

# CuPro-Cote™

## Water-Based High-Conductivity Shielding Coating



This is a sprayable, brushable, or rollable conductive metallic coating using a specially formulated, **tarnish resistant copper** as the conductive agent for superior performance in electric field and RF shielding. Developed initially as an RFI/EMI shield for plastic electronic equipment housings, it can be applied directly onto acrylic, ABS and structural foams, as well as solvent sensitive materials such as polycarbonate and polystyrene. Can also be applied to other non-porous surfaces including primed wallboard, wood and clean metals after priming. Can be applied by sprayer, brush or roller just like ordinary

latex paint! Thin with water. Good surface resistivity of 5 ohm/sq at 1 mil dry film thickness. Attenuation: more than 75 dB from 1 MHz to 1 GHz. Covers 670 ft<sup>2</sup> per gallon per mil thickness if application is 100% efficient (typically 400 ft<sup>2</sup> per gallon when applied by roller). Can be used indoors or out, but you must topcoat with a weather protective paint if the material will be exposed to the elements. Color = Glitter Copper, but you can paint over with ordinary latex paint to achieve desired aesthetics. VOC: 1.0 ± 0.1 lbs/gallon (120.0 ± 12 grams/liter), has some ammonia smell (use good ventilation), but uses a water base.

### Important note about conductive paint and the National Electric Code:

There is nothing in the NEC which prohibits painting your walls with conductive paint. However, because this product does NOT carry a UL listing, some electrical inspectors, by virtue of being the "Authority Having Jurisdiction" can require the homeowner to hire an electrical engineer to certify that the product is safe to connect to the electrical ground. They can also require that a licensed electrician perform the ground connection. If your application requires an electrical inspection AFTER installation, you should check with your local inspector BEFORE you proceed to avoid any surprises.

Supplied in 4 sizes.

Cat. #292-5G ... 5 Gallon

Cat. #292-G ... gallon

Cat. #292-Q... quart

Cat. #292-4...4 oz



Available Exclusively from:

**Less EMF Inc.**

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## Specifications

|                             |  |
|-----------------------------|--|
| <b>SYSTEM:</b>              | one component, air dry, water base   |
| <b>SOLIDS:</b>              | 47 ±3% by weight   |
| <b>PARTICLE SIZE:</b>       | 33-38 microns  |
| <b>VOC:</b>                 | 1 ± 0.1 lb per gallon as packed  |
| <b>THINNER:</b>             | reduce to desired viscosity with water (approx 4:1) for spray application, no dilution for brush/roller application  |
| <b>PRIMER:</b>              | use standard latex primer on any absorbent or metallic surface, do not use primer OVER CuPro-Cote  |
| <b>APPLICATION METHOD:</b>  | standard air gun with pressure pot with agitation to keep copper in suspension, brush, or roller. <b>MIX WELL BEFORE AND DURING USE!</b>   |
| <b>DRYING TIME:</b>         | air dry, OR flash off for 5 minutes at room temp then dry for ½ hour at 160°F  |
| <b>ADHESION:</b>            | excellent to most plastic surfaces   |
| <b>HUMIDITY RESISTANCE:</b> | no change in resistivity or attenuation when tested in accordance with MIL-STD-202 Method 106 - 40 cycles: MIL-STD-810 Method 507 Procedure 5 - 48 hours cycling: meets UL specification 746-C |
| <b>SURFACE RESISTIVITY:</b> | <5 Ω/sq at 1 mil dry film thickness  |
| <b>ATTENUATION:</b>         | more than 75 dB from 1 MHz to 1 GHz  |
| <b>COVERAGE:</b>            | 670 ft <sup>2</sup> /gallon per mil at 100% efficiency   |
| <b>STORAGE LIFE:</b>        | 6 months from date of shipment in unopened container. Older material should be checked for surface resistivity before using. Protect from freezing.  |

**Application notes:** Clean-up is simple with warm soapy water. Dry coating is soluble in basic solution. To improve abrasion resistance, paint over with ordinary latex paint after completely dry, in any desired color. For outdoor applications, you must paint over with exterior grade latex paint. Use ordinary latex primer when indicated.

Proper grounding improves shielding effectiveness. One simple way to ground the paint is to coat a suitable area and allow to dry, then attach a properly grounded metalized tape with conductive adhesive in an inconspicuous area such as along a corner of the room or enclosure. Then simply paint right over the conductive tape, making good paint contact between the painted surface and conductive tape. Thicker application does not necessarily provide better performance as copper particles may settle during drying.

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### **Recommended Equipment**

1. Spray Gun: Use Devilbiss Type MBC 510 or equivalent.
2. Fluid Tip: Use an opening of at least 0.060 with corresponding needle.
3. Air Cap: Use Devilbiss 30, 58 or their equivalents.
4. Either a standard cup gun or pressure pot can be used.  
Cup Gun: Paint must be stirred or swirled almost continuously while painting.  
Pressure Pot: Must have an agitator with decent sized paddles. Use Shortest fluid hose necessary for free gun movement.
5. Film Thickness Gauge: Paint Inspection Gauge IV (Plastic), Tooke Gauge from Micro-Metrics Company.
6. Ohm Meter: Fluke Model 580 Micro Ohmmeter with spring loaded four (4) points probe for ohms/sq measurement OR with two (2) spring loaded probes for point to point measurement.  
For less precise testing use a Fluke 45 Dual Display Multimeter with round end probes for point to point measurement OR equivalent with resolution to 0.001 ohms.  
**MAKE SURE THE INSTRUMENT IS CALIBRATED TO ZERO.**

### **Application Tips**

1. Make sure all equipment is set up before opening container.
2. Make sure the paint is mixed thoroughly and strained before use.
3. While spraying, paint should be mixed continuously.
4. Use adequate atomization air, i.e. 50-60 psi.
5. Use a wide enough fan for adequate overlap of coverage.
6. Achieve a balance between spray that is too dry and spray that is too wet for optimum film formation. If spray is too dry, the paint will not form a smooth and integral film. If spray is too wet, sagging may occur.
7. Try to achieve a dry film thickness of at least 1.0 – 2.0 mils depending on resistivity requirements.
8. Optional Bake Schedule: 30 minutes air dry followed by 30 minutes at 140F. Conductive coatings will reach their final hardness and lowest surface resistivity approximately 24 hours after application. A quick resistivity check can be done after the recommended bake schedule (above). Since the resistance of the applied coating gradually decreases with drying time it is recommended that the final resistance be checked after 24 hours. This will give a constant and reliable value.
9. Provide adequate ventilation
10. **Caution! Material is electrically conductive! Do not allow paint to enter electric outlets or switches. Mask electrical equipment carefully before applying paint.**