Creative Concrete Concepts

TopCrete 720

Polyacrylate Terrazzo Overlay

TECHNICAL DATA SHEET

DESCRIPTION • *TopCrete 720 Polyacrylate Terrazzo Overlay* is a pre-mixed, polymer-modified cementitious binder that is mixed with decorative aggregates such as crushed marble chips, onyx, and/or glass chips. The mix is poured in place on existing concrete floors, cured, grinded, and polished to expose the aggregates and produce a seamless terrazzo finish.

USES • *TopCrete 720* is low-cost alternative to more expensive epoxy resin-based terrazzo and is suitable for use as a topping in interior as well as exterior floors ranging from residential to heavy commercial. *TopCrete 720* is provided as a ready-to-use dry-mix binder that is mixed with decorative aggregates and cast in thicknesses ranging from 10 to 30 mm over a reinforced concrete slab, then grinded down to expose the aggregates and polished to a smooth surface. *TopCrete 720* may be polished to 200 or 400 grit then sealed with a topical sealer such as *ElastoCrete 212* or may be polished to 1500 or 3000 grit to produce a high natural gloss finish then sealed with a burnishable penetrating-type sealer.

ADVANTAGES •

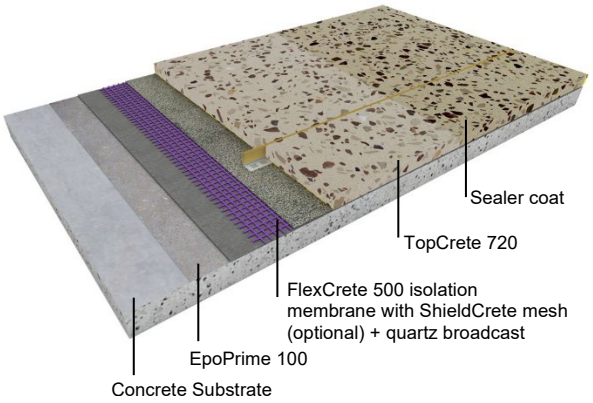
- ✓ Highly durable and abrasion resistant surface.
- ✓ A decorative and attractive floor.
- ✓ Seamless and hygienic floor.
- ✓ Minimum need for maintenance.
- ✓ Wide choice of matrix colors and aggregates.

COVERAGE • Coverage will vary depending on substrate surface profile and required depth of installation. When mixed with decorative aggregates at 50% by weight, on average a 25 kg bag of the *TopCrete 720* binder can be expected to cover about 1.5 square meters at 12 mm thicknesses (pre-grinding) depending on the density and grading of the aggregates.

LIMITATIONS • *TopCrete 720* must be applied over structurally sound and non-moving surfaces. Do not apply in areas subject to negative hydrostatic pressure. Moving joints in the existing substrate must be extended through the full depth of the *TopCrete 720* topping by installing a divider strip over the joint or saw cutting the overlay, allowing for the simultaneous movement of the substrate and the *TopCrete 720* topping. It is recommended to allow new concrete surface to fully cure fully prior to application of *TopCrete 720* to allow for settlement of the substrate. A priming coat of *EpoPrime 100 Epoxy Primer* or equivalent with broadcast silica must first be applied to the substrate prior to application of *TopCrete 720*. The surface must be sealed after polishing to protect against staining.

Do not apply if ambient temperature is expected to drop below 7°C during installation or in the proceeding 48 hours, 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 ILLUSTRATION •



PHYSICAL PROPERTIES •

Compressive Strength (ASTM C109) 1 days 28 days	 27 MPa 61 MPa
Tensile Strength (ASTM C307) 7 days 28 days	 4.1 MPa 5.6 MPa
Flexural Strength ASTM C348 @ 7 days ASTM C348 @ 28 days EN 13892-2 @ 7 days EN 13892-2 @ 28 days	 7.8 MPa 10.7 MPa 7.1 MPa 8.3 MPa
Adhesion Strength (EN 13892-8) @ 7 days @ 28 days	 1.61 MPa 2.27 MPa
Abrasion Resistance to ASTM D 4060-10, weight loss TopCrete 720 Concrete	 0.97 g 10.0 g
Flash Point	Non-flammable
Impact Resistance (MIL-D-3134J)	No visible sign of chipping or cracking
Resistance to Indentation (MIL-D-3134J)	No visible sign of cracking
Drying Shrinkage Length Change (ASTM C157) 4 days 7 days 14 days 28 days	 -0.009% -0.014% -0.018% -0.022%
Moisture Absorption (MIL-D-3134J / ASTM C643-13)	5.4%
Resistance to Elevated Temperature (MIL-D-3134J), Average Flow/Slip	0.0037” No sign of softening

