8602 CrownPro™ ESD - Static Dissipative or Conductive Pigmented Epoxy

TECHNICAL DATA SHEET Product Number: 8602

Static Dissipative or Conductive Pigmented Epoxy System

DESCRIPTION

8602 CrownPro StaticShield ESD Static Dissipative or Conductive Pigmented Epoxy is a three-component, high-performance epoxy floor coating system that meets ANSI/ESD 2020 and ANSI/ESD STM7.1 Standards. It is electrically active within resistance range requirements for static dissipative or conductive flooring systems, which rely upon the epoxy prime coat. It is VOC compliant in all States and Provinces in North America.

TYPICAL USES

It is designed to impart static control properties, which prevent electrostatic damage to electronic products, components, and equipment. Military/ Aerospace/ Aircraft hangars, Electronics Manufacturing and Assembly, Hazardous Industries (dust or explosion hazards), Clean Rooms, Packaging lines, Pharmaceutical and Healthcare facilities. Also, it limits the ability of personnel to build up a charge on their person and quickly remove a charge on a person, product, component, or equipment.

LIMITATIONS

- **Do not apply 8602 CrownPro StaticShield ESD Epoxy directly to concrete, cementitious overlayments, or other substrates, without a Crown Polymers insulative epoxy primer.**
- **Do not use on exterior substrates.**
- **Do not thin this product. The addition of thinners shall void the manufacturer's warranty.**
- **320 CrownShield Clear isolation primer is required for CrownPro StaticShield ESD Epoxy as a static dissipative floor coating**
- **320 CrownShield Clear isolation primer and 8601 CrownPro StaticShield Conductive Epoxy Primer is required for 8602 CrownPro StaticShield ESD Epoxy to be used as a conductive floor coating.**

COLORS

8602 CrownPro StaticShield ESD Epoxy is available in Light Gray, Medium Gray, and Dark Gray.

COVERAGE RATE

8602 CrownPro StaticShield ESD Epoxy is formulated to meet ESD Association ANSI/ESD STM7.1 standard:

1. Static Dissipative Floor:

Isolation Coat	**320 CrownShield Clear**
Static Dissipative Coat	**8602 CrownPro**

Static dissipative resistance range of 1 million to 1 billion ohms (1E6-1E9) resistance as tested per ESD Association ANSI/ESD STM7.1, when it is applied over an isolation/primer, 320 CrownShield Clear.

A. Passes ANSI/ESD STM 97.1 Floor Materials and Footwear--Resistance in Combination with a Person. The recommended maximum system resistance is 3.5 X 10E7.

B. Passes ANSI/ESD STM 97.2: Floor Materials and Footwear Voltage Measurement in Combination with a Person. The recommended maximum voltage allowed is 100 volts.

2. Conductive Floor:

Isolation Coat	**320 CrownShield Clear**
Conductive Primer	**8601 CrownPro StaticShield**
Static Dissipative Coat	**8602 CrownPro StaticShield**

Conductive resistance range of 25 million to 1 million ohms (2.5E4 to 1E6) resistance as tested per ESD Association ANSI/ESD STM7.1 when it is applied over 8601 CrownPro StaticShield Conductive Epoxy Primer. 8601 CrownPro StaticShield Conductive Epoxy Primer is only available in flat black.

A. Passes ANSI/ESD STM 97.1 Floor Materials and Footwear--Resistance in Combination with a Person. The recommended maximum system resistance is 3.5 X 10E7.

B. Passes: ANSI/ESD STM 97.2: Floor Materials and Footwear Voltage Measurement in Combination with a Person. The recommended maximum voltage allowed is 100 volts.

Workers interacting with one of these floors and equipment resting or rolling across the floor must be connected to the floor by the use of conductive footwear, ESD shoe straps, conductive wheels, or grounding strips, which is a requirement for all floors of these types. A qualified engineer should determine the correct floor and other items, such as, ground straps and grounding tape, etc. that may be required.

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 interior 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.**

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.

