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CrownShield® 50

Product Description Sheet No. 320

High-Build Pigmented Epoxy Floor Coating and Epoxy Polymer Concrete for Commercial and Industrial Use

DESCRIPTION

CrownShield® 50, Product No. 320 is a two-component pigmented epoxy floor coating or epoxy polymer concrete (EPC) when aggregate is added. It is a 100% solids, moisture-insensitive, non-shrink, nearly no odor during application.

APPLICATION METHODS

The mixed polymer may be applied as a neat coating, single or double broadcast system, slurry broadcast system, EPC hand troweled or power troweled.

USE

Used in decorative, commercial, institutional and industrial applications where the toughest heavy-duty industrial and manufacturing floor environments exist.

BENEFITS

This tough and dense beautiful pigmented seamless polymer overlay wear surfaces are easy to maintain. They require no waxing. They become a monolithic part of the concrete increasing their durability and life cycle. They can provide different appearances from smooth to aggressive textures, solid colors, random flaked or attractive patterns of colors and shapes. They are designed for a variety of environmental exposures.

ADVANTAGES

- Complies with USDA, FDA, OSHA, ADA and LEED® "Green" requirements
- Great working time
- No VOC's – 100% solids formula
- Moisture-insensitive formula
- Cures down to 50°F (10°C)
- Excellent strength properties
- Excellent impact resistant

TYPICAL COVERAGE

Neat Base Coat: 8-10 MILS (160-200 ft² / Gal.)
Neat Top Coat: 10 MILS (160 ft² / Gal.)
Refer to typical application coverage chart.

TYPICAL DATA FOR CROWNSHIELD 50

Material and curing conditions at 73°F (230C), 50% R.H unless noted.

COLOR:

10 Standard Colors

VISCOSITY:

550 – 750 cps.

MIX RATIO BY VOLUME:

Comp "A" 2 to Comp "B" 1

POTLIFE: 15-18 minutes

CONSISTENCY: Nearly Self-Leveling

TACK-FREE TIME:

Substrate Temperature		
50°F	73°F	90°F
10-12 hrs	6-8 hrs	5-7 hrs

TENSILE PROPERTIES: ASTM D638 7 days

Tensile Strength: 8,800 psi
Elongation at Break: 5 %

FLEXURAL PROPERTIES: ASTM D790

7 days
Flexural Strength: 16,000 psi
Tangent Modulus of Elasticity: 510,000 psi

SLANT SHEAR STRENGTH: ASTM C882

7 days		
Test Temp.	Value	Mode of Failure
50°F	4,000 psi	100% Concrete Failure
90°F	4,200 psi	100% Concrete Failure

COMPRESSIVE STRENGTH: ASTM D695

Neat Polymer			
	50°F *	73°F	90°F
8 hour	3,700 psi	6,300 psi	10,300 psi
1 day	10,100 psi	10,200 psi	10,300 psi
7 days	14,100 psi	14,200 psi	14,200 psi

COMPRESSIVE STRENGTH: ASTM C579

7 days EPC: 11,500 psi

HARDNESS:

INDENTATION - ASTM D2240
Neat Epoxy, 7 day cure, Durometer, Shore D 80

INDENTATION:

LOAD - MIL-D-3134, Para. 4.7.4.2.1
EPC, 7 day cure, Method: 1 in. diameter steel ram steadily applies a load of 2,000 lbs. for 30 min. on the test specimen that is placed on concrete.
Value - 0.004 in. indentation

INDENTATION:

IMPACT - MIL-D-3134, Para. 4.7.3
EPC, 7 day cure, Method: 2 lb. steel ball is dropped twice from a 8 ft. height.
Value - 0.012 in. indentation

ADHESION TO CONCRETE:

TENSILE PULL - ACI 503 R
EPC, 7 day cure, - 410 psi, 100% concrete failure

ABRASION RESISTANCE:

TABOR ASTM D 4060 EPC,
7 day cure, 1,000 cycles,
1,000 g. load, Wheel No. 17, Loss 0.051 g

WATER ABSORPTION:

ASTM D 570
EPC, 7 day cure, max. 0.15%

COEFFICIENT OF THERMAL EXPANSION:

