CHO-SHIELD® 596

Electrically Conductive Silver Epoxy EMI Coating

Parker Chomerics CHO-SHIELD 596 is a two component, silver filled, conductive epoxy paint formulated to provide EMI shielding and electrical grounding on plastic and composite substrates. It is a great material choice for chemical resistant plastics or other hard to adhere to substrates. In addition, CHO-SHIELD 596 may be used to provide a compatible conductive metal coating for mating silver filled EMI shielding gaskets to aluminum flanges. By forming a barrier over the aluminum substrate this silver epoxy coating reduces the overall galvanic corrosion of the EMI gasket/aluminum flange system. CHO-SHIELD 596 demonstrates exceptional environmental stability, maintaining electrical conductivity, adhesion, and abrasion resistance when subjected to high and low temperature extremes, high humidity, and salt fog corrosion environments.





Product Features

- Two component
- Pre-measured kit allows easy mixing of components in one container. Long pot life (8 hours).
- Silver flake filler
- Excellent conductivity and EMI shielding of components.
- Epoxy coating
- Coating maintains electrical and mechanical stability in harsh environments. Good chemical/moisture barrier. Hard abrasion resistant coating. Meets military spec MIL-C-22750.

Product Features

- Military and commercial electronic enclosures
- Missile canisters
- Man portable electronics
- Radar systems
- Avionics boxes
- Engines
- Aluminum flanges and structures

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CHO-SHIELD® 596 Product Information

Typical Properties	Typical Values	Test Method	
Polymer	Epoxy	N/A	
Filler	Silver	N/A	
Mix Ratio (A/B by weight)	100 / 37.2	N/A	
Color	Silver	N/A	(Q)
Spray Viscosity	19 to 25 seconds	Zahn Cup Number 2	(Q)
Surface Resistance at 0.001 inches (25 µm, 1 mil)	0.060 ohms / square	CEPS-0002	(Q/C)
Shielding Effectiveness (see Figure 1)	>90 dB	CHO-TM-TP11*	(Q)
Recommended Dry Film Thickness	.001" (25 µm)	N/A	
Wet Density	1.8	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	585 g /L	Calculated	
Theoretical Coverage at Recommended Dry Film Thickness	0.098 ft^2/gram 0.0091 m^2/gram 663 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® 596 Shielding Effectiveness

Figure 1 - Typical Shielding Effectiveness

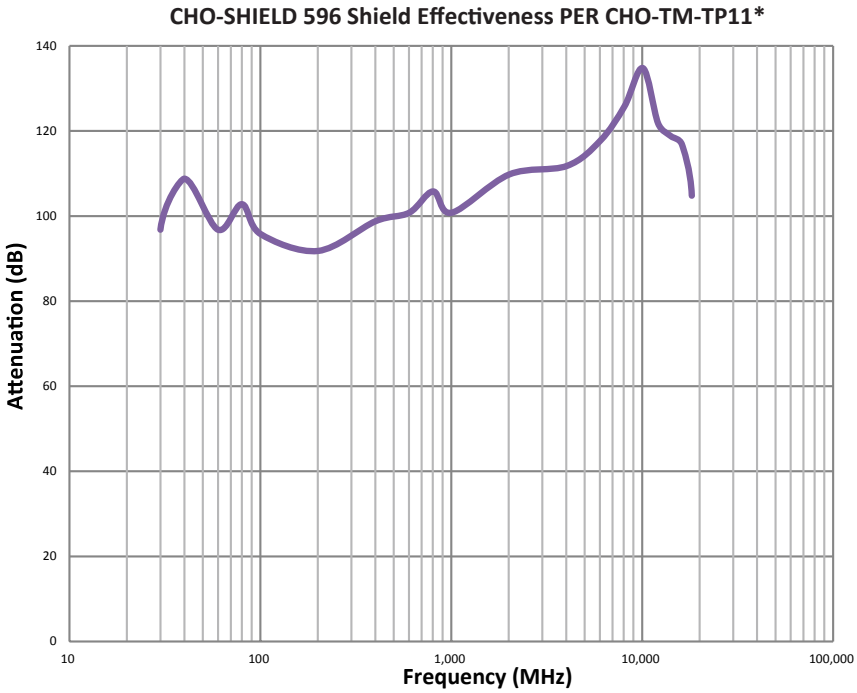
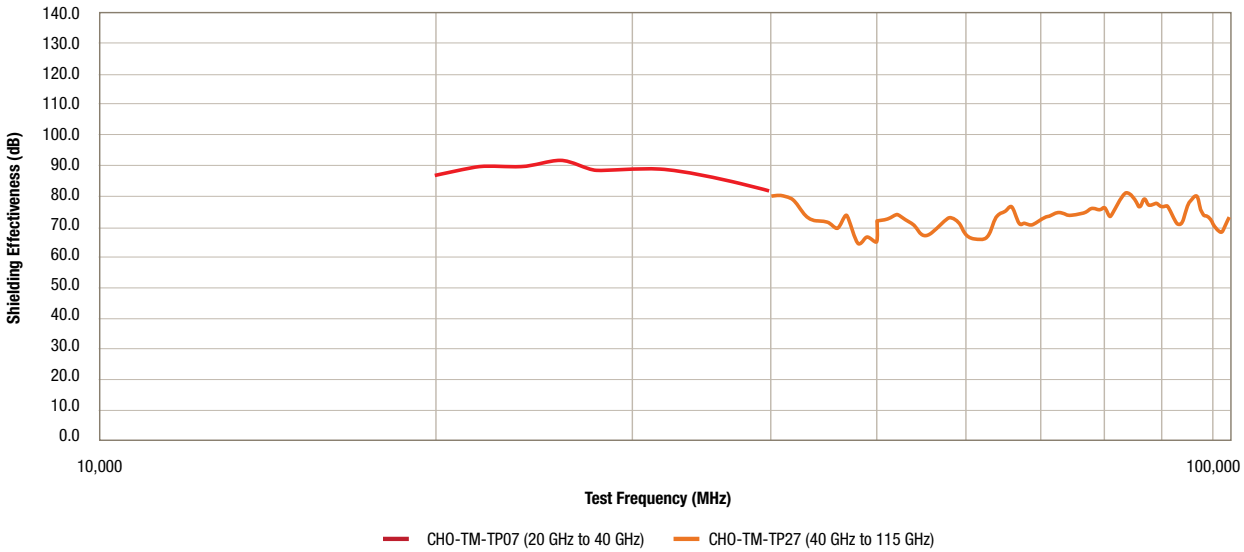


Figure 2 - CHO-SHIELD 596 Typical Shielding Effectiveness per CHO-TM-TP07 and CHO-TM-TP27



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® 596 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 596 Application

Weight of CS 596 Part A (grams)	Weight of CS 596 Part B (grams)	Weight of Solvent Blend (grams)
100	37.2	Refer to Apps Info
336*	125*	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 596, age the compound for at least 1 hour at room temperature after mixing.

CHO-SHIELD® 596 Ordering Information

Product	Weight (grams)	Packaging	Part Number	Primer
CHO-SHIELD 596	85	2 component kit A: 1/2 pint aluminum can B: 2 fluid ounce clear glass bottle	52-00-0596-0000	Not Required
CHO-SHIELD 596	454	2 component kit A: 1 pint aluminum can B: 1/2 pint aluminum can	52-01-0596-0000	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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CHODS1016 September 2026

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