



Installation Instructions

Key Quartz T-250

I. GENERAL INFORMATION

KEY QUARTZ T-250 is a decorative, trowelled resin flooring system that combines the beauty of colored quartz flooring with the durability of trowelled mortar systems. **KEY QUARTZ T-250** eliminates porosity and produces a dense finish that will minimize dirt and chemical penetration.

II. SURFACE PREPARATION

Surface Preparation is the most critical portion of any successful resinous flooring system application. All substrates must be properly prepared to a minimum CSP-3 surface profile 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
- F. Moisture Testing

Also, the temperature and humidity conditions of the area to receive the flooring system should be checked. An optimum room temperature of 75°F with a minimum slab temperature of 60°F is recommended for proper cure of the resin flooring system. If moisture testing confirms excessive levels of moisture, apply moisture vapor control system Key Epocon SL.

III. MATERIAL QUANTITIES

A. Guideline System Requirements for 1000 ft²

<i>Key Quartz T-250 (3/16" Decorative Quartz Topping)</i>	<i>Qty./1000 ft²</i>	<i>Qty. at 1/4"</i>
1. Key #502 Primer/Low Modulus Binder	4 gallons	Same
2. Key #510 Epoxy Binder	30 gallons	40 gallons
3. Key Colored Quartz Granules-T250 (TR mesh)	1700 lbs.	2270 lbs.
4. Key #512-LV Epoxy Binder (grout coat)	10-12 gallons*	Same
5. Key #512-LV Epoxy Binder (seal coat)	10-12 gallons	Same
6. Key #467-HS-Satin Urethane Topcoat (satin finish)	2 gallons	Same

*Note: Coverage rates and number of topcoats can vary significantly due to variance in the porosity of the mortar, mix design used for the mortar, and desired finish texture.
 Optional Grout/Topcoats: Key #512-OP, Key #512, Key #470
 Optional Urethane Sealers: Key #445, Key #450 (satin), Key #470 Polyaspartic (gloss)

B. Recommended Batch Quantities

1. 1¼ gallon unit *Key #510*
2. 72 pounds *Key Colored Quartz Granules-T250 Blend*
 (Note: use approximate same mix design if using single color TR mesh granules)

Estimated Batch Coverage: 40-45 ft² at 3/16", 30-35 ft² at 1/4"

Recommended quantities for smaller mixers

1. ½ gallon *Key #510* Part A + 1 pint *Key #510* Part B
2. 36 pounds *Key Colored Quartz Granules-T250 Blend*
 (Note: use approximate same mix design if using single color TR mesh granules)

Estimated Batch Coverage: 20-22 ft² at 3/16", 15-17 ft² at 1/4"

IV. INSTALLATION

A. Priming

Key Resin Company recommends that every flooring system be installed with a primer to insure maximum adhesion to the prepared substrate. Priming will also help to seal air in the concrete and prevent outgassing and air bubbling in the finished system. If moisture vapor control system is specified (Key Epocon SL), it should be installed first. Refer to Key Epocon SL detailed installation instructions. If crack isolation membrane is specified (Key #580), it should be installed over the moisture vapor control system.

1. Mixing **Key #502 Primer/Low Modulus Binder**
 - a. Thoroughly mix each component prior to combining.
 - b. 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.
 - c. If thinning is desired, add no more than one pint of xylene per gallon of epoxy at time of mixing.
 - d. **Mix only the amount of material that will be immediately poured onto floor and used (spread and backrolled) in 30 minutes. Do not leave in pail for longer than 5 minutes.**
2. Application
 - a. Pour primer onto the prepared concrete.
 - b. Spread with either a flat trowel or squeegee to a coverage of 250 ft² per gallon.
 - c. Back roll with a short nap roller. Do not allow the primer to puddle. Primer need only wet the concrete surface.
3. Allow Primer to sit for 30 minutes. Trowelled mortar may be applied to wet/tacky primer for up to five (5) hours after primer application. If primer is to be allowed to sit overnight or for prolonged periods, broadcast lightly with dry silica sand.

