

POLYARMOR® EP ESD 11-000

High Build Anti-Static Epoxy Resin System

APPLICATION CHARACTERISTICS

STORAGE: Materials should be stored in original un-opened containers indoors between 65°F (18°C) and 90°F (32°C) and at or below 50% RH.

SHELF LIFE: Un-opened containers 6 months from date of manufacture.

PACKAGING KITS/ PART NUMBERS:

Volume Mix Ratio: 2.5A: 1B: .25C
POLYARMOR® EP ESD 11-000 Pigmented Gloss Coating 3.75 gallons
POLYARMOR® EP ESD 11-000-A/5SF, ECA-420-B/1, CP-U#####/Q

OPTIONS:

Color Pack: 0 VOC Color packs designated as CP-U##### can be used with POLYARMOR® EP ESD 11-000. Many standard and custom colors are available; please refer to the price list for available colors. It is important to have a color consistent floor in a similar color before application of POLYARMOR® EP ESD 11-000 or multiple coats may be required. Certain colors may negatively affect ESD properties. Please use approved color packs.

Traction: NS-36 glass beads or other suitable angular aggregate can be incorporated with POLYARMOR® EP ESD 11-000 to impart improved traction in slip hazard areas.

LIMITATIONS:

Contamination and surface defects (fisheyes): If contaminates of oils, silicones, mold release agents and/or others are present, POLYARMOR® EP ESD 11-000 may fishy or crawl away from the surface. Surface contaminates should be removed with a suitable detergent prior to application. Solvent cleaning of silicone contaminates may make the situation worse; please contact the lab for additional recommendations. POLYARMOR® EP ESD 11-000 May amber slightly when exposed to high intensity lighting.

POLYARMOR® EP ESD 11-000 is a two component "High Build" 100% solids pigmented epoxy Anti-Static resin designed to impart electrostatic control properties. POLYARMOR® EP ESD 11-000 is supplied with a fast setting chemical resistant cycloaliphatic curing agent which inhibits surface yellowing. This product produces a Gloss finish with a slight stipple texture.



APPLICATION

MIXING: Premix all components at slow speed prior to mixing together. Use a Jiffy® ES mix blade attach to a slow speed drill (using a paint stick to mix is not adequate). Mix only enough material at one time not to exceed the pot life. **Note:** Once this material is opened and mixed it can't be resealed for later use.

COLORS: Premix designated color pack CP-U#####. The color pack should be added last to the mixed coating POLYARMOR® EP ESD 11-000.

MIX: Mix all components together for 2-3 minutes. Thinning is not required. (Thin only to max VOC limit of 100-250 g/l with xylene or other suitable solvent). **APPLY POLYARMOR® EP ESD 11-000:** at a rate of 12-20 mils to the floor surface using a notched squeegee. Back roll the wet coating using a ¼ inch nap mohair roller. Care should be taken to overlap and cross lap, but not over roll the coating introducing air to the surface.

SPREADING RATE: When POLYARMOR® EP ESD 11-000 is applied over surface irregularities in the concrete or base coating, coverage rate may be affected. Be sure to plan accordingly as there may be a need for extra material to provide proper coverage. Material applied too heavy may blister or can be soft during curing. Too little material may produce a non-uniform look. The best practice is to measure and grid the floor to be sure of proper application rate.

CURING (DRYING): Allow the coating to cure (dry) for a minimum 24 hours after application at 75°F (24°C) and 50% RH before opening the floor to light traffic, allow more time for low temperatures and higher humidity or for heavier traffic. Full coating properties may take up to 7 days to develop.

TECHNICAL SUPPORT

For application questions, please contact your VISURON TECHNOLOGIES, INC. salesman or technical service.

DISPOSAL

Dispose in accordance with federal, state, and local regulations.

USES

POLYARMOR® EP ESD 11-000 can be installed in many environments where the damaging effects of electrostatic discharge (ESD) cannot be tolerated. Primary industries that use ESD flooring include Electronic Assembly, Data Processing, Military/Aerospace, Hazardous Industries (dust or explosion hazards). Suited for applications to prepared over top of an insulative epoxy primer or build coat.

ADVANTAGES

Consistent resistance to ground without the need of a ground plane primer utilizing conductive particulates and polymers
Body Voltage Generation (BVG) below 15 volts with conductive footwear.
Available in the static dissipative range of $1.0 \times 10^5 - 1.0 \times 10^9$ ohms (tested per EOS/ESD STM 7.1)

Dissipates a 1000 volt charge to 0 volts in less than 0.1 seconds.
Maintains ESD properties throughout the thickness of the applied coating and not dependent humidity for proper conductivity (unlike carbon fiber systems)

No Odor
High build application, tough, seamless, non-porous surface that is easy to maintain

Excellent impact and abrasion resistance
Seals concrete, protecting against dirt and spills
Resists staining and major chemical spills of cleaning and industrial chemicals

Complies with VOC regulations for Industrial Maintenance Coatings in the OTC and CA.

