PPG FLOORING™ 422 ESD Epoxy Coating System

DESCRIPTION

Two-component, 100% solids epoxy system (ground plane & top coat) designed to create conductive or dissipative systems

PRINCIPAL CHARACTERISTICS

- Electrostatic coating designed for static dissipative and conductive flooring systems
- Good abrasion and impact resistance
- Excellent color and gloss retention
- Good chemical resistance
- Good flexibility
- Suitable for areas with heavy traffic
- Easy cleaning
- TYPICAL USES:
- Electronic manufacturing facilities
- Factory and warehouse floors
- Computer and server rooms
- Pharmaceutical manufacturing and hospital operating rooms

COLOR AND GLOSS LEVEL

- Gray Base, Dark Gray Base
- High gloss

BASIC DATA AT 20°C (68°F)

Data for mixed product	
Number of components	Two
Volume solids	Ground Plane: 41 ± 2% Top Coat: 100 ± 2%
VOC (Supplied)	Ground Plane: max. 0.4 lb/US gal (approx. 50 g/l) Top Coat: max. 0.4 lb/US gal (approx. 50 g/l)
Recommended dry film thickness	Ground Plane: 3.0 - 5.0 mils (75 - 125 µm) Top Coat: 10.0 - 20.0 mils (250 - 500 µm) depending on system
Theoretical spreading rate	See spreading rate tables
Shelf life	Ground Plane Resin: at least 18 months when stored cool and dry Ground Plane Hardener: at least 24 months when stored cool and dry Topcoat Resin: at least 24 months when stored cool and dry Topcoat Hardener: at least 24 months when stored cool and dry

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RECOMMENDED SUBSTRATE CONDITIONS AND TEMPERATURES

- All surfaces must be sound, clean, free of oil, grease, dirt, mildew, curing compounds, loose and flaking paint, and other foreign substances

Concrete

- Prepare the surface in accordance with SSPC SP-13 standards
- New concrete must cure a minimum of 28 days prior to application of this product
- Test for moisture by conducting a plastic sheet test in accordance with ASTM D4263

Aged coatings

- Power tool clean in accordance with SSPC SP-3 or hand tool clean to SSPC SP-2 requirements
- Apply a test patch to confirm compatibility and adhesion

SYSTEM SPECIFICATION

- Recommended primer for concrete: PPG Flooring 912 LV (formerly known as Milamar ICO Primer LV). Refer to Technical Data Sheet

Chemical Resistances

- Motor Oil
- Brake & Hydraulic fluid
- 50% sodium hydroxide
- Gasoline
- Toluene and xylene
- Acetone
- Ammonium Hydroxide
- 10% Sulfuric Acid
- 10% Hydrochloric Acid
- Ethyl & Butyl Alcohol
- Ethyl & Butyl Acetate

INSTRUCTIONS FOR USE

Mixing ratio by volume: base to hardener 3:1 Ground Plane; 2:1 Top Coat

- Prepare Ground Plane and Top Coat separately following the mixing procedures for both products
- Mix Part A and Part B separately to ensure uniformity. Scrape sides and bottoms of containers
- Pour all of the contents of the Part B container into the Part A container. Mix together for 5 minutes until homogeneous.
- Mix Part A and Part B together using a low speed Jiffy-type mixer

Note:

- Do not thin with solvents.

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Application

- Full system: PPG FLR 912LV Primer, PPG FLR 422 Ground Plane, PPG FLR 422 Top Coat, and copper grounding tape
- Apply by brush, roller, notched trowel or squeegee
- The use of a brush is only recommended for touch-ups
- Ensure good ventilation during application and curing
- Where a slip resistant finished floor is required, an additional coat with the appropriate aggregate can be pre-mixed with the A- and B-components or broadcast into the wet coating
- Apply a first coat of ESD Topcoat at 8-10 mils for anchoring. Mix approximately 11 lbs (5 kg) of 90-100 mesh sand in a 4 gallon (15 L) kit of ESD Topcoat and apply a second coat of ESD Topcoat with sand at 8-10 mils. 40-50 or 20-30 mesh sand, aluminum oxide, or other larger grain sizes can be applied in a single layer of 15-20 mils.