B. Trowelled Quartz Mortar

1. Mixing **Key #510 Epoxy Binder & Colored Quartz**
 - 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. Slowly add complete units of **Key Colored Quartz Granules-T250** to the premixed **Key #510** while mixing in a KOL Mixer, paddle type mixer, or in a suitable container for mixing with a drill and paddle. Do not attempt to mix more than ½ batch (36#

- colored quartz blend with ½ gallon *Key #510 Part A* and 1 pint *Key #510 Part B*) with a drill and paddle or in a KOL type mixer.
- d. Continue mixing resin/quartz blend for 3 to 4 minutes or until aggregate is uniformly wet.
2. Application
 - a. Place mortar mixture on primed surface and spread with flat trowel or screed to a thickness of $\frac{3}{16}$ - $\frac{1}{4}$ inch or as specified.
 - b. Finish trowel with a flat steel trowel (recommended 3" x 12"). Use sufficient pressure to compact the surface of the topping. The use of a screed and machine trowel is highly recommended to improve production and compaction of the mortar in installations where it is feasible. Take extreme care not to cause burnish marks or trowel marks (ridges) on surface of the flooring from trowel blades. A lightweight power trowel such as a pneumatic "Hover" trowel or electric trowel may also be suitable. ***Important:*** Care must be taken to reduce trowel marks during the troweling process because grinding can not be done on the cured system afterwards or discoloration of the quartz aggregate may occur. Use a floor-level light to help identify trowel marks as each batch is placed and finished. Care must also be taken to eliminate isolated areas of porosity, as these spots will soak in multiple coats of grout coat material, resulting in the need to apply additional coats of epoxy over the entire floor area.
 3. Allow the trowelled quartz to cure overnight.

C. Grouting and Sealing

Key #512-LV Epoxy (*Note: For alternate resins refer to mix ratio on product data sheet*)

1. Lightly scrape the trowelled quartz with a flat trowel to loosen any surface blemishes after overnight cure. Sweep and vacuum prior to grouting. Grouting should be performed with *Key #512-LV Epoxy* or other optional epoxies. If a tight "pebble" texture is desired, apply very thin coats at 100-125 square feet per gallon per coat. Adjust coverage rates as necessary to achieve desired finish texture.
2. Mixing **Key #512-LV Epoxy**
 - a. Thoroughly mix each component prior to combining.
 - b. 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.
 - c. ***Material must be applied within 30 minutes after mixing.***
3. Application of **grout coat**
 - a. Pour mixed epoxy onto scraped and swept surface.
 - b. Spread with either a flat trowel or squeegee at a coverage rate of 80-100 ft² per gallon forcing material tightly onto the surface.
 - c. Back roll with a short nap roller.

Note: ***Additional application of Key #512-LV will be necessary if grout soaks into surface.***

- d. Allow to cure overnight.
4. Application of **finish coat**
 - a. Lightly sand surface to remove any "tails" or ridges left from grout application.
 - b. Mix **Key #512-LV** as described above. *Key #512* or *Key #512-OP* may also be used.
 - c. Pour mixed epoxy onto swept surface.
 - d. Spread with either a flat trowel or squeegee at a coverage rate of 80-100 ft² per gallon to achieve a uniform, textured surface.
 - e. Back roll with a short nap roller. Allow to cure. If areas of porosity are still visible, apply additional coats of epoxy as needed.
 - f. Allow to cure for 24 hours before opening to light foot traffic. Full chemical resistance and performance is achieved after 7 days cure.

Key #467-HS-Satin Urethane Topcoat

Finish coats using **Key #467-HS-Satin Urethane Topcoat** may be applied in order to achieve added performance and chemical resistance or if a satin finish is desired. *Key*

#467-HS-Satin is applied over the grouted and sealed portion of the floor. Using Key #467-HS-Satin is **highly recommended** as it will help to disguise minor trowel marks that may appear more obvious with a light reflective glossy finish.

Important Note (Surface Preparation): When Key #467-HS-Satin is to be applied over a smooth epoxy basecoat, the epoxy should be **thoroughly** sanded/screened. This should be done even when the epoxy has been applied the previous day and is within the standard recoat window. If applying two coats of Key #467-HS-Satin, the prior coat of Key #467-HS-Satin also requires thorough sanding, refer to section B.iii. for additional details.

