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CrownShield® Superior All-n-One Epoxy Thru-Product™

TECHNICAL DATA SHEET **Product Number: 8320**

Multi-Functional Hybrid "BisF/BisA" Epoxy Thru-Product for Challenging Environments

DESCRIPTION

CrownShield No. 8320 is a high-performance hybrid (Bis. F and Bis. A) 2-component epoxy. Featuring outstanding abrasion and chemical resistance. It is a low viscosity, low odor, 100% solids thermosetting epoxy designed especially for challenging flooring environments, such as industrial kitchens, commercial laboratories and wine and spirit processing facilities subjected to heavy foot traffic, fork lift traffic and chemical attack, specifically food acids. This is a Thru-Product™ that can be applied directly to properly prepared substrates as a primer, body coat (with/without aggregate) and top coat.

EPOXY HARDENER – SELECTION GUIDE

Crown Polymers offers 3 types of hardeners depending on installation demands, ambient temperature and surface temperature conditions. The hardeners are descripted "S", "F" or "H" which is added as a suffix, i.e. CrownShield S, which denotes the standard hardener. When in doubt about which hardener to use contact a Crown Polymer representative.

- **"S" – Standard Cure Hardener** is designed for temperatures ranging from 50°F to 80°F (10°C to 27°C). This hardener is the most popular hardener product.
- **"F" – Fast Cure Hardener** is designed for temperatures ranging from 40°F to 60°F (4°C to 16°C).
- **"H" – Hot Cure Hardener** is designed for temperatures ranging from 80°F to 90°F (27°C to 32°C).

TYPICAL USES

- Animal Care and Housing Floors
- Automotive Show Room and Repair Floors
- Commercial Bakery and Kitchen Floors
- Food, Beverage and Spirit Processing
- Hospital and Health Care Facility Floors
- Laboratory and Research Floors
- Manufacturing and Warehouse Floors
- Mechanical Equipment Room Floors
- Pharmaceutical Floors

BENEFITS

- Complies with USDA, FDA, Food Safety Modernization Act. See **Crown Polymers Technical Bulletin: No. 3 Food and Beverage Compliance.**
- Slip Resistance (ADA). See **Crown Polymers Technical Bulletin: No. 4 Coefficient of Friction.**
- LEED® and Green Seal® requirements. See **Crown Polymers Technical Bulletin: No. 5 LEED and Green Seal Information.**
- VOC and EPA Compliant all states and provinces in North America. Cures to an inert finish. See **Crown Polymers Technical Bulletin: No. 2 VOC Compliance**
- Strong and Tough Floor
- Excellent Chemical and Abrasion Resistance
- Good UV Resistance for an Epoxy (Handener "S" has the best UV color retention)
- Can be used as a "single Thru-Product": Primer, Body (with/without aggregate) and top coat
- 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). See **Crown Polymers Technical Bulletin: No. 7 Temperature and Relative Humidity Limits**
- Scratches in certain colors may appear white, such as blue pigmented product.
- Higher temperatures will result in shortened working time and faster drying time.
- Color may vary due to batch to batch variation, always "box" different batches to avoid it.

COLORS

Clear, 15 Standard Colors* and Custom Colors. Available in factory pigmenting or CrownPigment™ Epoxy No. 6300 PigmentPack™ *See **Crown Polymers Standard Color Guide Acrylics, Epoxies, Polyaspartics, Polyurethanes (PigmentPack).**

COVERAGE RATE PER GALLON

- Primer: 160 to 200 sq. ft. (14.9 to 18.9 sq. m.) 8 to 10 mils (WFT)
- Coating: 100 to 160 sq. ft. (9.3 to 14.9 sq. m.) 10 to 16 mils (WFT)
- Broadcast and Trowel: Varies Depending on thickness of system selected. 1/16 inch to ¼ inch and more.

HANDLING AND SAFETY

Warning! Eye and skin irritant. May cause dermatitis and sensitization. Always read and follow the product SDS. Avoid contact with eyes, skin and clothing. Avoid breathing vapors, mist and spray. Use with good ventilation.

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 with Earth or Granular Fill Under Concrete Slabs, Class A 15 mils (0.38mm)

Existing Concrete:

If field tests or laboratory analysis reveals concrete flooring slabs contain contaminants from previously applied unreacted silicate materials, such as, sodium silicates, potassium silicates or lithium silicates that will interfere with the bond, use CrownPrime WB Primer No. 8201. See **Crown Polymers Technical Bulletin: No. 20 Selecting a Primer**

- Contaminants include, but are not limited to organic hydrocarbon materials, calcium chlorides and aluminum stearates.
- Concrete flooring slabs 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: No. 1 Concrete Surface Preparation.**

CHEMICAL RESISTANCE DATA

See **Crown Polymers Technical Bulletin: No. 9 Chemical Resistance Guidelines and Chart.**

CHECK CONCRETE MOISTURE

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: No. 6 Moisture Mitigation Negative Side Moisture Barrier.**

CHECK TEMPERATURE AND HUMIDITY

Floor and material temperature must be at or above the published Technical Data Sheet requirements. Dew point must be 5°F (3°C) or more below the surface temperature. Do not apply if humidity is at or above 85%. See **Crown Polymers Technical Bulletin: No. 7 Temperature and Relative Humidity Limits.**

SURFACE PREPARATION

Surface preparation in accordance with: 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: No. 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 frame, and V-notched rubber squeegee.