VOC Content (USEPA 24)	<1 g/L
Haz Mat Content: Cr VI (HACH 8023) Mercury (ICP AES) Arsenic (ICP AES) Cadmium (ICP AES) Lead (ICP AES)	 <0.01 ppm <0.01 ppm <0.01 ppm <0.01 ppm <0.01 ppm
CDPH Standard Method V1.2 (US EPA Methods TO17) TVOC Individual VOC	 <0.01 mg/m^3 Not Detected
CDPH Standard Method V1.2 (ASTM D5197-03) Formaldehyde Total Aldehydes	 Not Detected Not Detected

SURFACE PREPARATION • Concrete substrate must be fully cured, sufficiently rigid, and clean of any surface contamination such as oil, dirt, dust, grease, coatings, curing compounds, and laitance that may prevent proper adhesion. Mechanical means of surface preparation such as shot blasting or rough grinding are highly recommended to open the pours of the concrete and produce a rough surface profile. Acid etching, solvents, and adhesive removers may not be sufficient. Dense, smooth surfaces, and those retaining excessive amount of form release agent can cause delamination from the base and must be prepared by mechanical means. Any painted or coated surfaces should be sandblasted or grinded to remove existing coatings. Use of detergents or soap is not recommended as they may leave a film that can cause bonding failure. 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.

Cracks should be opened with a small hand-held grinder and filled with a repair compound such as *MortCrete 3000* or *CementAll*. However, cracks that continue to move after repair could still cause reflective cracking in the topping. Any surface imperfections or holes should be patched with *MortCrete 3000 Epoxy Patching Compound* or *CementAll* repair compound and allowed to cure.

PRIMING • Apply a coat of *EpoPrime 100 Solvent-Free Epoxy Primer* to the prepared concrete surface; refer to the CCC relevant data sheet for application instructions. Immediately while the coating is still wet broadcast coarse silica sand such as *A-Z Quartz* size #2.5 to rejection. Allow to cure overnight then broom off all excess silica that has not bonded to the primer.

FLEXIBLE MEMBRANE (OPTIONAL) • New cracks and moving cracks in the substrate may translate directly through the overlay surface. Therefore, if minor substrate cracking is anticipated the substrate may be coated with *FlexCrete 500 Epoxy Polysulfide Coating* to mitigate the risk of reflective cracking. Embed a high-quality fiberglass mesh in the *FlexCrete 500* coating such as *ShieldCrete SD* fiberglass mesh or *InsuCrete Standard* mesh. Use a trowel or roll to spread the *FlexCrete 500* over the fiberglass mesh. The *FlexCrete 500* coating should be just thick enough to cover the mesh at least partially and accept the quartz broadcast. While the *FlexCrete 500* coating is still wet, broadcast coarse quartz sand on the surface to rejection. Brush and vacuum off any loose quartz the next day after the epoxy coating has cured. Please consult the relevant CCC data sheet for application instructions. Note: in case of installation of a flexible membrane, do not broadcast quartz over the epoxy primer coat; the concrete substrate may be primed with *EpoPrime EP1* or *EpoPrime 100*.

MIXING • *TopCrete 720* may be mixed with decorative aggregates at a ratio of approximately 50% by weight of the binder; higher mixing ratios may also be used depending on the density, size and grading of the aggregates; it is highly recommended to conduct trials to determine the best mixing ratio. The maximum size of the aggregates should not exceed 1/3 to 1/2 of the overlay's thickness, for example, for an installation thickness (pre-grinding) of 12 mm, the aggregates used should not exceed 4-5 mm in size.

Mixing should be done with a drill mounted jiffy-type mixer at low speeds, a paddle type mixer or a concrete drum mixer. Always add clean potable water first. Mixing duration should last for a few minutes to ensure proper color and material dispersion within mix; never retemper. Approximate mixing ratio is 3.2-3.5 liters of water per 25 kg bag; however, additional water may need to be added depending on the absorbency of the aggregates used. For best results start at the low range and add water gradually as needed to achieve the desired workability. Do not exceed 3.7 liter of water per 25 kg bag; a high water ratio will negatively impact the physical properties of the material.