MATERIAL PROPERTIES*:

Properties	Test Method	Results
Flash Point	ASTM D3278	≥215 °F (102° C)
Volume Solids (mixed)	ASTM D2369	100 %
Mixed Viscosity	ASTM D2196	600-1200 cPs
Dry Time	ASTM D5895	Tack Free 4-6 hr Dry 6-10 hr Full Cure 7 days
VOC-Volatile Organic Compound	ASTM D3960	0 g/l clear & pigmented

CURED PROPERTIES*:

Properties	Test Method	Results
Abrasion Resistance Tabor CS-17, mg loss/1000 cycles/1000g mass	ASTM D4060	100 mg
Coefficient of Friction- COF James Test	ASTM D2047	0.55 0.65(w/NS-36)
Tensile Strength	ASTM D2370	12,000 psi
Adhesion to Concrete	ASTM D4541	350 psi concrete failure
Impact	ASTM D2794	80 in.lbs Direct & Reverse
Hardness (Pencil)	ASTM D3363	2H
Dry Film Thickness	at 12 mils WFT	12 mils

*Properties and results are based on laboratory testing at 72°F (22° C) %50 RH, theoretical calculations and estimates. Typical properties, as stated, are to be considered as representative of current production and should not be treated as specifications.

ELECTRICAL GROUNDING:

Installing an insulative primer between the concrete surface and Anti-Static coating is mandatory. The topcoat Anti-Static coating must be grounded to an earth ground to function properly. This means using conductive copper tape installed to the floor every 100 sq. ft. under the Anti-Static coating. The lead from the copper tape will then be connected to the buildings electrical ground or directly to a copper grounding stake set into the earth. Painting the coating to a bare metal building structure is not adequate or recommended. The EOS/ESD Association provides instruction for proper grounding of ESD equipment and floors. Contact VISURON TECHNOLOGIES, INC. for proper grounding technique.



For More Information:
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RECOMMENDED APPLICATION

12-20 mils as a coating.

Coating Applications:
130 sq. ft. per gallon at 12 mils WFT.
3.2 sq. m. per liter at 305 microns.
One kit (3.75 gallons) of mixed POLYARMOR® EP ESD 11-000 will cover 500 sq. ft. (46.5 sq. m) at 12 mils WFT (305 microns).

CHEMICAL RESISTANCE*:

POLYARMOR® EP ESD 11-000/ ECA-420	1 Day	7 Days
ACIDS, INORGANIC		
10% Hydrochloric	E	E
30% Hydrochloric	F	P
10% Nitric	E	E
50% Phosphoric	G	F
37% Sulfuric	E	E
ACIDS, ORGANIC		
10% Acetic	G	F
10% Citric	E	G
Oleic	E	E
ALKALIES		
10% Ammonium Hydroxide	E	E
50% Sodium Hydroxide	E	E
SOLVENTS		
Ethylene Glycol	G	G
Isopropanol	E	E
Methanol	P	P
d-Limonene	E	E
Jet Fuel	E	E
Gasoline	G	F
Mineral Spirits	E	E
Xylene	E	G
Methylene Chloride	P	P
MEK	P	P
PMA	G	G
MISCELLANEOUS		
20% Ammonium Nitrate	E	E
Brake Fluid	E	E
Bleach	E	E
Motor Oil	E	E
Skydrol®500B	E	E
Skydrol®LD4	E	E
20% Sodium Chloride	E	E
10% TSP	E	E

*Based on spot testing of the clear coating after 14 days of cure. Pigmented versions may see reduced chemical resistance and staining.

Legend: E- Excellent (Not Effected) - Recommended
G-Good (Limited Negative Effect) - Short Term Exposure
F-Fair (Moderate Negative Effect) - Not recommended
P-Poor (Unsatisfactory) - No Resistance to Exposure

INSPECTION AND APPLICATION:

Caution! Follow all precautions and instructions prior to installation.

CHECK THE SUBSTRATE CONCRETE: Substrate concrete must be free of curing membrane, silicate surface hardener, paint, or sealer and be structurally sound. If you suspect the concrete has been treated or sealed, prepare substrate for complete removal of treatment.

CHECK FOR MOISTURE: Concrete must be dry before applications of this floor coating. Test concrete for moisture vapor transmission (MVT) using calcium chloride testing ASTM F1869 or in-situ RH testing ASTM F2170. Do not exceed a maximum result of 3 pounds per 1000 sq. ft. over 24 hours or a value below 70% RH (internal concrete humidity).

