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Installation Instructions

KEY URECON CHIP 100

I. GENERAL INFORMATION

KEY URECON CHIP 100 is a three component, self-leveling, urethane-modified cementitious topping grouted with epoxy, broadcast with colored plastic chips (flakes) and sealed with clear epoxy, urethane or polyaspartic resin. The system is designed to protect concrete substrates from chemical corrosion, abrasion, impact and thermal shock.

II. SURFACE PREPARATION

Surface Preparation is the most critical portion of any successful resinous flooring system application. All substrates must be properly prepared as outlined in **KEY RESIN COMPANY'S TECHNICAL BULLETIN #1.** Specific attention should be paid to the following:

A. Concrete Placement
B. Curing and Finishing Techniques of the concrete substrate
C. Age of Concrete
D. Previous Contamination of the substrate
E. Present Condition of the Substrate

Also, the temperature and humidity conditions of the area to receive the flooring system should be checked. An optimum room temperature of 75ºF with a minimum slab temperature of 60ºF is required for proper cure of the resin flooring system. System may be installed with integral cove base.

III. SPECIAL CONDITIONS

Do not apply in temperatures below 50°F, above 85°F, or if relative humidity is above 85%. Do not apply to sand-cement screeds (tile setting bed mortars), asphaltic substrates, glazed tile or brick (unless glaze is mechanically abraded), copper, aluminum, softwood, or existing coatings of epoxy, polyester, or urethane. Do not apply to wet concrete or to polymer modified concrete with moisture content above 10%. Do not apply to concrete if air temperature is within 5°F of dew point. Do not featheredge application or mix material by hand.

IV. MATERIAL QUANTITIES

A. Guideline System Requirements for 1000 ft²

Key Urecon Chip 100 (3/16"-1/4")	***Qty./ 1000 ft²***
1. *Key Urecon SL (neutral color)*	25-33 kits
2. *Key Colored Quartz Granules (solid color)*	400 pounds
3. *Key #521* 100% Solids Epoxy Coating	15 gallons
4. *Key Broadcast Chips (Full Broadcast)*	150 pounds
4A. *Key Broadcast Chips (Partial Broadcast)*	5-25 pounds
5. *Key #512-LV* UV Resistant Binder (clear)*	10-12 gallons
5A. *Key #510-LV* Epoxy Binder (clear)	10-12 gallons
6. *Key #450* Urethane Topcoat (optional)	3-4 gallons
6A. Optional Topcoats: *Key #470, Key #445, Key #446, Key #467*	Varies
7. *Key Non-Skid Additive (Fine or Coarse)- optional*	Varies

* For areas exposed to direct sunlight, substitute Key #450, Key #467 or Key #470 for Key #512. Additional coats will be necessary for Key #450 and Key #467 when used to grout chips. For full chip broadcast, Key #450 or Key #467 may require 3-4 applications depending on desired finish texture.

V. INSTALLATION

Mechanical mixing is required. A ten-gallon KOL Mixal and paddle is recommended or a ¾ horsepower drill and "jiffy" or helical mixer may also be used with a 6 gallon pail.

1. Mixing Key Urecon SL.
   a. Add Part I and Part II to mixer and blend for 30 seconds. *Important:* Do not overmix or working time will be significantly reduced.
   b. Add Part III slowly to the mix (while mixer is running) and allow to blend for 1 minute. Only mix as long as needed to completely "wet-out" aggregate or working time will be significantly reduced. Be sure to "wet-out" all parts of mix, scraping sides and bottom of mixer during mixing. All powder must be uniformly blended with no visible lumps of dry powder. Mixing bucket and mixer or blades should be scraped out thoroughly and cleaned with solvent (acetone, MEK or xylene) every few batches or working time on subsequent batches will be shortened. If mixing in a plastic bucket, dispose of bucket after every 2 mixes and replace with a clean bucket for this reason. *Important:* Do not overmix or working time will be significantly reduced.

Set up mixing station as near to the work area as possible. Exothermic heat will be generated and flash setting may occur if material remains in the pail too long. Do not mix more than can be used in 10 minutes.

