

Epoxy Terrazzo

DESCRIPTION • *CrystalTop Epoxy Terrazzo* is a decorative flooring system comprised of a three-pack system containing a high-performance, high-clarity, specialty two-component solvent-free epoxy matrix and decorative aggregates. The epoxy matrix is mixed with the decorative aggregates such as marble chips, granite chips, crushed glass, onyx, and/or Mother of Pearl; then poured in place, cured, ground, and polished to expose the aggregates.

USES • *CrystalTop* is used as a floor finish for interior applications ranging from residential to heavy commercial such as malls, museums, exhibition halls, hospitals and schools. *CrystalTop* is typically installed in a nominal thickness of 8-10 mm over existing floors. *CrystalTop* may also be cast into molds then grinded and polished to produce precast tiles for floor and wall installation.

ADVANTAGES •

- ✓ Extremely durable and long lasting.
- ✓ Chemical and abrasion resistant.
- ✓ Unparalleled design freedom.
- ✓ Seamless, hygienic flooring.
- ✓ Low life-cycle cost.
- ✓ Minimum need for maintenance.
- ✓ Wide choice of matrix colors and aggregates.

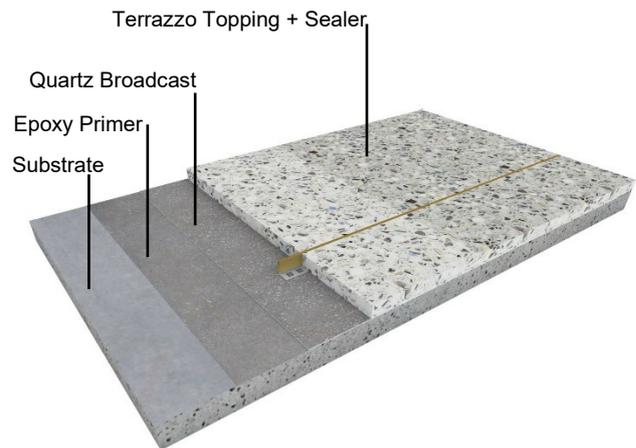
COVERAGE • Coverage will vary depending on substrate surface profile and aggregate mix. Dominant coverage rate is approximately 1 m²/25 kg kit at 10 mm thicknesses (pre-grinding).

LIMITATIONS • Concrete substrate must be allowed to cure for a minimum of 28 days. Interior application only - UV radiation may cause discoloration on certain colors. *CrystalTop* must be applied over structurally sound and non-moving surfaces. Do not apply in areas subject to negative hydrostatic pressure. Concrete substrate must have an efficient moisture/vapor barrier installed directly under the slab. Moving joints in the substrate must be honored through the full thickness of the terrazzo installation. It is not recommended to install *CrystalTop* in thicknesses less than 8 mm pre-grinding due to the risk of exposing high areas of the substrate during grinding. Substrate surface's maximum undulation must not exceed 3 mm every 3 meters.

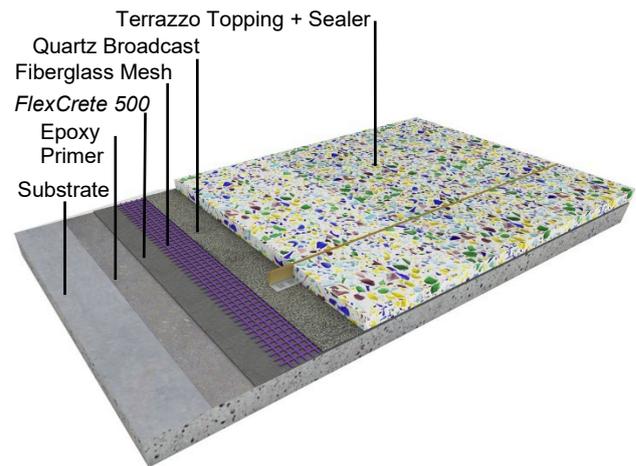
Do not apply if ambient temperature is expected to drop below 10°C during installation, or if rain is expected in the proceeding 24-hour period after application. Do not mix or apply when ambient temperature is expected to exceed 40°C.

