

# KEMKO® 128 FlexDek Binder

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|----------------------|---------------------------------------------------------------------------------------------------------|
| <b>Type:</b>         | Two-component, solvent-free, epoxy resin / hardener.                                                    |
| <b>Primary Use:</b>  | Impact and abrasion resistant binder for concrete deck mortar, slurry and aggregate broadcast overlays. |
| <b>Substrates:</b>   | Concrete and steel (dry surfaces only).                                                                 |
| <b>Minimum Temp:</b> | Installation: 50° F, Cure: 50° F (substrate temperature).                                               |
| <b>Thickness:</b>    | Mortars and slurries up to approx. 1 inch per lift; broadcast systems up to ½ inch per lift.            |
| <b>Colors:</b>       | Clear amber (unpigmented).                                                                              |
| <b>Coverage:</b>     | Varies with aggregate selection and loading. Check trial mix for yield.                                 |
| <b>Shelf Life:</b>   | 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) licensee/applicators.

**Description:** KEMKO® 128, FlexDek Binder is a two-component, low viscosity, low modulus, epoxy binder designed specifically for concrete deck protective overlays. Used in conjunction with suitable aggregate, a KEMKO 128 mortar, slurry chip seal will protect concrete decks from abrasion, wear and intrusion of deleterious chemicals including vehicular and aircraft fluids and pavement deicing compounds. The binder's low viscosity, short cure cycle and low modulus mechanical properties make it ideally suited for a variety of overlay applications. Each type of installation may have specific application and performance requirements. Evaluation of trial mixes particularly under low temperature conditions prior to installation is recommended.

**Features:** Unlike many other exterior use epoxy binders, KEMKO 128 does not embrittle when exposed to sunlight for long periods of time and is environmentally safe. The product has a convenient 2:1 (by vol.) mixing ratio and a fast cure cycle for short downtimes. KEMKO 128 is formulated for high-build film thickness and high aggregate loading. The components do not contain volatile solvents (VOC's).

**Limitations:** Substrates must be dry. The recommended minimum and maximum substrate temperatures during application are 50 and 90 deg F, respectively. The minimum substrate temperature for cure is 50 deg F. Apply the material after the daily substrate temperature cycle has reached its peak. The recommended maximum installed thickness of mortar and slurry mixes is approx. 1 inch per lift; broadcast systems, approx. ½ inch per lift. Do not add solvents or otherwise thin this material.

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

**Color Selection:** The standard color is clear amber. Custom colors are available, but may be subject to minimum quantities and/or slightly higher price.

**Chemical Resistance:** Resistant to a wide range of commonly used aircraft and automotive chemicals and deicing compounds. It has limited resistance to hydrocarbon solvents. Performance is a function of the specific chemical and concentration, ambient and solution temperature, exposure time and housekeeping procedures. For information on specific chemicals and exposure conditions, contact a ChemCo Systems, Inc., technical representative.

**Surface Preparation:** Substrate surfaces must be dry, sound and free of all bond-inhibiting substances. Damp and wet surfaces must be dried with artificial heat to a surface dry condition before installation of the material. 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. Prepared spalls and surface defects may be filled with a KEMKO 128 repair mortar (see below, Aggregate Selection) prior to overlay installation.

#### Aggregate Selection:

**Overlay and Repair Mortars:** The preferred aggregate for most applications is high silica sand (>85% SiO<sub>2</sub>), washed, kiln-dried, graded and bagged. The sand particles should be round to sub-angular in shape. A good gradation for low void content is a 2:1 or 3:1 blend of #12 or 15 mesh and #70 or 90 mesh. If using a single sand fraction, a #20 or 30 mesh is recommended.

**Multiple Layer Broadcast and Slurry systems:** The recommended aggregate size is #6x12; 8x16, 12x20 or 20x40 mesh depending on the installed thickness.

**Vehicular Surfaces:** For maintenance of long-term skid resistance, consider use of polish resistant aggregate such as aluminum oxide, silicon carbide, blast furnace slag, trap rock, etc. For all applications, the maximum particle size of the aggregate selected should not exceed 1/3 of the installed thickness.

**Mixing:** KEMKO 128 FlexDek Binder 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 mixed 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. For fluid, epoxy-rich mixtures continue mixing and slowly add aggregate to the mixing vessel. For less fluid, epoxy-lean mixtures, transfer the mixed binder into a mortar or plaster mixer, add aggregate (coarse first, fine last) and mix an additional 1 - 2 minutes.



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## Typical Properties (1)

| Property                                              | Test Method               | Value                                             |
|-------------------------------------------------------|---------------------------|---------------------------------------------------|
| Mix Ratio, A:B,                                       | by vol<br>by wt           | 2: 1<br>100: 45                                   |
| Color:                                                | Part A<br>Part B<br>Mixed | VISUAL<br>Light amber<br>Dark amber<br>Dark amber |
| Weight per Gallon, lb:                                | Part A<br>Part B<br>Mixed | ASTM D 1475<br>9.3<br>8.3<br>9.0                  |
| Viscosity, cp:                                        | Part A<br>Part B<br>Mixed | ASTM D 2393<br>1700<br>450<br>1150                |
| Gel Time, 1 quart, minutes                            | ASTM D 2471               | 20                                                |
| Thin Film Hard Dry Time, hours                        | ASTM D 1640               | 5                                                 |
| Tensile Strength, psi                                 | ASTM D 638                | 2200                                              |
| Elongation at Break, %                                | ASTM D 638                | 65                                                |
| Bond Strength to Dry ASTM<br>C 109 Cement Mortar, psi | ASTM D 4541               | 500 (2)                                           |

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

(2) Cure schedule, 6 hours at 73° ± 4° F and test temperature, and 73° ± 4° F. Compressive strength of cement mortar, 4500 psi.

### **Installation:**

**Overlay/Mortars** - Prime the substrate with mixed binder components at a thickness of 8 - 10 mils (100 - 125 sq ft/gal). Apply the epoxy mortar or concrete to the primed substrate while the primer is still tacky. The mortar or concrete may be rodded, tamped, screeded or troweled into place. Clean application tools frequently.

**Multiple Layer Broadcasts** - Apply mixed binder at a rate of approx. 45 sq ft/gal by roller, squeegee or spray. Uniformly broadcast aggregate (8 - 10 lb/sq yd) until no wet spots are visible. Allow curing for 2 - 5 hours. Remove excess aggregate by sweeping. Apply the second coat at approx. 30 sq ft/gal. Broadcast aggregate at 12 - 14 lb/sq yd. Remove excess after 2 - 5 hour cure. Repeat process, if necessary to build-up to the specified thickness. Allow extra cure time for top layer (4 - 6 hours). Remove all excess aggregate by sweeping and open to traffic.

**Slurry Coats** - Blend 1 part by volume of premixed binder and 2 - 2.5 parts by volume of aggregate in a mortar mixer for 2 - 3 minutes. Apply the slurry in a thickness of 3/8 inch and strike-off with a screed bar. Broadcast additional aggregate (10 - 14 lb/sq yd) into the surfacing until all wet spots are gone. Allow curing 6 - 8 hours, removing excess aggregate by sweeping and open to traffic. For additional application information, 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- 3 (Serious Hazard). 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. Keep away from heat and open flame.

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