2. Application of Key Urecon SL and quartz broadcast.
   a. Place mixture on floor and spread with a gauged straight edge (gauge rake set 3/16" to 1/4", slightly higher than desired thickness) or flat trowel. Leave a "wet line" or puddle of material between batches to avoid "knit-lines" in the finished system. Be sure to grind out any ridges or lumps that form where material from adjacent batches may overlap, prior to starting next step. Maximum working life is 15 minutes at 70 degrees F, less than 10 minutes at 80+ degrees F. Cooling the resin components prior to use will increase working time in very warm temperatures.
   b. Back-roll the surface lightly with a loop roller while material is still wet. To minimize marks in the finished system, the contractor should wear "spiked" shoes while walking on wet material. Keep roller cleaned with isopropyl alcohol.
   c. Broadcast *colored quartz granules* into the wet floor system until the surface of the system appears dry. Be careful not to clump the material or produce high spots. Approximately 3-4 pounds of sand will be needed for 10 ft² of flooring. Allow to cure

minimum 8 hours. Sweep and vacuum excess granules, spot sand or grind to reduce any significant uneven areas.

Epoxy Grout, Chip Broadcast

Note: Consider a light sanding of the dry granules prior to grouting to reduce the texture.

1. Mixing ***Key #521 100%* Solids Epoxy**
   a. Thoroughly mix each component prior to combining.
   b. Mix four (4) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
   c. ***Do not mix more material than can be used in 30 minutes.***

2. Application
   a. Pour material onto floor in a line and spread with a flat or notched squeegee to a coverage of 65 ft²/gallon. This will yield 25 mils wet film thickness.
   b. Back roll with a short nap roller to even the surface texture of the coating.
   c. To minimize marks in finished system, the contractor should wear "spiked" shoes while walking on wet material.
   d. Allow the material to level before broadcasting chips.

Termination points at the end of the day should be made at doorways, expansion joints, etc. If it is not possible to terminate at these points, 2" masking tape should be placed in a straight line at the ending point. Carefully trowel the material up to and slightly over the inside edge of the tape. Allow material to cure for about thirty (30) minutes and remove the tape.

3. Broadcast to excess
   Broadcast *Key Blended Broadcast Chips* into the wet floor system until the surface of the system appears dry. Be careful not to clump the material or produce high-spots. Approximately 150 pounds of chips will be needed for 1000 ft² of flooring, depending on thickness of resin and broadcast technique. A one gallon container holds approximately 8 pounds of chips. If terminating the system with tape as described in note above, broadcast chips up to the tape and remove after material cures for thirty (30) minutes. ***Remember to only walk on the wet surface while wearing "spiked" shoes!!! Do not rotate feet while walking with spikes to avoid creating gouges in the material.***

   a. Partial Broadcast: For projects requiring a very light broadcast of chips, broadcast lightly into the wet floor coating. As an option you may instead choose to broadcast the chips into the Key #512 Clear Epoxy and backroll to wet out the chips. This is typically a random broadcast using approximately 5-25 pounds of broadcast chips per 1000 ft². If terminating the system with tape as described in the note above, broadcast chips up to the tape and remove after material cures for thirty (30) minutes. ***Remember to only walk on the wet surface wearing "spiked" shoes!!***

4. Allow the broadcast floor to cure overnight. Sweep excess chips with a stiff bristled broom and vacuum.

Sealing of Chips

Note: For residential garages or exterior areas, use Key #450, Key #467 or Key #470 for the grout coat.

The applicator should complete the broadcast portion of the application prior to sealing chips. Optional: Thoroughly but lightly sand dry chips with pole sanders (36 grit sandpaper) in two directions prior to grouting. A floor buffer with abrasive screen (60-100 grit) mounted to the white pad can also be used, being careful with technique: Keep the buffer moving at all times, left to right motion, pulling rather than pushing. Broom and vacuum loose particles from floor surface. Scraping with a trowel or tile scraper to knock off ridges is also an option. These

procedures are optional depending on the finished appearance you are trying to achieve. If doing a partial broadcast with small chips, you may not need to sand or scrape prior to sealing chips.

1. Mixing ***Key #510-LV Epoxy Binder***
   a. Stir each component prior to mixing.
   b. Mix three (3) parts by volume of Key #510-LV Part A (Resin) with one (1) part by volume of Key #510 Part B (Hardener) for three minutes with a low speed electric drill mixing paddle. If mixing up very small batches, use a drill, do not attempt to mix by hand with a stir stick or the resin may not cure properly.
   c. ***Mix only that amount of material that can be mixed, immediately poured out in strips and backrolled in 30 minutes. Mixed material left in the pail longer than 5 minutes will have accelerated reaction and reduced working time.***

1A. Mixing ***Key #512-LV UV Resistant Epoxy Binder***
   a. Stir each component prior to mixing.
   b. Mix two (2) parts by volume of Key #512-LV UV Part A (Resin) with one (1) part by volume of Key #512-LV UV Part B (Hardener) for three minutes with a low speed electric drill mixing paddle.
   c. ***Mix only that amount of material that can be mixed, immediately poured out in strips and backrolled in 30 minutes. Mixed material left in the pail longer than 5 minutes will have accelerated reaction and reduced working time.***