SYSTEM DETAIL • *CrystalTop* may be installed with or without an underlying crack isolation membrane composed of *FlexCrete 500 Elastomeric Coating* as shown in the illustrations below. The crack isolation membrane is recommended when the concrete substrate is prone to minor cracks. *FlexCrete 500* also functions as a vapor barrier membrane. Please refer to drawings CCC-TRZ-DT-001/002 for full system details.

Installation w/o Crack Isolation Membrane:



Installation w/ Crack Isolation Membrane:



PHYSICAL PROPERTIES •

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|-------------------------|--|
| Mixed Density | 1.65 ± 0.05 |
| Solids Volume | 100% |
| Application Temperature | 10°C to 60°C |
| Pot Life | 1 hour at 20°C 40 minutes at 35°C |
| Tack Free Time | 4-5 hours at 20°C 3-4 hours at 35°C |

| | |
|------------------|--------------------------------------|
| Initial Hardness | 24 hours at 20°C 16 hours at 35°C |
|------------------|--------------------------------------|

Performance Properties:

| | |
|---|---|
| Shore D Hardness ASTM D 2240 | 71 |
| Compressive Strength ASTM D 695:02 | 83 N/mm ² |
| Tensile Strength ASTM D 412-16 ASTM D 638 | 54.7 N/mm ² 55.2 N/mm ² |
| Elongation ASTM D 638 | 35.6% |
| Pull Off Strength ASTM D 4541:95 | 3.6 N/mm ² |
| Flexural Strength ASTM D 790 | 50.5 N/mm ² |
| Pull Off Strength ASTM D 4541:95 (system on epoxy primer w/ silica sand) | 4.1 N/mm ² (Concrete failure) |
| Impact Resistance (ISO 6272) | No sign of cracking to 1000 mm height |
| Water Permeability (DIN 1048) | Nil |
| Water Vapor Transmission (ASTM E96-95) | 0.009 g/h.m ² Impermeable |
| Abrasion Resistance (ASTM D 4060) | 0.05 g loss per 1000 cycles |
| Volatile Organic Compound (USEPA 24) | 34 g/L |
| Indentation (MIL-D-3134 F 4.7.4), 150 kg/cm ² for 30 min. | No indentation observed |
| Critical Radiant of Flux (ASTM E 648) | < 1.0 |
| Resistance to Elevated Temperature (MIL D3134F) | No slip or flow @ 70°C |
| Coefficient of Thermal Expansion (ASTM D 696) | 2.76 x 10 ⁻⁶ °C |
| Flammability (BS EN ISO 11925-2) | Non-flammable |
| CDHP Standard Method v1.1 TVOC Individual VOC Formaldehyde Total Aldehydes 4-Phenylcyclohexane 1-Methyl-2-Pyrrolidinone | <0.01 mg/m ³ <1 µg/m ³ <1 µg/m ³ <1 ppb <1 µg/m ³ <1 µg/m ³ |
| Coefficient of Friction (ASTM C1028) | 0.81 |
| Slip Resistance Pendulum Test BS EN 14231:2003 w/ ElastoCrete 212 | R12 dry/R11 wet |

CHEMICAL RESISTANCE • The sealer coat on the surface of *CrystalTop* provides additional chemical and stain resistance. CCC sealers have been thoroughly tested for chemical resistance per ASTM D 1308 procedures; please refer to the technical data sheet of the chosen sealer coat for more information.

SURFACE PREPARATION • All bases must be fully cured for a minimum of 28 days, sufficiently rigid, and clean of any surface contamination such as oil, dirt, grease, coatings, curing compounds, and laitance that may prevent proper adhesion. The use of curing agents or additives could prevent bonding of the overlay to the substrate. Dense, smooth surfaces, and those retaining excessive amount of form release agent can cause delamination from the base. Any painted or coated surfaces should be sandblasted and/or pressure washed to remove existing coatings. Use of detergents or soap is not recommended as they may leave a film that can cause bonding failure. The substrate should also be visibly dry. Concrete slabs, on or below grade, must have an efficient moisture/vapor barrier placed by the general contractor directly under the slab.

