105 PumaPOXY/c™

Water-Based ESD Epoxy Ground Plane

PRODUCT DESCRIPTION

105 PumaPOXY/c is a high solids, water-based ESD epoxy ground plane coating. It is used as a standalone system or as a base coat for the 112 PumaESD/c topcoat.

105 PumaPOXY/c is installed in many environments where the damaging effects of electrostatic discharge (ESD) cannot be tolerated. Primary industries include electronic assembly, data processing, military/aerospace, and hazardous industries (dust or explosion hazards, EEDs).

105 PumaPOXY/c is intended for application over a PumaCRETE insulating epoxy primer or build coat, such as 104 PumaPOXY MB, 103 PumaPOXY WB, or 107 PumaPOXY.

Typical electrical readings are under 100k ohms. If used as a primer for 112 PumaESD, final electrical readings under 300k ohms may be achieved.

FEATURES & BENEFITS

- 4–6 mils (400–267 sq ft/gal) over previously primed concrete
- Water-reducible for lower viscosity
- Matte black finish
- Up to 20+ minutes working time, with fast dry and recoat time
- **Moisture tolerant** — can be applied to green concrete in as little as 2–3 days as a concrete sealer
- **Semi-permeable** — allows moisture through the concrete coating without failure

TYPICAL USES

- Warehouses
- Military
- EED manufacturing
- Aerospace
- Electronics manufacturing
- Energetics manufacturing

LIMITATIONS

- Best suited for application at temperatures between 50°F and 90°F.
- Surface contaminants such as oil, silicones, or other agents may cause 105 PumaPOXY/c to fisheye or crawl. Remove them with a suitable detergent and/or mechanical preparation before application.
- 105 PumaPOXY/c cures faster in drier conditions — relative humidity below 50% at 70°F — with some air movement to aid evaporation. It cures more slowly at higher humidity, lower temperature, and with little or no air movement.

PHYSICAL CHARACTERISTICS

Appearance (cured)	Clear
Solids (by wt.)	74% undiluted; 60% diluted with 1 part water
Mix Ratio (by vol.)	3 parts Hardener : 1 part Resin (optional: 1 part water)
Mixed Viscosity @ 70°F	1,850 cps
Pot Life @ 70°F, 50% RH	60 minutes (with 1 part water); 40 minutes (neat)
Cure Time, Tack-Free @ 70°F, 50% RH	3–4 hrs foot traffic; 18–24 hrs normal operation
Working Time @ 70°F, 50% RH	20+ minutes
Recoat Window	Maximum of 36 hours
Coverage Rate	5 mils WFT, 320 sq ft/US gal
VOC	<50 g/L, mixed

COVERAGE RATE

Applied as a base coat for 112 PumaESD, a gallon of 105 PumaPOXY/c has a spread rate of **4–6 mils (400–267 sq ft/gal)**.

PRODUCT GUIDE

1. Resin

A water-based epoxy resin offering good viscosity for body and flow, so it can be easily applied when combined at 1 part resin and 3 parts hardener.

2. Hardener

A water-based epoxy hardener balancing reasonable working time with a 3–4 hour cure (70°F, 50% RH) when combined with the resin.

PRELIMINARY FLOOR INSPECTIONS

Check the concrete

Concrete must be structurally sound, dry, and free of dust, laitance, curing compounds, paint, sealers, or other contaminants. If you suspect the concrete has been previously sealed, call PumaCRETE technical support for further instructions.

Check the temperature and humidity

Floor and material temperatures should be between 55°F and 90°F. Humidity above 75% will significantly reduce evaporation rates and overall cure of the material; with higher humidity, proper air movement is recommended.

SURFACE PREPARATION

This product requires preparation in order to perform as expected. The substrate must be mechanically profiled (ASTM D4259-83), clean, sound, and dry. Removing any residual dust will help ensure a tenacious bond between 105 PumaPOXY/c and the substrate.

ELECTRICAL GROUNDING

The ground plane must be grounded to an earth ground to function properly. Install conductive copper tape below the ground plane every 1,000 sq ft, or use approved contact points. The copper tape and/or contact points must be connected to the building's electrical ground or directly to an approved earth ground.