SURFACE PREPARATION

Concrete must be cured 28 days and be clean, dry, and structurally sound. Surface must be shot blasted, diamond ground or acid etched to achieve an International Concrete Repair Institute Guideline No. 310.2R Selecting and Specifying Concrete Surface Preparation for Sealers Coatings and Polymer Overlays, ICRI profile of CSP 2 to 3. If the surface is diamond ground, use 16-24 grit diamonds and vacuum the floor twice to remove concrete dust or shot blast using small shot (280 grit) to avoid concrete micro fracturing. Excessive dust in the pores of the concrete can compromise adhesion. Previously coated surfaces must be mechanically cleaned and abraded with 80-100 mesh sandpaper and acetone tack wiped before application. Adhere strictly to guidelines listed in the Crown Polymers Technical Bulletin 1: Concrete Surface Preparation.

MIXING INSTRUCTIONS

1. **ISOLATIVE DIELECTRIC COAT**
   - **A. Isolative Coat 320 CrownShield Clear regular cure material, pot life for one quart (0.95 liters) is 20 minutes at 77°F (25°C). Pot life of fast cure material for one quart (0.95 liters) is 15 minutes at 77°F (25°C). See 320 CrownShield Technical Data Sheet.**
   - **B. Working time is shortened by higher temperatures. The combining ratio is 2 parts A to 1 part B by volume. Proportion the amounts carefully and mix for 2 full minutes using a low-speed drill, scraping the bottom and sides of the mixing vessel using a Jiffy Type Impeller Mixing Paddle.**
2. **CONDUCTIVE PRIMER (NOT for Static Dissipative Coating)**
   - **A. 8601 CrownPro StaticShield Conductive Primer pot life is 2 to 3 hours at 77°F (25°C) in a quart mass.**
   - **B. The pre-measured A Component and B Component, plus 1 quart potable water. Mix the entire content of Component A and Component B then add water.**
   - **C. Combine the pre-measured A Component and B Component in the A Component bucket. Use a stir stick to get all of the materials out of the container.**
   - **D. Mix for 2 full minutes using a low-speed drill, scraping the bottom and sides of the mixing vessel using a Jiffy Type Impeller Mixing Paddle. Do not attempt to hand mix.**
   - **C. Add water to 8601 CrownPro StaticShield Conductive Primer and mixed A Component and B Component, with water for 2 full minutes using a low-speed drill, scraping the bottom and sides of the mixing vessel using a Jiffy Type Impeller Mixing Paddle. Do not attempt to hand mix. 1.1 gallon kit adds 1 quart (0.95 liters) of potable water.**
3. **ESD BODY COAT**
   - **A. 8602 CrownPro StaticShield ESD Epoxy has a pot life of 15 minutes at 77°F (25°C) in a quart mass.**
   - **B. The pre-measured material is supplied in a 2.7 gal kit (10.2 liters kit), including ESD pigment packs.**
   - **C. Combine the pre-measured A Component and B Component in the A Component bucket. Use a stir stick to get all of the materials out of the container.**
   - **D. Mix for 2 full minutes using a low-speed drill, scraping the bottom and sides of the mixing vessel using a Jiffy Type Impeller Mixing Paddle. Do not attempt to hand mix.**
   - **E. Add the C Component (Pigment) after the A Component and B Component is fully mixed.**
   - **F. Remix for 2 full minutes using a low-speed drill, scraping the bottom and sides of the mixing vessel using a Jiffy Type Impeller Mixing Paddle. Do not attempt to hand mix.**

PHYSICAL PROPERTIES		
Mix Ratio, by Volume		Premeasured
Viscosity, Pigmented		750 cps
VOC (Volatile Organic Compounds) VOC Calculated Per ASTM D3960		<5 gr./lt.
Pot Life, Regular Cure, 1 quart (0.95 liters) Mass Pot Life is Reduced by Increases in Mass and/or Temperature		15 Minutes
8601 CrownPro StaticShield Conductive Primer 1.1 Gal Kit, 8602 CrownPro StaticShield 2.7 Gal Kit. Pre-measured three-component kit includes A Component, B Component, and Pigment Pack kit.		
8602 CrownPro StaticShield Place at 16 mils	50°F (10°C)	77°F (25°C
Dry to Touch	18 Hours	4 Hours
Recoat/Top Coat	24 Hours	12 Hours
Light Traffic	36 Hours	16 Hours
Full Cure	14 Days	7 Days
High temperatures and lower humidity will accelerate cure times. Low temperatures and high humidity will lengthen cure times. Relative humidity above 70% will dramatically affect cure times. Enhanced air movement is recommended to help flash off the moisture when humidity is high.		