The concrete substrate should have a steel trowel finish. The surface should be prepared mechanically by grinding or shot blasting to achieve a rough profile and remove laitance, curing agents, or contaminants.

INSURE THAT THE SURFACE MAXIMUM VARIATION DOES NOT EXCEED 3 MM EVERY 3 METERS. Use mechanical grinding along with patching to achieve the required surface level. Use only epoxy based products for patching such as *MortCrete 3000 Multi-purpose Epoxy Mortar* and/or *EpoCrete 5000 Epoxy Screed*; do not use cement-based patching products of any sort.

Damaged areas, surface irregularities, and cracks must be repaired with *MortCrete 3000 Multi-Purpose Epoxy Mortar* prior to application of the primer. Remove all unsound concrete. Patches shall be flush with the surrounding surface and shall match the texture of existing surfaces.

Surrounding areas should be covered and protected from material spills and equipment contact. Rope off work area, remove surrounding vehicles, and close off to traffic.

DIVIDER STRIPS • For expansion joints place two divider strips back-to-back; it is also recommended that divider strips be placed over all moving joints. Dividers can also be used to separate different colors or as design accents, which act as architectural elements. Placement of a crack isolation joint, such as *FlexCrete 500 Elastomeric Coating* reinforced with fiberglass mesh, negates the risk of reflective cracking from the concrete substrate.

The strips must be securely and permanently fastened to the substrate with a high-strength epoxy adhesive; mechanical fasteners may also be used for additional security. It is recommended that the divider strips be installed such that their top is at the pre-grinding level, so that they provide a level guide for casting the terrazzo overlay.

SURFACE PRIMING • The surface must first be primed with *EpoPrime EP Epoxy Floor Primer* in order to unify the surface absorption and enhance bonding. Broadcast quartz aggregates to rejection on the wet primer surface to provide additional keying for the terrazzo material. Please refer to the relevant CCC data sheet for application instructions of the primer. Do not broadcast quartz on the primer surface if an epoxy crack isolation membrane with silica sand aggregates will be installed as outlined below.

FLEXIBLE MEMBRANE (OPTIONAL) • Cracks or movement in the substrate could translate directly through the overlay surface. Therefore, if minor substrate cracking is anticipated it is advisable to coat the substrate with *FlexCrete 500 Elastomeric Epoxy Polysulfide Coating*. Imbed a high quality fiberglass mesh in the *FlexCrete 500* coating such as *ShieldCrete SD* mesh. Use a trowel, scrapper or roll to spread the *FlexCrete 500* over the fiberglass mesh. DO NOT THICKEN; the *FlexCrete 500* coating should be just thick enough to cover the mesh. While the *FlexCrete 500* coating is still wet, sprinkle coarse silica sand aggregates on the surface for good mechanical keying. Brush and vacuum off any loose silica aggregates the next day after the epoxy coating has cured. Please consult the relevant CCC data sheet for application instructions.

MIXING • *CrystalTop* is composed of three packs consisting of the epoxy resin (part A), epoxy hardener (part B), and aggregates with fillers (part C – the fillers are packed in plastic bag inside the pail containing the aggregates), which must be mixed in the exact sequence prescribed. First mix the contents of the resin container (part A) for a few minutes by mechanical means to re-disperse the pigment. The entire contents of the hardener container (Pack B) must then be poured into the resin container (Pack A) and the two components mixed thoroughly for at least 3 minutes. Use a heavy-duty slow speed power drill with a jiffy mixing blade. Mix the two components in the quantities supplied taking care to ensure hardener container is scraped clean. Do not add solvent thinners at any time. After the hardener and resin have been mixed thoroughly, add to the aggregates and fillers (Pack C) while mixing. Continue mixing for another two to three minutes while moving the mixer horizontally and vertically around the mixing pail to insure thorough mixing. For best results, use of a drum mixer is highly recommended.

APPLICATION • Application temperatures should be between 10°C and 40°C. It is highly recommended to test a small area to ensure bonding ability and satisfaction of appearance before complete application.