DIVIDER STRIPS • Dividers made of zinc, brass, or plastic may be used as construction joints for placement of the topping. In cases where control joints in the substrate are expected to continue to function as lines of thermal expansion and contraction, dividers strips may be placed at these locations in lieu of extending the control joints into the topping; a back-to-back configuration may be necessary. For expansion joints or wide joints in the substrate, place two divider strips back-to-back and later fill with an appropriate joint sealant. Dividers may also be used to separate different colors or as design accents, which act as decorative elements. Make sure that the strips are securely fastened to the substrate to avoid movement during casting of overlay. Install the divider strips so that the top of the strip is at the level of the intended application thickness. These strips can be used as a guide for the screeding process.

APPLICATION • Application temperatures should be between 5°C and 40°C. It is highly recommended to test a small area to ensure bonding ability and satisfaction of appearance before complete application.

TopCrete 720 must be applied in a minimum thickness of 8 mm; the application thickness is governed by the size of the aggregates used, among other factors, with the maximum size of the aggregates not exceeding 1/3-1/2 of the overlay thickness. Install all brass or zinc divider strips prior to application of *TopCrete 720*. The *TopCrete 720* mix must be promptly poured onto the floor and quickly spread using stainless steel trowels. An aluminum straight edge may also be used to rake the material and ensure a level application. Once the material has been spread it must be quickly and very lightly troweled to smoothen and level the surface. Do not over-trowel the surface as this may push the aggregates down and bring too much paste up to the surface.

CURING • DO NOT WATER CURE. *TopCrete 720* is self-curing; under high temperature or windy conditions where the material might dry too quickly a curing membrane such as *A-Z 100 Curing Compound* or a sealer coat may be used. It is recommend to allow the overlay to cure for at least three days prior to grinding; longer curing times will produce better results.

GRINDING & POLISHING • For best results, *TopCrete 720* should be grinded and polished with professional multi-head floor grinding machines and diamond tools. *TopCrete 720* may be grinded and polished dry or wet depending on the aggregates used. Please consult the polishing machine manufacturer's representative for details; trials are highly recommended. Coarse grinding typically starts at 30-40 grit with metal-bond diamond tools to fully reveal the aggregates and level the surface, progressing to higher levels by roughly doubling the grit number (40, 80, 150 grit).

Generally, grouting the surface takes place after grinding with metal diamond tools prior to polishing with resin pads; consult the machine and diamond tools manufacturer for details. Use the *TopCrete 720* binder mix for grouting by mixing with water and applying to the surface with a trowel or a scrapper, ensuring any excess grout is removed.

If a topical sealer will be applied for a matte finish, then polishing may be terminated at the 100 or 200 grit stage.

After all grinding, grouting, and polishing is completed, clean the surface with water or a wet mop to remove the residue from the surface. Allow to dry overnight before sealing.

SEALING • Once the in-place *TopCrete 720* has been allowed to dry, the surface should be sealed with *ElastoCrete 212 Water-Based PU Sealer*, *A-Z Ultra Sealer Solvent-Borne Acrylic Sealer,* or *A-Z Mega Sealer Water-Based Urethane Sealer* if the surface was polished to 400 grit or less. If the surface was polished to 1500 grit or higher for a natural gloss finish, it must be sealed with a penetrating-type, burnishable sealer such as *Lythic Protector*. Please refer to the relevant CCC technical data sheets for instruction. Sealed surfaces should be inspected periodically for traffic-worn areas and re-sealed as necessary.

CLEANING • Clean all tools and equipment promptly with clean water.

STORAGE & SHELF LIFE • Keep material covered and off the ground to prevent exposure to moisture. Store 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 CHIDREN. DO NOT TAKE INTERNALLY. CONTAINS CEMENT AND SILICA (QUARTZ). Portland cement and silica-based products present health hazards. May cause delayed lung injury (silicosis). Irritating to eyes and skin. Use in adequate ventilation and do not breath dust. Extremely fine material, always use a NIOSH/MSHA TC 21C approved dust mask when handling, especially during spray applications. Use neoprene gloves, safety goggles, and a dust mask when handling. FIRST AID: Eyes – Do not rub eyes, immediately flush with fresh water. Skin – Wash with soap and water. Inhalation – If experience difficulty breathing or if inhaled, move to fresh air. If symptoms persist, seek medical attention.

PACKAGING • 25 kg bags for binder, aggregates sold separately.

Creative Concrete Concepts
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