CHO-SHIELD® 579

Electrically Conductive Platable Nickel Epoxy Coating

Parker Chomerics CHO-SHIELD 576 is a two component, silver filled conductive epoxy coating specially formulated to accept an electrolytic plating layer. The conductive silver filler's size and morphology are carefully chosen to provide multiple nucleation sites which promote the formation of a continuous and uniform electrolytic plating layer. The resulting plating and coating system forms a robust and highly conductive layer over a non-conductive plastic substrate. Advantages of this type of plating/conductive coating systems include: the ability to put down multiple metal layers with minimum thickness build-up, good adhesion to plastic and composite substrates, and the formation of a highly conductive solderable layer on a dielectric plastic substrate.



Product Features

- Two component
- Pre-measured kit allows easy mixing of components in one container. Long pot life (8 hours).
- Silver flake filler
- Provides excellent surface conductivity for electrolytical plating of plastic or graphite composites
- Epoxy coating
- Strong, tough, and durable coating

Product Features

- Military and commercial components which require a highly conductive uniform metal coating for soldering or dissipating an electrical charge
- Electrolytic plating seeding layer for plastics or composites



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CHO-SHIELD® 579 Product Information

Typical Properties	Typical Values	Test Method	
Polymer	Epoxy	N/A	
Filler	Silver	N/A	
Mix Ratio (A/B by weight)	100 / 27.5	N/A	
Color	Silver	N/A	(Q)
Spray Viscosity	18 to 24 seconds	Zahn Cup Number 2	(Q)
Surface Resistivity at 0.002 inches dry film thickness	0.060 ohms / square	CEPS-0002	(Q/C)
Shielding Effectiveness	>90 dB (80 MHz to 18 GHz)	CHO-TM-TP11*	(Q)
Recommended Dry Film Thickness	.001" (25 µm)	N/A	
Wet Density	1.7	ASTM D792	(Q/C)
Continuous Use Temperature	-40 to 150°C (-40 to 302°F)	N/A	(Q)
Pot Life	8.0 hrs	N/A	(Q)
Drying Time - Room Temperature Tack Free	1 hour @ 21°C (70°F)	N/A	
Drying Time - Room Temperature Full Dry**	1 week @ 21°C (70°F)	N/A	
Drying Time - Elevated Temperature Full Dry	Cure Cycle Option 1: 0.5 hr @ 21°C (70°F), followed by 1.0 hr @ 121°C (2) Cure Cycle Option 2: 0.5 hr @ 21°C (70°F), followed by 6.0 hr @ 66°C (150°F)	N/A	
Calculated VOC	376 g /L	Calculated	
Theoretical Coverage at Recommended Dry Film Thickness	0.088 ft^2/gram 0.0082 m^2/gram 571 ft^2/gallon	N/A	
Shelf Life, unopened, from date of manufacture	9 months***	N/A	(Q)
Storage Conditions	70°F/21°C +/- 9°F/5°C	N/A	

Notes: N/A – Not Applicable, (Q/C) - Qualification and Conformance Test, (Q) - Qualification Test, the above properties are based on Cure Cycle 1.
* This test Method is available from Parker Chomerics.
** Cure is sufficient for handling in 24 hours. Full specification properties are developed after 1 week (168 hours) at room temperature.
*** Shelf life may be extended by 3 months. Contact Chomerics for details.

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CHO-SHIELD® 579 Shielding Effectiveness