EXCLUSION: Testing for MVT is critical, however it does not guarantee against future problems. If there is no vapor barrier or the vapor barrier is damaged, this can contribute to floor failure. Contamination to concrete from oils, chemicals, excessive salts or Alkali Silica Reaction (ASR) may also contribute to floor failure.

CHECK THE TEMPERATURE AND HUMIDITY: During the application and cure of the coating, the substrate temperature, material temperature and room conditions should be maintained between 65°F (18°C) and 90°F (32°C). Relative Humidity (RH) should be limited to 30-80%. DO NOT apply coatings unless the floor temperature is more than five degree over the dew point.

APPLICATION EQUIPMENT:

Protective equipment and clothing as called for in the MSDS.
Jiffy® Mixer Blade model ES.
Clean container to mix materials in.
Low speed high torque drill motor.
High quality short nap roller covers ¼ inch mohair.
Application Squeegee or application trays.
Disc sanding equipment with 80-100 mesh sanding screens.
Vacuum equipment.

PREPARATION:

Surface dirt, grease, oil and contaminants must be removed by detergent scrubbing and rinsing with clean (clear) water.

Acid Etch (bare concrete): (Not recommended for high build coatings) Successive acid etch treatments may be required to obtain proper adhesion to concrete. Rinse with clean water and neutralize with TSP solution.

Shot Blasting (bare concrete): Is a preferred method of surface preparation. Modify blaster to minimize too heavy of a surface profile and over-lap marks.

Diamond Grind (bare concrete): Results of grinding may vary depending on technique and the hardness of the concrete.

JOINTS: All non moving joints (control joints) can be filled with a semi-rigid joint compound such as POLYARMOR® SEALENT 25-000 or UJS-4000. Construction joints may need to be re-built and re-cut and then filled with semi-rigid joint filler. Isolation or expansion joints must be filled with a flexible material designed for expansion and should not be coated over.

RECOAT: POLYARMOR® EP ESD 11-000 can be coated with other VISURON TECHNOLOGIES, INC. "ESD" epoxy coatings or may be used as a topcoat over existing (sound) VISURON TECHNOLOGIES, INC. epoxy coatings. The prior cured coating surface must be sanded with 100 grit sand paper or sanding screen installed on a swing-type floor buffer. Sand to a uniform dulled surface. Remove all sanding debris with a vacuum and damp mop. Scrub with detergent and rinse with clean water. Surface must be dry before coating.

BARE CONCRETE APPLICATION: POLYARMOR® EP ESD 11-000 MUST BE APPLIED OVER AN EPOXY PRIMER (OR SURFACE) to seal and insulate the anti-static topcoat from stray conductivity in the concrete. Use either POLYARMOR® EPOXY 30-340 or POLYARMOR® EPOXY 10-000-A/POLYARMOR® EPOXY 10-000CR-B as the epoxy primer (See appropriate product data sheet for application instructions).

READ MATERIAL SAFETY DATA SHEET (MSDS) FOR SAFETY AND PRECAUTIONS. USE PRODUCT AS DIRECTED. FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.

MAINTENANCE GUIDELINES:

Allow floor coating to cure at least one week before cleaning by mechanical means (IE: sweeper, scrubber, disc buffer).

CARE: Increased life of the floor will be seen with proper maintenance and will help maintain a fresh appearance of your new VISURON TECHNOLOGIES, INC. floor. Regularly sweep your new floor as ground in dirt and grit can quickly dull the finish thus decreasing the life of the coating. Spills should be removed quickly as certain chemicals may stain and can permanently damage the finish.

Only soft nylon brushes or white pads should be used on your new floor coating. Premature loss of gloss can be caused by hard abrasive bristle Polypropylene (Tynex®) bushes.

Use only neutral non butyl cleaning detergents on your floor coating. Test any new cleaning product on a non-conspicuous area prior to using to avoid damage to the floor.

CAUTION: Heavy objects dragged across the surface will scratch all floor coatings. Avoid gouging or scratching the surface.

Pointed items or heavy items dropped on the floor may cause chipping or concrete pop out damage. Plasticizer migration from rubber tires can permanently stain the floor coating. If a rubber tire is planned to set on the floor for a long period of time, place a piece of acrylic sheet between the tire and the floor to prevent tire staining. Rubber burns from quick stops and starts from lift trucks can heat the coating to its softening point causing permanent damage and marking.

REPAIR: Repair gouges, chip outs, and scratches as soon as possible to prevent moisture and chemical under cutting and permanent damage to the floor coating.



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