ASTM D696
Temperature Range: -30°C (-22°F) / 30°C (86°F)
7 days: 18.0 X 10⁻⁶ in / in./°F

FLAMMABILITY: ASTM D635

EPC, 7 day cure, self-extinguishing

SHELF LIFE:

1.5 years in original unopened containers

PACKAGING:

3, 5, 15, 150 - Gal/Units

How To Apply CrownShield®50

SURFACE PREPARATION

Concrete and other substrates must be clean, sound, and free of dust, grease, waxes, coatings, curing compounds and all contaminants. Typical removal methods include dust-free abrasive shot blasting. Clean the substrate to the desired surface profile for the overlay system selected. Follow the Crown Polymer Surface Preparation Guide for best results.

TEST SUBSTRATE FOR CLEANLINESS AND ADHESION

Before placement of the polymer overlay, test the cleaned concrete substrate for soundness and cleanliness with a Tensile Pull Test ACI 503 R (min.200 psi) or Crown Polymers Surface Shear Test. 100% concrete must fail to pass either test without bond line failure.

PRECONDITIONING POLYMER

When temperatures drop, polymers typically thicken and it becomes harder to flow or to spread the product. When the temperatures are warmer, they typically become thinner. To improve product flow-ability maintain product temperature before mixing at about 20°C (73°F). When the substrate temperature is lower than 10°C (50°F) change product for proper curability, and preheat each epoxy component to 320C (90°F) before mixing. Caution the pot life will be reduced by about 50%. It may be necessary to reduce the mixed volume quantity of the batch.

CUSTOMER SATISFACTION

Apply the entire overlay system to a test area to ensure that the application meets the customer's expectations or provide a sample for written approval before starting work.

MIXING

Pre-mix Component "A", (when pigmented) then pour Component "B" into "A" and mix for approximately 90 seconds (until one even colors develops) with a low speed paddle attached to a drill (400-600 rpm). The mixed product is ready for immediate placement.

COVERAGE

Product coverage is depended upon the existing substrate surface profile and thickness of the designed system. Refer to Crown Polymers Application Method Guide and Specifications.

APPLICATION METHODS

Refer to Crown Polymers Application Method Guide and Specifications.

LIMITATIONS

- Substrate temperature must be 3°C or 5°F above measured dew point temperature.
- Minimum application substrate temperature is 10°C (50°F).
- DO NOT APPLY on a WET SUBSTRATE.
- DO NOT THIN - solvents could prevent proper cure.
- Aggregate must be dry when used.
- Pre-condition polymer as needed.
- Withstands vapor pressure up to 3 lbs/1,000 ft2. Request data.
- Applied the next polymer lift within 24 hours if the ambient temperature is below 850F and 18 hours if above 850F.

MAINTENANCE

For maximum life expectancy, routinely sweep and wash floors with appropriate cleaners and detergents. All chemicals or abrasive grit should be removed as soon as possible.

CAUTION

Component "A" - Irritant

Contains epoxy resins. Prolonged contact with skin may cause irritation. Avoid contact with eyes.

Component "B" - Corrosive

Contact with skin may cause severe burns. Avoid eye contact. The product is a strong sensitizer. Contains cycloaliphatic amines.

IMPORTANT INFORMATION

Use safety goggles and chemical-resistant gloves. NIOSH/OSHA approved respirator, and adequate ventilation is recommended when in a confined air space.

CLEAN UP

In case of spills wear suitable protective equipment, contain spill, and collect with absorbent material, place in suitable container. Ventilate area. Avoid contact. Dispose according to applicable local, state, and federal regulations.

FIRST AID

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes. For respiratory problems, remove person to fresh air. Contact Physician Immediately. Wash clothing before re-use.

Consult Material Safety Data Sheet for More Information before use.

FOR INDUSTRIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN
KEEP CONTAINERS TIGHTLY CLOSED



LIMITED WARRANTY - "Crown Polymers, LLC warrants its products to be free of manufacturing defects, to be of good quality, and that they will meet Crown Polymers current physical published properties when applied in accordance with Crown Polymers written directions and tested in accordance with ACI, ASTM and Crown Polymers Standards. Product proved to be defective will be replaced. There are no other warranties by Crown Polymers, LLC of any nature whatsoever, expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. Crown Polymers, LLC shall not be liable for damages of any sort, including remote or consequential damages, resulting from any claimed breach of any warranty, whether expressed or implied, from any other cause whatsoever. Crown Polymers will not be responsible for use of this product in a manner to infringe on any patent held by others."