Figure 1 - Typical Shielding Effectiveness

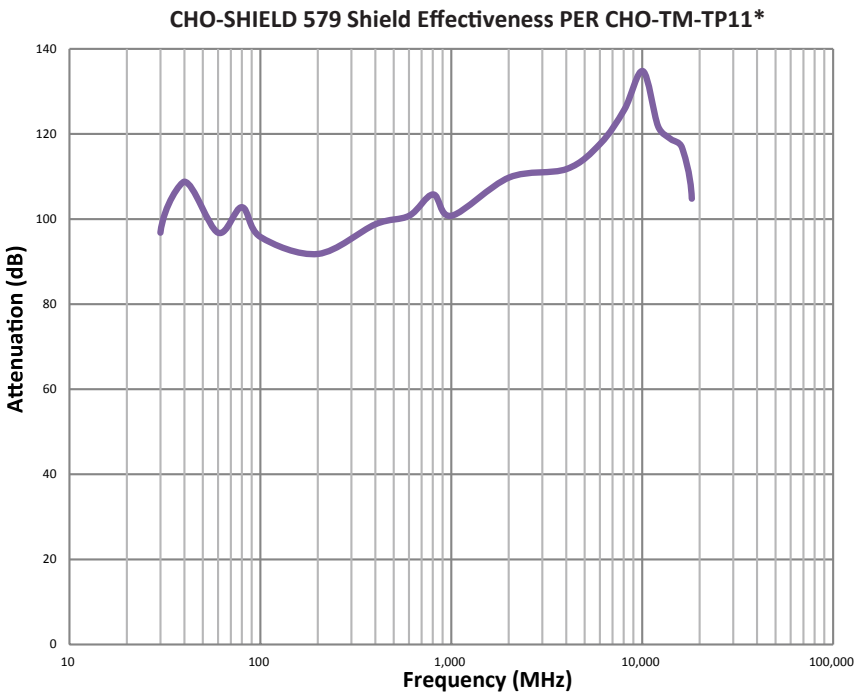
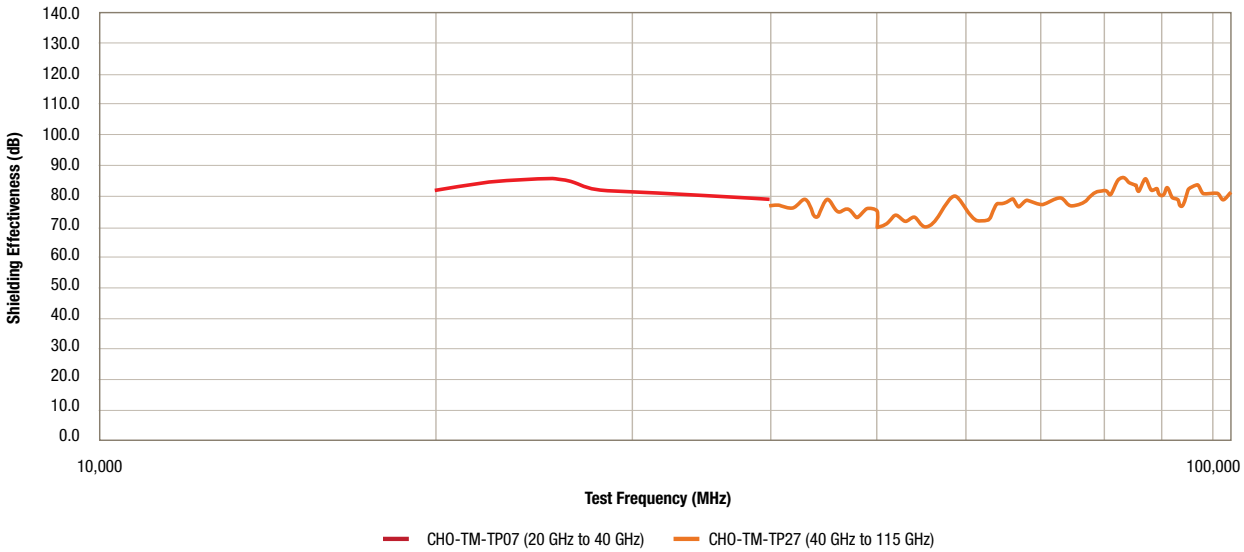


Figure 2 - CHO-SHIELD 579 Typical Shielding Effectiveness per CHO-TM-TP07 and CHO-TM-TP27



A Note on Test Methods Used

Figure 1 illustrates traditional shielding effectiveness test data from 30 MHz to 18 GHz using the CHO-TM-TP11 test method. This method used a 26 inch (660.4 mm) square test sample size, mounted on a 24 inch square (609.6 mm) aperture on the shielded room wall.

Two new test methods are used for testing the frequency range from 20 GHz to 110 GHz. Test methods CHO-TM-TP07 (20 GHz to 40 GHz) and CHO-TM-TP27 (40 GHz to 115 GHz) were developed to be able to use the same test sample throughout the wide frequency range.

Figure 2 illustrates the new test data using a 5.25 inch diameter (133.4 mm) test sample size over the frequency range from 20 GHz to 110 GHz. This smaller test sample size is required to cover such a wide frequency range.

Further information on the testing can be found by downloading the referenced test methods, available from parker.com/chomerics, or upon request from Parker Chomerics Application Engineering.

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CHO-SHIELD® 579 Application Information

Mix parts A and B in the ratio of 100 parts of A to 32.2 parts of B and the solvent blend. **The solvent blend should be added to achieve a spray viscosity of 18 to 24 seconds (using a Zahn #2 cup). Part B and the solvent blend should always be added to the part A to minimize waste. To apply the coating, use a standard HVLP spray gun with approximately 20 to 40 psi (138 to 276 kPa) atomizing air and a fluid nozzle with a minimum orifice diameter of 0.040 inches (1.016 mm).

The coating should be ready to use as mixed. NOTE: Overthinning degrades electrical performance and may inhibit spraying. Apply the coating to a 1.0 mil thickness (a wet film of 2 mil is approximately 1 mil when dry). A 30-minute solvent flash is required between coats. The last coat should dry at room temperature for at least one hour prior to any elevated cure. Consult Parker Chomerics Applications Department for assistance.

Table 2 - Thinning for CS 579 Application

Weight of CS 579 Part A (grams)	Weight of CS 579 Part B (grams)	Weight of Solvent Blend (grams)
100	32.2	Refer to Apps Info
349*	112*	Refer to Apps Info

* Full kit of 52-01-0576-0000
*** Solvent blend is 50/50 by weight (or volume) of Toluene and MIBK (Methyl isobutyl ketone)

NOTE:
Before spraying CHO-SHIELD 579, age the compound for at least 1 hour at room temperature after mixing.

CHO-SHIELD® 579 Ordering Information

Product	Weight (grams)	Packaging	Part Number	Primer
CHO-SHIELD 576	454	2 component kit A: 1 pint aluminum can B: 4 fluid ounce amber glass bottle	52-01-0579-0000	Not Required

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.



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