

8320 CrownShield[®] Superior All-n-One Epoxy Thru-Product[™]

TECHNICAL DATA SHEET Product Number: 8320S, 8320F and 8320H

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

DESCRIPTION

8320 CrownShield 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, forklift 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 topcoat. It is VOC Compliant in all states and provinces in North America.

EPOXY HARDENER – SELECTION GUIDE

Crown Polymers offers 3 types of hardeners depending on installation demands, ambient temperature, and surface temperature conditions. The hardeners are described as “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 Bakeries and Kitchens Floors
- Food, Beverage and Spirits Processing
- Hospital and Health Care Facility Floors
- Laboratories 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: 3 Food and Beverage Compliance.**
- Slip Resistance (ADA) **See Crown Polymers Technical Bulletin: 4 Coefficient of Friction.**
- LEED[®] and Green Seal[®] requirements. **See Crown Polymers Technical Bulletin: 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: 2 VOC Compliance.**
- Strong and Tough Floor
- Excellent Chemical and Abrasion Resistance
- Good UV Resistance for an Epoxy (Harder “S” has

the best UV color retention)

- Can be used as a “single Thru-Product”: Primer, Body (with/without aggregate) and topcoat
- 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: 7 Temperature and Relative Humidity Limits.**
- 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.

COLORS

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

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	
8320-S CrownShield (Standard Cure - Clear Only) Dilute 10% Acetone	50°F (10°C)	77°F (25°C)	90°F (32°C)
	300 cps	120 cps	60 cps
Mix Density Clear, Mixed Epoxy and Hardener		9.23 lbs./gal	
Pot Life, 1 gallon (3.79 liters) Mass, Pot Life is Reduced by Increases in Mass and 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°F)		4 to 6 Hours	
Recoat Time 40°F to 90°F (4°C to 32°F)		12 to 72 Hours	
Light Traffic 40°F to 90°F (4°C to 32°F)		24 Hour Minimum	
Full Cure 40°F to 90°F (4°C to 32°F)		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)	
Surface Preparation ICRI 310.2R Concrete Surface Profile (CSP 2 and above) Depending on System to be Installed and Condition of Concrete.	
Compressive Strength, ASTM D695, 7 Days	12,000 PSI
Tensile Strength, ASTM D638	4,500 PSI
Tensile Elongation, ASTM D638	2%
Adhesion, ASTM D7234, Concrete Failure	>400 PSI
Hardness (Shore D) ASTM D2240	80-85
Water Absorption, ASTM D570 Resin & Hardener	0.15%
Abrasion Resistance, ASTM D4060 Resin & Hardener 500 cycles, Wheel No. CS17, 1000 gr. Load	0.026 gr.
Microbial (fungi) Resistance, ASTM G21 (Without the Anti-Microbial Agent)	Pass #1
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
Relative Humidity, F2170 Concrete Place NOT per ACI 302.2R must be tested per Crown Polymers Technical Bulletin: 6 Moisture Mitigation Negative Side Moisture Barrier and Consult Crown Polymers Representative	

Note: though testing is critical, it is not a guarantee against future problems. This is especially true if there is not a positive side vapor barrier or it is not functioning properly and/or concrete has contamination from oils, chemical spills, densifiers, excessive salts or other bond breakers.

COVERAGE RATE PER GALLON

- Primer: 160 to 200 sq. ft. (14.9 to 18.9 sq. m.) 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 the thickness of the 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 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 inferior concrete flooring slabs containing contaminants from previously applied unreacted silicate materials that will interfere with the bond, use 8201 CrownPrime WBC. **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.**

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 85%. **See Crown Polymers Technical Bulletin: 7 Temperature and Relative Humidity Limits.**

SURFACE PREPARATION

Surface preparation per: 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 frame, and V-notched rubber squeegee.

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 (21°C to 27°C). Pre-mix the "A" and "B" components to ensure all raw material and pigments are dispersed uniformly. Box pigmented products if using different numbers for uniformity of color. **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. Check for desired wet film thickness with a WFT Gauge. Back-roll and cross-rolling of material are critical. If broadcasting aggregate, broadcast into the wet material. Place trowel mortar mix within installation sequence. Lock coat, grout coat, or topcoat. Place all steps per Crown Polymer Installation Instruction.

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 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 merchantability 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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