ELECTRICAL TRANSMISSION PHYSICAL PROPERTIES @ 77°F (25°C)		
Point-to-Point or Point-to-Ground Resistance	ANSI/ESD STM7.1	
Static Range, 1 million to 1 billion ohms	1E6 – 1E9	Meets
Conductive Range, 25,000 to 1,000,000 ohms	2.5E4 – 1.0E6	Meets
Body Voltage Generation	<15 Volts	Meets
5,000 Volt Charge Dissipation to 0 Volts	<0.1 Second	Meets

TYPICAL PHYSICAL PROPERTIES @ 77°F (25°)	
Hardness, Shore D, ASTM D2240	75 - 80
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.	
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.	

CHEMICAL and STAIN RESISTANCE ASTM D1308 24 Hour Immersion @ 77°F (25°C)			
Acetic Acid 25%	No Effect	Mineral Spirits	No Effect
Black Ink	No Effect	Nitric Acid	Film Blisters
Blood	No Effect	Skydrol 500B-4	No Effect
Brake Fluid	No Effect	Sodium Hydroxide 50%	No Effect
Gasoline	No Effect	Sulphuric Acid 25%	No Effect
Hydraulic Fluid	No Effect	Urine	No Effect
Hydrochloric Acid 25%	No Effect	Whiskey	No Effect
MEK	Film Softens	Xylene	No Effect

APPLICATION RECOMMENDATIONS

A. 320 CrownShield Clear isolation primer must be applied directly to the concrete slab or other substrates and allowed to cure up to 24 hours before the application of 8601 CrownPro StaticShield ESD Conductive Primer or 8602 CrownPro StaticShield Epoxy can be applied.

1. CrownShield 320 Clear may be applied by roller, trowel, or squeegee.
2. Keep application rate above 160 square feet (14.9 square meters) per gallon (3.79 liters).
3. Pouring material on the floor immediately after mixing will extend work time.
4. Allow 12 hours minimum and 24 hours maximum cure at 77°F (25°C) and a maximum of 24 hours before applying 8601 CrownPro StaticShield Conductive Primer or 8602 CrownPro StaticShield ESD Epoxy.

B. For conductive systems only apply 8601 CrownPro StaticShield Conductive Primer at 160 sq. ft. to 320 sq. ft. (14.9 to 29.8 sq. m).

1. Mix, pour out in ribbons on the floor, squeegee, and back roll.
2. Make sure the entire floor iscovered.

C. Topcoat 8602 CrownPro StaticShield ESD Epoxy is applied at 100 sq. ft. (9.3. sq. meters) per gallon (3.79 liters).

1. Apply by roller, notched squeegee, and backroll.
2. Topcoat with 8602 CrownPro StaticShield Epoxy within 24 hours after the placement of 320 CrownShield Clear or 8601 CrownPro StaticShield Conductive Primer.

SKID-RESISTANCE

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

HANDLING PRECAUTIONS

8602 CrownPro StaticShield ESD Epoxy vapors can be harmful. Use only with adequate ventilation or wear an appropriate cartridge-type respirator. Avoid contact with skin; wear protective gloves. Read Safety Data Sheet before using.

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 90 days from the date of manufacture, provided the containers are unopened. All sales are final. No returns.

CLEAN UP

Installation tools and equipment can be cleaned with acetone.

DISPOSAL

Product containers will contain product residue and must be disposed of properly. Label warnings must be observed at all times. All containers must be disposed of per federal, state, province, and local regulations.

MAINTENANCE

Inspect the installed floor by spot cleaning and spot repairing the damaged or cracked areas. To prolong the 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 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.

Crown Polymers Corp. • Tel: 847.659.0300 • Fax: 847.659.0310
info@crownpolymers.com • www.crownpolymers.com