A. Mixing

- i. Thoroughly mix each component prior to combining.
- ii. Mix four (4) parts by volume of Part A with one (1) part by volume of Part B for three minutes with a low speed electric drill and mixing paddle (Jiffy mixer). Do not thin material. Mix Part A and Part B for a minimum of 2 minutes before adding Satin Additive and continue mixing for 1-2 additional minutes.
 - ii-a. After mixing Part A and Part B as outlined above, add 1.0-1.5 gallons Satin Additive (SA) to 1.25 gallons mixed resin and continue mixing for 1-2 minutes.

Important: Be sure to maintain consistent mix ratio of SA to mixed resin from batch to batch to ensure consistent satin finish. Using 1.5 gallons SA will yield a more prominent satin appearance and more prominent orange peel finish. Using 1.0 gallons SA will yield a semi-gloss appearance and less prominent orange peel finish.
 - ii-b. Optional HTS Finish (WFA-240 mesh AL/OX): After mixing Part A, Part B and SA as outlined above, for maximum wear resistance add ¼ gallon of Key WFA-240 mesh aluminum oxide (AL/OX) powder to 1.25 gallons mixed resin and continue mixing for 1-2 minutes. When using WFA-240 mesh AL/OX or NSA, mix small batches (1.25 gallons) and remix periodically as needed to keep grit suspended, particularly just prior to pouring into a paint pan when using “dip and roll” procedure. Keep grit suspended in the paint pan using the roller immediately before each application.
- iii. **Do not mix more material than can be used in 2 (two) hours.**

B. Application

- i. To ensure proper application thickness and consistency, it is best to use a “dip and roll” procedure and apply at 450-500 ft²/gallon. This will yield 3 mils dry film thickness. Apply in a “V” shape procedure, using aggressive pressure on the roller handle. DO NOT apply thicker than 3.5-4 mils DFT (350-400 ft²/gallon) or puddle resin, as this may cause microbubbles and a resulting white haze.
- ii. Immediately and slowly cross roll with a lint-free short nap 3/8” mohair roller to even the surface texture of the coating, again using aggressive pressure on the roller handle. All cross rolling steps must be done immediately in sequence after initial application of resin. DO NOT re-roll isolated areas more than 10 minutes after completing final cross roll procedure or roller marks may occur! Material must be **very thoroughly** rolled or tiny “fish eyes” (i.e., material separation) may occur. Also, “aggressive” pressure does not mean rapid rolling, but rather to bear down on the roller handle with enough force that the handle bends slightly, to insure enough pressure is used, to help reduce material separation. Crossrolling is always recommended, do this immediately. If resin begins to “fish eye” or pull apart, immediately re-roll. Be sure to check areas already finished to confirm that fish eyes did not form. DO NOT rapidly roll the Key #467-HS Urethane or microbubbles may form from air entrainment. **Important:** Change roller cover every 45-60 minutes if a residue begins to build up on the ends of the roller or roller frame, as accumulated older resin may cause reaction with fresh material, resulting in shortened working time and/or microbubbles. Apply material within the recommended thickness range and allow to cure tack free if topcoating.

- iii. Allow material to cure completely hard (8 to 10+ hours at 75°F, 50% RH) before applying a second coat. Key #467-HS-Satin must be hard enough to aggressively sand (completely de-glossed) prior to application of a second topcoat or “fish eyes/crawling” may occur. Use diamond-impregnated buffer pad (100-150 grit is recommended), or resin-bond diamond plugs (100-150 grit), or 80-100 grit carborundum sand paper. If individual scratch marks are apparent, the surface has NOT been sanded thoroughly. Be sure to completely remove all residual dust with vacuum and damp mopping before coating. **Important:** Key #467-HS-Satin is a moisture cure urethane, relative humidity will significantly affect cure speed. Relative humidity range must be 30%-90% RH, low RH will slow the cure rate. Note that very high humidity (90%+) may result in moisture condensation on the substrate, which can cause numerous small bubbles to form in the urethane.
- iv. Do not open to light foot traffic for 24 hours at 75°F, 50% RH. Do not open to vehicle traffic for 72+ hours at 75°F, 50% RH. Full chemical cure and maximum resistance are achieved in five to seven (5-7) days at 75°F, 50% RH.