2. Application
   a. Immediately pour mixed material onto floor in strips and spread at a rate of 80 to 100 ft² per gallon (or specified coverage rate) using a trowel or squeegee. It is recommended that the material be lightly backrolled with a short or medium-nap roller (1/4”-3/8”) to smooth and level any tails or ridges.
   b. To minimize marks in finished system, the contractor should wear "spiked" shoes while walking on wet material.
   c. Allow the material to level.

Termination points at the end of the day should be made at doorways, expansion joints, etc. If it is not possible to terminate at these points, 2" masking tape should be placed in a straight line at the ending point. Carefully trowel the material up to and slightly over the inside edge of the tape. Allow material to cure for about thirty (30) minutes and remove the tape.

3. Where necessary to touch-up, lightly broadcast *Key Blended Broadcast Chips* into the wet floor system as needed to provide an even appearance. Be careful not to clump the material or produce high spots.

4. Carefully backroll the second broadcast into the *Key #512* to distribute the chips into the coat using a short nap mohair or sponge roller. By keeping the roller wet, the chips will lay flat and not stick to the roller.

5. If terminating the system with tape as described in note above, broadcast chips up to the tape and remove after material cures for thirty (30) minutes. ***Remember to only walk on the wet surface while wearing "spiked" shoes!!! Do not walk on floor after broadcasting.***

6. When material is hard, lightly sand or scrape to remove any protrusions or unevenness. Excess sanding is not required or advisable.

Second Topcoat

Prior to applying final topcoat, it is optional to lightly sand or screen the cured grout coat to further reduce texture and improve overall finished appearance. If sealing with Key #450, #467 or #470 a light sanding is highly recommended to ensure the best adhesion possible.

Using ***Key #450 Urethane Topcoat***

a. Mixing
   i. Thoroughly mix each component prior to combining.
   ii. Mix two (2) parts by volume of Part A (Resin) with one (1) part by volume of Part B (Hardener) for three minutes with a low speed electric drill mixing paddle. It may be helpful to add 5%-10% SU-93 Thinner to reduce potential for roller marks.
   Adding 1oz.-2 oz. Key #450 Accelerator per gallon of urethane will speed up initial cure time to shorten recoat time or "dry to walk on" time, be aware of shorter pot life.
   iii. *Mix only that amount of material that can be mixed, immediately poured out in strips and backrolled in 30 minutes. Mixed material left in the pail longer than 10 minutes will have accelerated reaction and reduced working time.*
   iv. ***Be careful not to apply Key #450 Urethane in small enclosed rooms with no air ventilation or when the moisture content in the air is close to dewpoint.***

b. Application
   i. Pour material onto floor in a line and spread with a flat squeegee to a coverage of 250-350 ft²/gallon. This will yield 2.5 – 4.0 mils dry film thickness.
   ii. Immediately and slowly backroll with a short nap mohair roller to even the surface texture of the coating. It is helpful to have a 2nd worker immediately crossrolling. Do not delay the backrolling and crossrolling steps or microbubbles may be created! Using "dip and roll" procedure is acceptable, but small batches must be mixed as working time will be reduced. Do not let mixed material sit in the pail longer than 10 minutes or working time becomes significantly reduced.
   iii. Do not open to light foot traffic for 24 hours. Full chemical cure and maximum resistance are achieved in five (5) days.

c. Alternative Materials

The following alternative materials may be used following the mixing and application instructions of each material. Consult with product data sheet or Key Resin Technical Services to confirm suitability for your particular project.

a. Sealer for Chips
   Key #470 Polyaspartic Sealer for faster cure time situations and UV light resistance.
   Key #450 Urethane applied in multiple coats (3-4 is typical) for UV light resistance.
   Key #467 Urethane applied in multiple coats (3-4 is typical) for UV light resistance.

b. Urethane Finish (second topcoat)
   Key #470 Polyaspartic Sealer for faster cure time situations or low odor requirements. Key #445 Water Based Urethane (For selected applications only) (matte finish only) as an optional seal coat to eliminate the solvent odor of Key #450 Urethane. Key #446 Water Based Urethane (gloss finish only) (For selected applications only) as an optional seal coat to eliminate the solvent odor of Key #450 Urethane. Key #467-HS Urethane as optional seal coat with reduced odor and VOC content.