

KEMKO® 132 Polyurea

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| Type: | Two-component, solvent-free, polyurea resin / hardener. |
| Primary Use: | Impact resistant binder for joint nosing repair mortars, concretes and grouts. Abrasion resistant binder for spalls, repair mortars and concretes. Sealing of non-structural cracks, saw cuts and control joints in concrete. |
| Substrates: | Concrete and steel. Dry surfaces. Primer required for wet surfaces. |
| Minimum Temp: | Installation: 50° F, Cure: 40° F (substrate temperature). |
| Thickness: | Mortars and concretes up to approx. 1 ½ inches par lift. |
| Colors: | Gray. |
| Coverage: | Varies with aggregate selection and loading. Check trial mix for yield. |
| 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) licenses/applicators.

Description: KEMKO® 132, Polyurea is a two-component, elastomeric, polyurea liquid designed for interior and exterior use. Blended with suitable aggregate, KEMKO 132 mortars, concretes and flowable grouts may be used for rebuilding damaged joint nosing and repairing spalled and deteriorated concrete. Neat binder may be used for sealing non-structural cracks, saw cuts and control joints in concrete. Cured KEMKO 132 has excellent resistance to vehicular impact and abrasion, most automotive and aircraft fluids and pavement deicing chemicals. Its short cure cycle, tolerance of surface dampness (primer required; see below) and elastomeric mechanical properties make it ideally suited for a wide variety of resinous mortar and concrete repairs. Each type of repair may have specific application and performance requirements. Evaluation of trial mixes particularly under low temperature, damp conditions prior to installation is recommended.

Features: Unlike other elastomeric polyurea binders, KEMKO 132 does not embrittle nor degrade when exposed to sunlight for long periods of time and is environmentally safe. The product has a convenient 1:1 (by vol.) mixing ratio and a fast cure cycle for short downtimes. KEMKO 132 is formulated for balanced elasticity and toughness and is freeze-thaw resistant. The components do not contain volatile solvents (VOC's).

Limitations: The recommended minimum substrate temperature during application is 50 deg F. The minimum substrate temperature for cure is 40 deg F. Apply the material after the daily substrate temperature cycle has reached its peak. The recommended maximum installed thickness of mortar and concrete mixes is approx. 1 1/2 inch per lift. Do not add solvents or otherwise thin this material.

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. Partially used containers of Part A must be flushed with nitrogen and resealed immediately after use to preserve shelf stability.

Chemical Resistance: Resistant to a wide range of commonly used deicing and vehicular chemicals. 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 is Gray (gray-beige). Custom colors are available and may require minimum quantities and/or slightly higher cost.

Surface Preparation: Substrate surfaces may be dry or damp (KEMKO® 141, Primer, required on damp substrate) 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.

Aggregate Selection:

Mortars - The preferred aggregate for most applications is high silica sand (>85% SiO₂), 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 blend of #12 mesh and #30 mesh. If using a single sand fraction, a #16 or 20 mesh is recommended.

Concretes - A 1:1 blend of 3/8 in. gravel and #16 or 20 mesh sand is recommended. The maximum particle size of the aggregate selected should not exceed 1/3 of the installed thickness.

Mixing: KEMKO 132 is a two-component adhesive. 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 quantity of Part A into a mixing container. Begin mixing using a Jiffy mixer blade attached to a low speed (350 - 750 rpm) electric or pneumatic drill. Add the appropriate quantity of Part B taking care to slowly pour the Part B into the vortex of the mixing Part A. The addition of Part B should take 30 - 45 seconds. Mix an additional 1 - 2 minutes after completing Part B addition. Pour 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 by wt | 1:1 100:92 |
| Color: | Part A Part B Mixed | VISUAL Dark gray Reddish amber Dark gray |
| Weight per Gallon, lb: | Part A Part B Mixed | ASTM D 1475 9.2 8.1 8.7 |
| Viscosity, cp: | Part A Part B Mixed | ASTM D 2393 1300 100 700 |
| Gel Time, 100 g, minutes | ASTM D 2471 | 20 |
| Thin Film Cure Time, hours: | touch dry hard dry | ASTM D 1640 1.5 5.5 |
| Tensile Strength, psi | ASTM D 412 | 1000 |
| Elongation at Break, % | ASTM D 412 | 225 |
| Tear Resistance, lbf / in | ASTM D 624 | 185 |
| Water Absorption, % | ASTM D 570 | 1.2 |
| Shore Hardness: | A durometer D durometer | ASTM D 2240 93 41 |
| Bond Strength, ASTM C 109 | dry (prime coated) | ASTM D 4541 Cement mortar failure (2) |
| Cement Mortar, psi: | damp (prime coated) | 300 |
| Taber Abraser, mg loss | ASTM D 4060 | 43 (3) |

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

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

(3) CS-17 wheels, 1000 g load, 1000 cycles.

Installation: Prime the substrate with mixed KEMKO 141, Primer. The recommended primer thickness is 8 - 10 mils (160 - 200 sq ft/gal). Apply the KEMKO 132 neat binder, mortar; concrete or flowable grout to the primed substrate after the primer is set but still tacky (1 - 1.5 hours @ 70° F). Mortars and concretes may be rodded, tamped, screeded or troweled into place. Use a screed bar or trowel to strike-off the mix level with the surrounding substrate. Clean application tools frequently.

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 polyurethane 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 amine 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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