

# 320 CrownShield<sup>®</sup> General Purpose Thru-Product<sup>™</sup>

## TECHNICAL DATA SHEET Product Number: 320

### General Purpose Epoxy Thru-Product - Primer, Body Coat, Binder, & Topcoat

#### DESCRIPTION

320 CrownShield is a two-component general purpose epoxy primer, coating, and flooring mortar binder for broadcast and hand-troweled or power-troweled product. It is a low viscosity, low odor, 100% solids thermosetting epoxy. It's a general-purpose epoxy, an upgraded Crown Polymer product that can be added for superior chemical and abrasion-resistant topcoats and finish coats, such as, 320 CrownShield Hybrid Epoxy or Aliphatic Polyester Polyurethane for industrial kitchens, commercial laboratories, and wine and spirit processing facilities subjected to heavy foot traffic, forklift traffic and chemical exposure. It can be applied directly over Crown Polymers 8303 CrownShield MVB (moisture mitigation primer). It is VOC Compliant in all states and provinces in North America.

#### TYPICAL USE

- Automotive Show Room and Repair Floors
- Commercial Bakery and Kitchen Floors
- Hospital and Health Care Facility Floors
- Laboratory and Research Floors
- Manufacturing and Warehouse Floors
- Pharmaceutical Floors
- School and University Floors

\*Note: Use appropriate Top Coat and Finish Coat

#### BENEFITS

- Complies with USDA, FDA, Food Safety Modernization Act. See Crown Polymers Technical Bulletin: 3 Food and Beverage Compliance.
- Slip Resistance (ADA) See Crown Polymers Technical Bulletin: 4 Coefficient of Friction.
- LEED<sup>®</sup> and Green Seal<sup>®</sup> requirements. See Crown Polymers Technical Bulletin: 5 LEED and Green Seal Information.
- 100% Solids, Zero VOC and EPA Compliant, and low odor during installation. Cures to an inert finish. See Crown Polymers Technical Bulletin: 2 VOC Compliance.
- Strong and Tough Floor.
- Strong Chemical and Abrasion Resistance
- Designed for new floors and for resurfacing old floors

#### LIMITATIONS

- This product is best suited for applications in temperatures between 60°F to 90°F (16°C to 32°C).
- Scratches in certain colors may appear white, such as blue pigmented products.
- Higher temperatures will result in shortened working times and faster drying time.
- Color may vary due to batch-to-batch variation, always "box" different batches to avoid it.
- Do not use as a primer when concrete slab exceeds 3 lbs. or 80% RH.

#### COLORS

Clear, 15 Standard Colors\* and Custom Colors. Available in factory pigmentation or CrownPigment<sup>™</sup> Epoxy 6300 PigmentPack<sup>™</sup> \*See Crown Polymers Standard Color Guide Acrylics, Epoxies, Polyaspartics, Polyurethanes (PigmentPack).

#### COVERAGE RATE

- Primer: 160 to 200 sq. ft. (14.9 to 18.9 sq. m.) WFT 8 to 10 mils (0.20 to 0.25 mm)
- Coating: 100 to 160 sq. ft. (9.3 to 14.9 sq. m) WFT 10 to 16 mils (0.25 to 0.41 mm)
- Broadcast, Slurry, & Trowel: Varies rate depending on the thickness of the system selected. 1/16 to 1/4 inch (1.59 to 6.35 mm) and more.

#### CONCRETE

Concrete must be structurally sound and free of curing agents, coatings, sealers, densifiers, and other bond breakers.

##### New Concrete:

- Place concrete per ACI 302.2R Guide for Concrete
- Slabs that Receive Moisture-Sensitive Floor Materials.
- Water Cement Ratio 0.4 to 0.5, and an approximate
- 4,000 psi (28 MPa) strength level.
- Requiring a positive side moisture barrier in direct contact with the concrete meeting ASTM E1745 Standard Specification for Plastic Water Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs. The moisture barrier needs to be placed per ASTM E1643 Standard Practice for Selection, Design, Installation of Water Vapor Retarders Used in Contact the earth or Granular Fill Under Concrete Slabs, Class A 15 mils (0.38 mm).



**Existing Concrete:**

- If field tests or laboratory analysis reveals inferior concrete flooring slabs containing contaminants from previously applied unreacted silicate materials that will interfere with the bond, use 8201 CrownPrime WBC Primer. See Crown Polymers Technical Bulletin: 20 Selecting a Primer.
- Contaminants include, but are not limited to organic hydrocarbon materials, calcium chlorides, and aluminum stearates.
- Concrete flooring slab can lose their structural strength over time, caused by conditions beyond the control of the flooring manufacturer or the installation contractor.
- If the concrete substrate deteriorates sufficiently, it will no longer support the bond of the remediation floor system.
- Such conditions are detailed in ACI 201.2R “Guide to Durable Concrete” published by the American Concrete Institute. See Crown Polymers Technical Bulletin: 1 Concrete Surface Preparation.