Copper is not allowed in all applications. The EOS/ESD Association provides instruction for proper grounding of ESD equipment and floors.

JOINT GUIDELINES

Depending on preference, joints may or may not be filled. If joints are filled, non-moving joints (i.e., construction or control joints) can be treated with 115 PumaFLEX with PumaTHICKENER.

Coating applied over filled joints may crack if there is concrete movement.

PACKAGING

Resin	1.5 gal white pail
Hardener	1/2 gal can

The addition of 1/2 gallon of water is required AFTER the resin and hardener are mixed together.

STORAGE & SHELF LIFE

Storage	Indoors, 60°F (16°C) to 90°F (32°C)
Shelf Life	One (1) year from date of manufacture

TECHNICAL SUPPORT

For any application questions, please call PumaCRETE technical support at 857-226-8247.

DISPOSAL

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

MIXING INSTRUCTIONS

Application equipment

- PPE and clothing per SDS
- Jiffy® mixer blade (ES model)
- Clean mixing container
- Low-speed / high-torque drill
- Shed-resistant roller cover, 3/8" nap
- Application squeegee

Mix ratio: 4 parts Resin : 1 part Hardener by volume

When combining, add the hardener to the clean mixing container first, then add the resin, scraping out the container. Always pour into the center of the mixing container. Add 1 part clean, potable water to reduce viscosity, if desired.

Mix the components thoroughly for 1–2 minutes with a Jiffy ES-style mixing blade. 105 PumaPOXY/c has an extended pot life of 1 hour at 70°F, 50% RH, in a 1-gallon volume.

PHYSICAL PROPERTIES

Property	Test Method	Result
Hardness (Pencil)	ASTM D-3363	2H
Tensile Strength	ASTM D-2370	3,300 psi
Percent Elongation	ASTM D-2370	15%
Adhesion to Concrete	ASTM D-4541	400 psi, concrete failure
Impact Resistance	ASTM D-2794	>160 in/lb
Abrasion Resistance (CS-17 wheel, 1,000 g load, 1,000 cycles)	ASTM D-4060	35 mg loss
Coefficient of Friction (James Friction Tester)	ASTM D-2047	Wet 0.55 · Dry 0.65 (smooth)

CARE & MAINTENANCE

Cleaning guidelines

Allow the floor coating to cure at least 3 days before cleaning by mechanical means (e.g., sweeper, scrubber, disc machine).

Care

Proper maintenance will increase the service life and help maintain the appearance of your new PumaCRETE floor coating system. This is considered a low-maintenance coating system; however, certain textures and service environments require specific procedures. See the PumaCRETE “Cleaning Guidelines” for more information.

Caution

Avoid scratching or gouging the surface — all floor coatings will scratch if heavy or sharp objects are dragged across them. Do not drop heavy or pointed items on the floor, as this may cause chipping or concrete pop-outs where the substrate cap is weak.

Rubber tires can permanently stain the floor coating through plasticizer migration; in warehouse and industrial settings, non-marking tires are highly recommended. Rubber burns from quick stops and starts can heat the coating to its softening temperature, causing permanent marking.

Repairs

Repair gouges, scratches, or chip-outs as soon as possible to prevent potential chemical contamination.

SAFETY (SDS)

Please see the Safety Data Sheet (SDS) for safety and precautions. Use product as directed. **Keep out of the reach of children.**

WARRANTY

Seller warrants that its goods, as described on the face hereof, are free from any defects in material or workmanship. Seller makes no other warranty, express or implied, and all implied warranties of merchantability and fitness for a particular purpose are hereby disclaimed. Seller shall not be liable for prospective profits or special, indirect, or consequential damages. Seller’s sole liability and buyer’s exclusive remedy for breach of any warranty is expressly limited, at seller’s option, to replacement at the original F.O.B. point or refund of the purchase price. Seller shall not be responsible for any claim resulting from failure to use the product in the manner in which it was intended and in accordance with the instructions provided for its use. Any claim for breach of warranty shall be deemed waived unless buyer gives seller written notice of such claim within sixty (60) days after delivery and allows seller reasonable opportunity to investigate the claim and inspect the product.