

## Super Shield™ Silver Conductive Coating



### 842 (coating)

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The 842 Silver Conductive Coating is a very highly conductive acrylic paint designed to reduce electromagnetic or radio frequency interference (EMI/RFI). Long-term protection from EMI/RFI is assured by its durable acrylic resin that minimizes loss of metallization through rubbing, and by the oxidation resistant silver that slows down conductivity degradation with age. The flake shape helps ensure maximum points of contact to ensure better conductivity. In addition, loss of shielding through paint peeling is unlikely since the acrylic resin system was shown, in UL related testing, to adhere to even difficult substrates like ABS and polycarbonates.

- High Conductivity ( $\geq 15$  Siemen)—Low Surface resistance of  $\leq 0.066 \Omega/\text{sq}$  for a 1 mil coat
- Tough and durable coating
- Rub off resistant
- Corrosion resistant coating
- Stronger adhesion than water based coatings
- Low VOC's
- Median attenuation 75 dB  $\pm$  20 dB per 25.4  $\mu\text{m}$  ( $\sim 1.0$  mil) for frequency range of 10 MHz to 18 GHz

#### Applications & Usages:

Its primary application is to provide an excellent-conductivity EMI/RFI shielding suitable for harsh environments. It may also act as a conductive base for applications where it is necessary to impart the highest degree of conductivity to a surface. As well, the silver is non-magnetic, offering a low relative permeability that provides reasonable skin depths, which makes it suitable for microwave transmissions applications.

#### Compatibility:

**Chemical**—The silver filler is quite resistant to oxidation, except in environments that contain contaminants like H<sub>2</sub>S or ozone which tarnish its surface. Unlike many other metal oxides, silver oxide remains conductive so degradation due to oxidation are not as bad.

The thermoplastic resin is dissolved by common paint solvents like toluene, xylene, acetone, and MEK. This allows great coating repair and work characteristics, but it does make the coating unsuitable for solvent rich environments.

**Adhesion**—The 842 coating adheres to most plastics used to house printed circuit assemblies; however, it is not compatible with contaminants like water, oil, and greasy flux residues that may affect adhesion. If contamination is present, clean the surface to be coated first.

#### Specifications

Dry to Touch (aerosol)	3 to 5 mins
Recoat time (aerosol)	2 mins
Full Cure at room temp.	24 hours
Full Cure at 65 °C	30 mins
Shelf Life	3 years
Storage Temperature Limits	-5 to 40 °C (23 to 104°F)
Service Temperature	-40 to +120 °C (-40 to +248 °F)
Maximum Coverage (per 900mL)	< 168,000 cm <sup>2</sup> (<180 ft <sup>2</sup> )

Maximum Coverage (per US gallon)	< 709,000 cm <sup>2</sup> (<763 ft <sup>2</sup> )	
<b>Surface Resistance (Liquid):</b>	<a href="#">See Chart</a>	
	<b>Resistance</b>	<b>Conductance</b>
1 × coat @ 1.0 mil	0.066 ohm/sq	15 S
2 × coats @ 2.0 mil	0.055 ohm/sq	18 S
3 × coats @ 2.2 mil	0.0409 ohm/sq	25 S
Magnetic Class	Diamagnetic (Non-magnetic)	
Relative Permeability	<1.0	
<b>Shielding Attenuation:</b>	<b>Frequency</b>	<b>Attenuation</b>
for 33 μm [1.0 mil]		
IEEE STD 299-1997	10 to 100 kHz	54 dB to 75 dB
	100 kHz to 1 MHz	50 dB to 65 dB
	1 MHz to 10 MHz	54 dB to 65 dB
	10 MHz to 100 MHz	41 dB to 54 dB
	100 MHz to 1 GHz	35 dB to 67 dB
	1 GHz to 10 GHz	41 dB to 59 dB
	10 GHz to 18 GHz	36 dB to 72 dB
Resin technology	Thermoplastic	
Color	Metallic Silver Grey	
Abrasion resistant	Yes	
Blister resistant	Yes	
Peeling resistant	Yes	
Water and salt spray resistant	Yes	
Color	Metallic Silver Grey	
Density @25 °C	2.15 g/mL	
Solids Percentage (wt/wt)	~73%	
Viscosity at 25 °C [77 °F]	~8,000 cP	
Flash Point	-16 °C (3.2 °F)	
Odor	Ethereal, benzene-like	

## Available Sizes

842-900ML	1.6 kg (900 mL)	Liquid - Bulk
842-1G	6.4 kg (1 gallon)	Liquid - Bulk