<b>Physical Properties at 77°F (25°C) Unless Otherwise Stated</b>	
VOC (Volatile Organic Compounds) ASTM D3960	<5 gr./lt.
Viscosity, Mixed Epoxy and Hardener	550 to 750 cps
Pot Life, 1 gal (3.79 lts.) Mass (Pot Life is reduced when the Mass and/or Temperature is increased.	20 Minutes
Mix Ratio, by Volume	2:1
Minimum Application Temperature	50°F (10°C)
Dry to Touch 50°F to 90°F (10°C to 32°C)	5 to 12 Hours
Recoat Time 50°F to 90°F (10°C to 32°C)	12 to 24 Hours
Little Traffic 50°F to 90°F (10°C to 32°C)	44 Hours Minimum
Full Cure 50°F to 90°F (10°C to 32°C)	7 to 14 Days
Shelf Life (Shipping and Storage) 40°F to 100°F (4.4°C to 38°C)	1 Year
Packaging 1.5, 3, 15, and 150 gal kits (5.7, 11.4, 56.8, and 567.8 lts. kits)	

<b>Mechanical Properties at 77°F (25°C) Unless Otherwise Stated</b>	
Surface Preparation ICRI Guideline No. 310.2R (CSP 2 to CSP 4), Depending on System being Installed and Concrete Condition.	
Compress Strength, ASTM D695	10,000 psi (68.9 mpa)
Tensile Strength, ASTM D638	2,500 psi (17.2 mpa)
Tensile Elongation, ASTM D638	20%
Adhesion, ASTM D7234	>400 psi (2.75 mpa)
Hardness (Shore D) ASTM D2240	67 – 72
Water Absorption, ASTM D570	0.1%
Microbial (fungi) Resistance, ASTM G21 without an anti-microbial agent)	Pass < 1
Dynamic Coefficient of Friction, ANSI 326.3, Depends on Finished Coat Texture. <b>This test must be run in the field after placement of the Finish Coat by a BOT 3000E Third Party Testing Firm to Validate.</b>	>0.45 (inclines) >0.42 (level)
Moisture Vapor Emission Rate, ASTM F1869*	3 lbs.
Moisture Relative Humidity, ASTM F2170*	80% rh
*If moisture or relative humidity exceeds the test limits consult a Crown Polymers representative and refer to Crown Polymers Technical Bulletin 6 Moisture Mitigation Negative Side Moisture Barrier.	
<b>Note: Although testing is critical, it is not guaranteed against future Problems. This is especially true if there is not a positive side vapor barrier installed per ACI 302.2R and ASTM F1754. Concrete must be sound and durable per ACI 201.2R and be free of bond breaking properties and/or concrete contamination from oil, chemical spills, densifiers, excessive salts and other bond breakers.</b>	

### **CHEMICAL RESISTANCE DATA**

See Crown Polymers Technical Bulletin: 9 Chemical Resistance Guidelines and Chart.

### **CHECK CONCRETE MOISTURE**

The concrete must be dry before application of this floor coating material. Concrete moisture tests are required, either ASTM F1869 (calcium chloride) or ASTM F2170 (in situ RH probe). Refer to appropriate Technical Data Sheet limits and Crown Polymers Technical Bulletin: 6 Moisture Mitigation Negative Side Moisture Barrier.

### **CHECK TEMPERATURE & HUMIDITY**

Floor and material temperature must be at or above the published Technical Data Sheet. Dew Point must be 5°F (3°C) or more below the surface temperature. Do not apply if humidity is at or above 95%. See Crown Polymers Technical Bulletin: 7 Temperature and Relative Humidity Limits.

### **SURFACE PREPARATION**

Surface preparation following: ICRI Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair. The pH of the concrete substrate should be at 9 or above. All bond-breaking material must be removed. See Crown Polymers Technical Bulletin: 1 Concrete Surface Preparation.

### **APPLICATION EQUIPMENT**

Depending on system applied: Disposable 3" brush for cutting in, variable low-speed drill (450 rpm) with Jiffy® type impeller mixing paddle, 3/8 inch nap non-shedding phenolic core roller, and V-notched rubber squeegee for spreading neat epoxy and gauge rake or trowels for thicker applications.