Pot life

See ADDITIONAL DATA – Pot life

Cleaning procedure

- All application equipment must be cleaned immediately after use

ADDITIONAL DATA

Resistivity

- Ground Plane & Top Coat: $1x10^5$ - $1x10^6$ ohms
- Top Coat only: $1x10^6$ - $1x10^8$ ohms

Physical data of cured material	
Characteristic	**Value**
Hardness, Shore D (ASTM D2240)	76
Impact Resistance (ASTM D2794) direct / indirect	60 in-lb / 32 in-lb.
Abrasion resistance (ASTM D4060)	<50 mg
Mandrel Elongation (ASTM D522)	32% (max.)
Adhesion to Concrete (ASTM D4541)	400 - 800 PSI *

Notes:

- The value ranges stated in this Product Data Sheet are based on system processing under laboratory conditions. Equipment configurations and/or field application conditions may produce variances in final system values.
- * note: adhesion testing led to substrate failure before coating bond loss

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Spreading rate and film thickness - 422 Ground Plane	
DFT	**Theoretical spreading rate**
3.0 mils (75 µm)	213.9 ft^2/US gal (5.2 m^2/l)
5.0 mils (125 µm)	128.3 ft^2/US gal (3.1 m^2/l)

Spreading rate and film thickness - 422 Top Coat	
DFT	**Theoretical spreading rate**
10 mils (250 µm)	160.4 ft^2/US gal (3.9 m^2/l)
15 mils (375 µm)	106.9 ft^2/US gal (2.6 m^2/l)
20 mils (500 µm)	80.2 ft^2/US gal (2.0 m^2/l)

Overcoating interval				
Overcoating with...	**Interval**	**59°F (15°C)**	**77°F (25°C)**	**95°F (35°C)**
PPG Flooring 104	Minimum	8 hours	4 hours	2 hours
	Maximum	60 days	30 days	15 days
PPG Flooring 422 ESD Ground Plane	Minimum	6 hours	3 hours	1.5 hours
	Maximum	14 days	7 days	4 days
PPG Flooring 422 ESD Top Coat	Minimum	24 hours	12 hours	6 hours
	Maximum	60 days	30 days	15 days

Curing time for Ground Plane				
Substrate temperature	**Dry to touch**	**Tack free time**	**Dry hard**	**Full cure**
59°F (15°C)	4 hours	8 hours	12 hours	14 days
77°F (25°C)	2 hours	4 hours	6 hours	7 days
95°F (35°C)	1 hour	2 hours	3 hours	4 days

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Curing time for Top Coat					
Substrate temperature	**Dry to touch**	**Tack free time**	**Light traffic**	**Heavy traffic**	**Full cure**
59°F (15°C)	10 hours	20 hours	36 hours	72 hours	14 days
77°F (25°C)	4 hours	12 hours	24 hours	48 hours	7 days
95°F (35°C)	2 hours	7 hours	16 hours	36 hours	4 days

Pot life of Ground Plane	
Mixed product temperature	**Pot life**
59°F (15°C)	60 minutes
77°F (25°C)	45 minutes
95°F (35°C)	30 minutes

Pot life of Top Coat	
Mixed product temperature	**Pot life**
59°F (15°C)	40-50 minutes
77°F (25°C)	20-25 minutes
95°F (35°C)	10-15 minutes

SAFETY PRECAUTIONS

- Read all label and Safety Data Sheet (SDS) information prior to use

WORLDWIDE AVAILABILITY

It is always the aim of PPG Protective & Marine Coatings to supply the same product on a worldwide basis. However, slight modification of the product is sometimes necessary to comply with local or national rules/circumstances. Under these circumstances an alternative product data sheet is used.

WARRANTY

PPG warrants (i) its title to the product, (ii) that the quality of the product conforms to PPG's specifications for such product in effect at the time of manufacture and (iii) that the product shall be delivered free of the rightful claim of any third person for infringement of any U.S. patent covering the product. THESE ARE THE ONLY WARRANTIES THAT PPG MAKES AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES, UNDER STATUTE OR ARISING OTHERWISE IN LAW, FROM A COURSE OF DEALING OR USAGE OF TRADE, INCLUDING WITHOUT LIMITATION, ANY OTHER WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR USE, ARE DISCLAIMED BY PPG. Any claim under this warranty must be made by Buyer to PPG in writing within five (5) days of Buyer's discovery of the claimed defect, but in no event later than the expiration of the applicable shelf life of the product, or one year from the date of the delivery of the product to the Buyer, whichever is earlier. Buyer's failure to notify PPG of such non-conformance as required herein shall bar Buyer from recovery under this warranty.

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LIMITATIONS OF LIABILITY

AVAILABILITY OF PACKAGING

Packaging

- 4-Gallon kits