CrystalTop is typically cast in nominal thicknesses of 10 or 12 mm (other thicknesses are possible upon special request). *CrystalTop* must be applied on a surface primed and prepared as outlined above. Pour the homogeneous *CrystalTop* mix and spread using a rake and a lightweight aluminum screed to a thickness about 2 mm greater than the desired final thickness after grinding. Generally, allow 1-2 mm to be removed by the grinding process. Smooth out the surface immediately with a steel trowel to as flat a surface as possible. Ensure that all voids and corners formed by the design elements are completely filled by the mix. The topping must be left to cure for a minimum of 24 hours at 25°C before any grinding or polishing; lower temperatures will require longer curing times.

GRINDING & POLISHING • Grinding must not take place before the topping has been allowed to cure for a minimum of 24 hours at 25°C – longer curing times would be required at lower ambient temperatures. Use only the highest quality diamond tools and professional, multi-head, floor grinding machines for good leveling and finish.

Start grinding with coarse metal bond diamond tool; 40 grit is usually a good starting point. Always grind progressively through all the pads to the finest. Jumping from a very coarse pad to a much finer pad or skipping stages will not remove the scratch marks left by the previous step. A good rule of thumb is to no more than double the grit number with each successive polishing step; for example, the following grit number sequence could be used: 40, 80, 150, 200. The initial grinding stages with metal-bond tools may be performed dry at low speeds; consult the machine and diamond tools manufacturer for their recommendations. Polishing stages with resin-bond tools must be performed wet only. Typically polishing only to 100 or 200 grit with resin metal pads should be adequate Keep in mind that the adhesion of the sealer coat diminishes with higher grit number polishing; therefore, it is not recommended to polish to more beyond 200 grit.

The initial grinding stages with metal-bond tools (40 and 80 grit) will leave pinholes in the matrix. These holes must be filled with a grout composed of the epoxy and filler; grout kits are supplied separately. After mixing the resin and hardener parts add the filler slowly and mix to a thorough consistency. Use a steel trowel or scrapper to apply the grout to the surface, ensuring that any excess grout is scrapped off the surface. Allow 24 hours of curing time at 25°C, after which the excess grout is removed with the final metal-bond stage (150 grit) or the 100/200 grit resin pad polishing stage.

After all grinding, grouting, and polishing is completed, generously flush the surface with plenty

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of water to remove any residue from the surface. Allow to dry overnight before sealing.

SEALING • It is highly recommended to apply a sealer coat to protect the epoxy terrazzo surface against staining and bring out the color of the decorative aggregates. The surface may be sealed with *A-Z Ultra Sealer Solvent-Borne Acrylic Sealer*, *A-Z Mega Sealer Acrylic Urethane Sealer*, *ElastoCrete 212 Water Based Polyurethane*, or *EpoCrete 100W Water Based Epoxy*.

CURING • At 20°C, *CrystalTop* can be walked on after 24 hours. Full curing will be reached after 14 days. Lower temperatures will require longer curing times.

CLEANING • Clean all tools and equipment promptly with an organic solvent.

STORAGE & SHELF LIFE • Keep material covered and off the ground to prevent exposure to moisture. Store at 25°C in a dry, covered area away from direct sunlight. Expected shelf life is 12 months from the date of purchase when stored in original unopened packaging under recommended storage conditions.

SAFETY PRECAUTIONS • KEEP OUT OF REACH OF CHILDREN. DO NOT TAKE INTERNALLY. The application of material should be under good ventilation. Avoid inhalation of the vapors. Use goggles and vinyl gloves. In case of contact with eyes, rinse immediately with plenty of clean water, do not use solvent and seek medical attention immediately. The product complies with environmental and occupational health & safety standards ISO 14001 and OHSAS 18001.

FIRST AID: Eyes – Do not rub eyes, immediately flush with fresh water and seek medical attention immediately. Skin – Wash with soap and water. Inhalation – If experience difficulty breathing move to fresh air. If symptoms persist, seek medical attention.

PACKAGING • *CrystalTop* is typically sold in 25 kg kits.

Creative Concrete Concepts

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