

KEMKO® 001 LP Bonder

Long Potlife Epoxy
Liquid Adhesive for
Bonding

Type:	Two-component, solvent-free, epoxy resin / hardener.
Primary Use:	Bonding plastic (fresh) concrete to hardened concrete. Bonding rigid construction materials to themselves or each other. Anchoring bolts, dowels and rebar into concrete, masonry or stone.
Substrates:	Concrete, masonry, stone (dry, damp and wet), steel and wood. Suitable for horizontal surfaces and vertical, (downward); oriented holes
Minimum Temp:	Installation: 50° F, Cure: 50° F (substrate temperature).
Special Feature:	Adjustable working life and viscosity by blending with compatible products.
ASTM C 881:	Meets requirements for bonding agents in non-load and load bearing applications. (Type III, IV, & V)
ACI 548.13-14:	Meets requirements for bonding agents from new-to-old concrete.
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 001, LP Bonder is a two-component, long potlife, structural; epoxy liquid adhesive designed for application on horizontal surfaces and in vertical, downward oriented holes. Primary uses include the structural bonding of plastic (fresh) construction materials, e.g., hardened concrete, masonry, stone, steel and wood to themselves or each other and anchoring bolts, dowels and rebar into vertical, downward oriented holes in concrete, masonry or stone. The product is ideally suited for applications requiring significant manual labor (due usually to restricted access to the substrate) and when a long cure time is not a constraint. KEMKO 001 bonds to dry and damp substrates; wet substrates must be free of standing water. The components do not contain volatile organic compounds (VOC's).

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 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 working life/cure time of KEMKO 001, LP Bonder may be decreased, if required, by pre-blending the Part B with the Part B of the short potlife liquid product, KEMKO 008, SP Bonder. Blending the mixed product with mixed companion paste product, KEMKO 028, LP Paste, will increase the viscosity of KEMKO 001, LP Bonder. The long and short potlife and bonder and paste forms of the product (KEMKO 001, 008, 009 and 028) employ a 2:1 (by vol.) mixing ratio that must be maintained at all times.

Limitations: The recommended minimum substrate temperature during installation and for cure is 50 °F. (For installation and cure temperatures down to 40 °F or when a faster cure is needed, use KEMKO 008, SP Bonder.) The maximum in-service temperature should not exceed 20 °F below the HDT in bonding applications subjected to substantial and sustained shear stresses that may cause creep. When bonding plastic concrete containing resinous admixtures, establish the suitability of the concrete mix before actual use. Do not add solvents or otherwise thin this material.

Packaging: Standard package sizes of Part A + Part B are 1, 3, 15 and 150 gallon units.

Shelf Life: Three years minimum in unopened, original containers when stored between 50 and 90 deg F in a dry place away from sunlight. Remixing of components may be required upon prolonged storage.

Chemical Resistance: KEMKO 001, LP Bonder 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: Concrete surfaces may be dry, damp or wet (no free standing water) but must be sound and free of all bond-inhibiting substances. Prepare 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 001, LP Bonder is a two-component adhesive. The resin to hardener (Part A:Part B) mix ratio is 2:1, 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: Pour mixed material onto the prepared substrate and spread to the specified coverage with a V-notch trowel, squeegee or paint roller. For large areas, spray application of the material is recommended. When mating two solid surfaces, apply bonding agent to both surfaces. Allow all coated substrate surfaces to rest for 5 - 10 minutes before pouring fresh concrete or mating with another surface. In plastic to hardened concrete bonding applications, the bond line should be at least 15 mils. Lightweight concrete may require a second coat of adhesive. In other bonding applications, bond line thickness is less critical but should be at least 4 mils above the peaks of the surface profile. For additional application information, see *ACI 503R, Chapter 7*, 'Applying Epoxy Compounds.'



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Typical Properties (1)

Property		Test Method	Value		
Mix Ratio, A:B,	by vol		2:1		
	by wt		100:35		
Color:	Part A	VISUAL	White		
	Part B		Black		
	Mixed		Concrete blue-gray		
Weight per Gallon, lb:	Part A	ASTM D 1475	12.1		
	Part B		7.9		
	Mixed		10.7		
			@50° F	@73° F	@105° F
Viscosity, poise:	Part A	ASTM D 2393	300	105	35
	Part B		10	4	1
	Mixed		70	30	10
Gel Time, 1 quart, hours		ASTM C 881	4.4	1.4	0.5
Thin Film Properties:					
Open Time, hours		AASHTO T-237	5	4	0.7
Hard Dry Time, hours		ASTM D 1640	36	10	3
Cure Time, days		AASHTO T-237	14	7	3
Tensile Strength, psi		ASTM D 638	6000		
Elongation at Break, %		ASTM D 638	2		
Compressive Yield Strength, psi		ASTM D 695	10,000		
Compressive Modulus, psi		ASTM D 695	350,000		
Flexural Strength, psi		ASTM D 790	10,500		
Flexural Modulus, psi		ASTM D 790	450,000		
Heat Deflection Temp, deg F		ASTM D 648	120		
Bond Strength, psi:	2 day cure @ 60° F	ASTM C 882	1000 (2)		
	14 day cure @ 60° F		1500 (2)		

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

(2) Compressive strength of cement mortar, 4500 psi.

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 clothing and hand thoroughly after contact or 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 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. Keep away from heat and open flame.

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