IV requirements for bonding agents in load bearing applications.
Shelf Life:	Three years minimum in sealed containers (see below for conditions).

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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) applicators.

**Description:** KEMKO 169, SP Paste is a two-component, structural, short potlife, pumpable, paste epoxy adhesive designed for application on vertical surfaces and in horizontal and overhead oriented holes. Primary applications include general bonding of hardened concrete, masonry and stone to themselves or each other, steel plate bonding (external reinforcement), bonding applications on vertical and overhead surfaces and anchoring bolts, dowels and rebar in horizontal and overhead oriented holes in concrete, masonry and stone. It also may be used as a surface seal in pressure injection grouting using KIP System automatic meter, mix and dispense application equipment such as the Model C Paste Pump. KEMKO 169, SP Paste bonds to dry, damp and wet substrates and can be applied up to 1/2 inch thick without sag or flow. The components do not contain volatile organic compounds (VOC's).

**Features:** The excellent 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 and high load bearing strength. Exceptional substrate wetting and water displacement properties ensure excellent adhesion under adverse application conditions, e.g., cold, wet concrete. The product is ideally suited for application using automated pumping systems with a 1 : 1 component delivery ratio such as the KEMKO Model C paste pump.

**Limitations:** The recommended minimum substrate temperature during installation and cure is 40 deg. F. The maximum sustained in-service temperature of fully cured material in structural (moderate load bearing) applications is 115-125 deg. F.

**Packaging:** Standard package sizes of Part A + Part B are 2, 10 and 100 gallon units.

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

**Chemical Resistance:** KEMKO 169, SP Paste 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 concrete gray (blue-gray). Custom colors are available and may require minimum quantities and/or slightly higher cost.

**Surface Preparation:** Substrate surfaces may be dry, damp or wet, sound and free of all bond inhibiting substances. Prepare surfaces in accordance with industry standards and ChemCo Systems, Inc.'s specific recommendations. Suitable 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 169, SP Paste is a two-component system. The resin to hardener (Part A: Part B) mix ratio is 1:1, by volume. Premix the individual components before drawing from bulk packaging. Wear safety glasses and clean neoprene rubber gloves when handling the material. Transfer the appropriate quantities of Part A and Part B into a mixing container. Use quantities that can be applied before the potlife of the material expires. Blend thoroughly using a Jiffy mixer blade attached to a low speed (350-750 rpm) electric or pneumatic drill. Proper mixing will take 2-3 minutes.

**Installing:** For general and steel plate bonding, apply mixed material with a trowel to the surfaces and spread to the specified bond line thickness on both surfaces to be mated. Establish contact between the surfaces using positive contact pressure. Maintain contact pressure until the adhesive has set. Remove excess material (squeeze-out) before the material sets. To grout bolts, dowels and rebar into horizontal and overhead holes, place the required amount of material in the hole (approx. 40% of hole volume) using a material delivery system with a nozzle of appropriate length. Retract the nozzle tip as the hole fills. Insert the bar slowly while rotating to expel air. Secure the bar in the center of the hole.

**Clean-up:** All tools and equipment must be cleaned before



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## Typical Properties (1)

Property	Test Method	Value
Mix Ratio, A:B,     by vol by wt		1:1 100 : 131
Weight per Gallon, lb:	Part A Part B Mixed	10.5 13.5 12.2
Viscosity, poise:	Part A Part B Mixed	2100 4200 6900
Non-Sag Thickness, inches	ASTM D 2730	1/2
Gel Time, 1 quart, minutes	ASTM D 2471	20
Thin Film Properties:		
Open Time, hours	AASHTO T-237	3
Hard Dry Time, hours	ASTM D 1640	10
Cure Time, days	AASHTO T-237	4
Compressive Yield Strength, psi	ASTM D 695	11,800
Compressive Modulus, psi	ASTM D 695	440,000
Heat Deflection Temp., deg F	ASTM D 648	132
Slant Shear Strength (bonded wet), psi	AASHTO T-237	5300 (2)
Tensile Strength, psi	ASTM D-638	5475
(1) Cure schedule, 7 days at 73 ± 4 deg. F and test temperature, 73 ± 4 deg F unless otherwise indicated.		
(2) Compressive strength of cement mortar > 4500 psi.		

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- 3 (Serious 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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