### **OPTIONAL ANTIMICROBIAL**

The antimicrobial additive is a non-heavy metal biocide that can be added during the manufacturing process. The antimicrobial agent can be added to the topcoat only for an economical application or it can be added to each step of the application, primer, body coat, and topcoat, which is recommended for abusive environments. See Crown Polymers Technical Bulletin: 11 Understanding the Optional Antimicrobial Additive.

### **MIXING**

For ease of mixing and placement, the temperature of the "A" and "B" components should be between 70°F to 80°F (20°C to 26°C). Pre-mix the "A" and "B" components to

ensure all raw material and pigments are dispersed uniformly. See Crown Polymers Technical Bulletin: 10 Mixing Guidelines.

### **APPLICATION**

After mixing all contents as instructed, immediately pour all liquid material onto the properly prepared concrete substrate, or next epoxy lift in ribbons and squeegee the material out evenly. Back-roll and cross rolling of material are critical for receiving coat, lock coat, grout coat, topcoat, and finish coat. Check for desired wet film thickness with a WFT Gauge. If broadcasting aggregate, broadcast into the wet material. Place trowel mortar mix within installation sequence. Place all steps per Crown Polymer Installation Guidelines.

### **SKID-RESISTANCE**

Skid-Resistance – Field (in situ) Wet Dynamic Coefficient of Friction (DCOF), ANSI A326.3. See Crown Polymers Technical Bulletin: 4 Coefficient of Friction.

### **SHIPPING and STORAGE**

Ship and store material between 40°F to 90°F (4°C to 32°C). Store in a dry environment and out of direct sunlight.

### **SHELF LIFE**

Shelf life is 1 year from the date of manufacturer, provide the containers are unopened.

### **CLEAN-UP**

Clean-up mixing station, tools, and equipment as required. Use acetone, a VOC exempt solvent, for cleaning up. Observe all legal, and health, and safety precautions when handling or storing solvents and materials, particularly in confined spaces. Make sure the working areas are well ventilated at all times during placement and curing time.

### **DISPOSAL**

Dispose of empty packaging and other waste in accordance with federal, state, provinces and local regulations.

### **MAINTENANCE**

Inspect the installed floor by spot cleaning and spot repairing the damaged or cracked areas. To prolong life of the flooring system, a daily maintenance program is highly recommended to ensure the floor is safe for its



intended purposes. See Crown Polymers Technical Bulletin: 8 Care and Maintenance.

### **TECHNICAL SUPPORT**

For questions, contact a Crown Polymers Representative. Additional Support Documents are available from Crown Polymers, including brochures, application guidelines, videos and more. Visit [Crownpolymers.com](http://Crownpolymers.com) or contact Crown for additional resources.

### **DISCLAIMER**

All guidelines, recommendations, statements, and technical data contained herein are based on information and tests. The accuracy and completeness of such tests are not guaranteed and are not to be construed as a warranty, expressed or implied. It is the responsibility of the user to document information and tests to determine the intent of the product for ones' own use. The application, job conditions and user assumes all risks and liability resulting from use of the product. We do not suggest or guarantee any hazards listed herein are the only ones, which may exist. Neither seller nor manufacturer shall be liable to the buyer or any third person for any injury, loss or damage directly or indirectly resulting from use of, or inability to use the product. Recommendations or statements, whether in written or verbal, other than those contained herein shall not be binding upon the manufacturer, unless in writing and signed by a corporate officer of the manufacturer. Technical and application information is provided for the purpose of establishing a general profile of the material and proper application procedures. Test performance results were obtained in a controlled environment and Crown Polymers makes no claim that these tests or any other tests accurately represent all environments. Not responsible for any typographical errors.

### **LIMITED WARRANTY**

Crown Polymers warrants its products to be free of manufacturing defects and meets all Crown Polymers current published physical properties. Crown Polymers' sole responsibility shall be to replace the portion of any product proved to be defective. There are no other warranties by Crown Polymers of any nature whatsoever expressed or implied, including any warranty of merchant- ability or fitness for a particular purpose in connection with this product. Crown Polymers 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. Crown Polymers shall not be responsible for the use of this product in a manner to infringe on any patent held by others. In addition, no warranty or guarantee pertaining to appearance, color, fading, chalking, staining, shrinkage, peeling, normal wear and tear or improper application by the applicator will be issued. Damage caused by abuse, neglect and lack of proper maintenance, acts of nature and/or physical movement of the substrate or structural defects are also excluded from the limited warranty. Crown Polymers reserves the right to conduct performance tests on any material claimed to be defective prior to any repairs by owner, general contractor, or applicator.

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