For the Location of Your Nearest Crown Polymers Representative, Call Nationwide Toll-Free 1.888.732.1270

CrownShield TD

System Description Sheet No. 320-TD

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EPOXY POLYMER CONCRETE TROWEL FLOOR OVERLAY

Description

CrownShield TD, System No. 320-TD is a 100% Solids, 100% Reactive, moisture-insensitive, non-shrink, 3 component, Epoxy Polymer Concrete formulated to be hand or power-trowel applied at a typical thickness of $\frac{3}{16}$ – $\frac{1}{4}$ in. **CrownShield TD** cures to a very strong, dense mortar for applications demanding a superior abrasion wear and impact resistance.

Advantages

- Complies with USDA, FDA, OSHA, ADA and LEED[®] "Green" requirements
- No VOCs – 100% solids formula
- Nearly no odor during application
- Self Priming
- Non-Shrink
- Moisture insensitive formula
- Cures down to 50°F; lower curing temperature available
- Fast Cure Rate Available
- Very dense, less than 2% voids
- Excellent Strength Properties
- High Vibration Resistance
- Easy to Place

Where to Use

Use **CrownShield TD** for:

- Shallow, Partial & Full Depth Patching.
- Wide Void Grouting
- Regrading Surfaces
- Heavy Duty Protective Overlays on new floors
- Repair and protection of old, worn floors

Typical Coverage

Refer to typical application coverage chart.

Mix Ratio

Typical mix ratio for hand trowel is 1:7 – 1:8 resin to Crown Trowel Sand. Mix ratio can be increased to 1:10 for power trowel. Mix ratio depends on environmental conditions. Contractors can use locally available trowel sand that is pre-approved by the manufacturer.

Typical Data for CrownShield TD

(Mix ratio 1:8 Prod. No. 320 to aggregate)

Compressive Strengths

ASTM C579, 7 day cure, 11,500 psi

Hardness

ASTM D2240, Neat Epoxy, 7 day cure, Shore D 80

Indentation (Load)

MIL-D-3134, Para. 4.7.4.2.1, 7 day cure
Method: 1 in. diameter steel ram steadily applies a load of 2,000 lbs. for 30 min. on the test specimen that is placed on concrete.

Value 0.004 in. indentation

Indentation (Impact)

MIL-D-3134, Para. 4.7.3, 7 day cure,
Method: 2 lb. steel ball is dropped twice from an 8 ft. height.

Value 0.012 in. indentation

Adhesion To Concrete (Tensile Pull)

ACI 503 R, 7 day cure 410 psi, 100% concrete failure

Abrasion Resistance (Taber)

ASTM D 4060, 7 day cure, 1,000 cycles, 1,000 g load,
Wheel No. 17 Loss 0.051 g

Water Absorption

ASTM D 570, 7 day cure, < 0.15%

Tensile Properties

ASTM D 638 Strength - Neat Epoxy, 7 day cure 8,800 psi

ASTM D 638, Elongation - Neat Epoxy, 7 day cure 5%

Flexural Properties

ASTM D 790, Neat Epoxy, 7 day cure
Strength 9,200 psi

Tangent Modulus of Elasticity 5.1×10^5 psi

Slant Shear Strength

ASTM C 882, 7 day cure

Test Temperature	Value	Mode of Failure
90°F	4,000 psi	100% Concrete Failure
50°F	4,200 psi	100% Concrete Failure

Coefficient of Thermal Expansion

Temperature Range: -30C/30C (-22°F / 86°F)

ASTM D 696, 7 day cure, 18.0×10^{-6} in / in °F

Flammability

ASTM D635, 7 day cure, Self-extinguishing

Slip Resistance

Complies with Americans with Disabilities Act (ADA), Title 111, July 1992 and OSHA Standards 29 CFR-1910. Accepted Industry Standard, ASTM C 1028 Coefficient of Friction Levels range from 0.5 to 1.0. Rating is depended on surface profile selected.