OPTIONAL ANTIMICROBIAL

The antimicrobial additive Silver® (sodium hydrogen zirconium phosphate) is a non-heavy metal biocide that can be added during the manufacturing process. (EPA Regulation Number 11631.2. and US Patent Number US 9,247,736 B2). The antimicrobial agent can be added to the top coat only for an economical application or it can be added to each step of the application, primer, body coat and top coat, which is recommended for abusive environments. See **Crown Polymers Technical Bulletin: No. 11 Understanding Silver® 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 (21°C to 27°C). Pre-mix the “A” and “B” component to insure all raw material and pigments are dispersed uniformly. Box pigmented products if using different batch numbers for uniformity of color. See **Crown Polymers Technical Bulleting: No. 10 Mixing Guidelines.**

Physical Properties at 77°F (25°C)			
VOC (Volatile Organic Compounds), (VOC Calculated Per ASTM D3960)	0 gr./lt.		
Standard Viscosity Clear, Mixed Epoxy and Hardener	650 cps		
Standard Viscosity Clear, Mixed Epoxy and Hardener, at 50°F (10°C)	1200 cps		
Primer CrownShield No. 8320S (Standard Cure - Clear Only) Dilute 10% Acetone	**50°F (10°C)** 300 cps	**77°F (25°C)** 120 cps	**90°F (32°C)** 60 cps
Mix Density, Mixed Epoxy and Hardener	9.23 lb./gal		
Pot Life, 1 gallon (3.79 liters) Mass, Pot Life is Reduced by Increases in Mass & Temperature	20 Minutes		
Mix Ratio, by Volume	2:1		
Minimum Application Temperature with "F" Fast Cure Hardener	40°F		
Dry to Touch 40°F to 90°F (4°C to 32°C)	4 to 6 Hours		
Recoat Time 40°F to 90°F (4°C to 32°C)	12 to 72 Hours		
Light Traffic 40°F to 90°F (4°C to 32°C)	24 Hour Minimum		
Full Cure 40°F to 90°F (4°C to 32°C)	7 to 14 Days		
Shelf Life (shipped and stored) at 40°F to 100°F (4.4°C to 38°C)	1.5 Years		
Packaging 3 and 15 gal. (11.4 and 56.8 liters)			

Mechanical Properties at 77°F (25°C) 7 Day Cure (Unless stated otherwise)			
Surface Preparation ICRI Guideline No. 310.2R Concrete Surface Profile (CSP 2 and above) Depending on System to be Installed and Condition of Concrete.			
Substrate Temperate	50°F (10°C)	77°F (25°C)	90°F (32°C)
Compressive Strength, ASTM D695, 8 Hours	3,900 psi	6,600 psi	9,900 psi
Compressive Strength, ASTM D695, 1 Day	9,000 psi	10,000 psi	9,900 psi
Compressive Strength, ASTM D695, 7 Days	11,000 psi	10,500 psi	10,100 psi
Compressive Strength, ASTM C579, with aggregate	11,750 psi	11,000 psi	10,500 psi
Tensile Strength, ASTM D638	8,000 psi	7,500 psi	7,000 psi
Tensile Elongation, ASTM D638	2%	5%	6%
Flexural Strength, ASTM D790	10,500 psi	10,000 psi	9,500 psi
Slant Shear, ASTM C882	4,200 psi	4,000 psi	4,000 psi
Adhesion, ASTM D7234, Concrete Failure	>400 psi	>400 psi	>400 psi
Hardness (Shore D) ASTM D2240	80 - 85	75 – 85	70 – 80
Water Absorption, ASTM D570 Resin & Hardener	0.15%		
Flame Test, ASTM E648	Class 1		
Flammability, ASTM D635	Self-Extinguishing Bonded to Concrete		
Abrasion Resistance, ASTM D4060 Resin & Hardener **1,000 cycles, Wheel No. CS17, 1000 gr. Load**	0.051 gr.		
Coefficient of Thermal Expansion (-22°F to 86°F)	1.8 X 10^{-5} in./in. °F		
Microbial (fungi) Resistance, ASTM G21 (Without the Anti-Microbial Agent)	Pass #1		
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.	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.	0.012 in. indentation		
Dynamic Coefficient of Friction, ASNI 326.3 **Depends on texture of system selected, ranging from smooth to aggressive. BOT 3000E**	>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 limits consult the Crown Polymers representative and refer to Crown Polymers Technical Bulletin: No. 6 Moisture Mitigation Negative Side Moisture Barrier			

Note: Although testing is critical, it is not a guarantee against future problems. This is especially true if there is no vapor barrier or it is not functioning properly and/or concrete is contamination from oils, chemical spills, densifiers, excessive salts or other bond breakers.

APPLICATION

After mixing all contents as instructed, immediately pour all liquid material on to the properly prepared concrete substrate or next epoxy lift in ribbons and squeegee the material out evenly. Check for desired wet film thickness with a WFT Gauge. Back-roll and cross rolling of material is critical. If broadcasting aggregate, broadcast into the wet material. Place trowel mortar mix within installation sequence. Lock coat, grout coat or top coat. 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: No. 12 Wet Dynamic Coefficient of Friction.**

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: No. 8 Care and Maintenance.**

TECHNICAL SUPPORT

For questions, contact a Crown Polymers' representative.

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