Shelf Life

2 years in original unopened containers

CrownShield TD, an Epoxy Polymer Concrete Trowel Floor Overlay

Surface Preparation

All substrate surfaces must have all loose and deterioration removed to a sound surface. Concrete and other substrates must be clean, sound, and free of dust, grease, waxes, coatings, curing compounds and all contaminants. Typical removal methods include dust-free abrasive blasting. Clean the substrate to the desired surface profile, until all the surface shows open pores. Follow Crown Polymer Surface Preparation Guide for best results.

Test Substrate for Cleanliness and Adhesion

Before placement of the Epoxy Polymer Concrete, check the concrete and steel substrates for soundness and cleanliness with a Tensile Pull Test (ACI 503 R) or Shear Test. 100% concrete must fail to pass either test.

Preconditioning Epoxy

When temperatures drop, polymers typically thicken and it becomes harder to flow or to spread the product. When the temperatures are warmer, they typically become thinner. To improve the flow-ability maintains product temperature before mixing at about 20°C (73°F). When the substrate temperature is 15°C (60°F) or lower, preheat each epoxy component to 90°F before mixing. Caution the pot life will be reduced by about 50%.

Mixing

Pre-mix Component "A", (when pigmented) then pour Component "B" into "A" and mix for 90 seconds with a low speed paddle attached to a drill (400-600 rpm). Pour the mixed epoxy into a clean 5 gal pail and slowly add the aggregate and mix until uniformly blended, about 4 minutes. For larger batches pour the mixed epoxy into a concrete mixer, add the aggregate into the mixer, and blend for about the same amount of time.

Note: When a mixer is used, on the first batch reduce 5-10 lbs. of aggregate to allow the mixer drum surface to wet out. Be sure the mixing vessel is clean and dry.

Priming

CrownShield TD formula is designed to prime the surface as part of the placement process and it does not normally require priming. Priming and broadcast may be preferred when using a screed box for application. Problematic concrete surfaces may require priming prior to EPC placement.

Placement

Place the mixed EPC onto the surface, spread evenly with a box screed or a vibrating screed. Finish smooth with hand or power troweling methods at a compacted thickness of $\frac{3}{16} - \frac{1}{4}$ in.

Limitations

- Substrate temperature must be 3°C or 5°F above measured dew point temperature.
- Minimum application temperature is 10°C (50°F). Lower curing temperature option available.
- DO NOT APPLY on WET SUBSTRATE.
- DO NOT THIN - solvents could prevent proper cure.
- Aggregate must be dry when used.
- Pre-condition polymer as needed.

Caution

Before Using Read Material Safety Data Sheets.

Component "A" - Irritant

Contains epoxy resins. Prolonged contact with skin may cause irritation. Avoid contact with eyes.

Component "B" - Corrosive

Contains aliphatic/cycloaliphatic amines. Contact with skin may cause severe burns. Avoid eye contact. Product is a strong sensitizer

Component "C" - Contains silica.
Avoid breathing product.

Important Information

Use of safety goggles, chemical-resistant gloves, adequate ventilation and NIOSH/OSHA approved respirator is recommended.

Clean Up

In case of spills wear suitable protective equipment, contain spill, and collect with absorbent material, place in suitable container. Ventilate area. Avoid contact. Dispose according to applicable local, state, and federal regulations.

First Aid

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes. For respiratory problems, remove person to fresh air. Contact Physician Immediately. Wash clothing before re-use.

Consult Material Safety Data Sheet for More Information

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KEEP CONTAINERS TIGHTLY CLOSED**

LIMITED WARRANTY - "Crown Polymers, LLC warrants its products to be free of manufacturing defects, to be of good quality, and that they will meet Crown Polymers current published physical properties when applied in accordance with Crown Polymers written directions and tested in accordance with ACI, ASTM and Crown Polymers Standards. Product proved to be defective will be replaced. There are no other warranties by Crown Polymers, LLC of any nature whatsoever, expressed or implied, including any warranty of merchantability or fitness for a particular purpose in connection with this product. Crown Polymers, LLC shall not be liable for damages of any sort, including remote or consequential damages, resulting from any claimed breach of any warranty, whether expressed or implied, from any other cause whatsoever. Crown Polymers will not be responsible for use of this product in a manner to infringe on any patent held by others."

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