



TEST REPORT

Compression vs. Deflection and Resistance Performance of CHO-FORM® 5541 and CHO-FORM® 5550

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Introduction:

CHO-FORM[®] 5541 and CHO-FORM[®] 5550 are single component, thermally cured, electrically conductive form-in-place (FIP) elastomers specifically formulated to provide shielding against electromagnetic interference (EMI). Both products contain nickel-plated graphite particles dispersed within a silicone elastomer.

While CHO-FORM[®] 5541 (75 +/-8 Shore A durometer hardness) continues to be successfully employed in a variety of applications where corrosion resistance and long term stability are crucial, CHO-FORM[®] 5550 (43 +/-8 Shore A durometer hardness) has been developed to provide our customers with a lower hardness alternative to address applications where seal hardness greater than 70 Shore-A may be impractical and cost prohibitive from a design perspective.

This test report examines the percent deflection versus applied load as well as the percent deflection versus electrical through resistance of both CHO-FORM[®] 5541 and CHO-FORM[®] 5550.

Test Set-Up and Configuration:

Test Method

Both the compression deflection and compression resistance were evaluated per Chomerics Document Number: NBD-001 Rev. 1.0 - Compression Deflection/Compression Resistance Test Procedure.

Test Specimens and Sample Preparation

The compression deflection and compression resistance testing was performed on a linear bead 1.00" (25.40 mm) in length and 0.05" (1.27 mm) in height.

The test specimens were dispensed and cured per the manufacturing process instructions and conditioned for a minimum of 3 hours at ambient room temperature (23 +/- 5°C and 50 +/- 5% R.H.) prior to testing.

Equipment

To perform the evaluation, the following equipment was utilized:

- A Texture Technologies Corp. TA-HD Plus Texture Analyzer equipped with a 750 kg load cell operated at a test speed of 0.025 in/min (0.064 mm/min) from 0% through 50% deflection fitted with a 1.00" (25.4 mm) by 1.00" (25.4 mm) copper probe.
- A digital ohmmeter with a measurement range of 0 to 20,000 mohm.

Experimental Results:

Percent Deflection versus Applied Load

Applied load measurements were recorded over a percent deflection range of 1% through 50%. The overall percent deflection versus applied load has been plotted in

Figure 1. Applied load data at specific deflection intervals is summarized in Table 1.

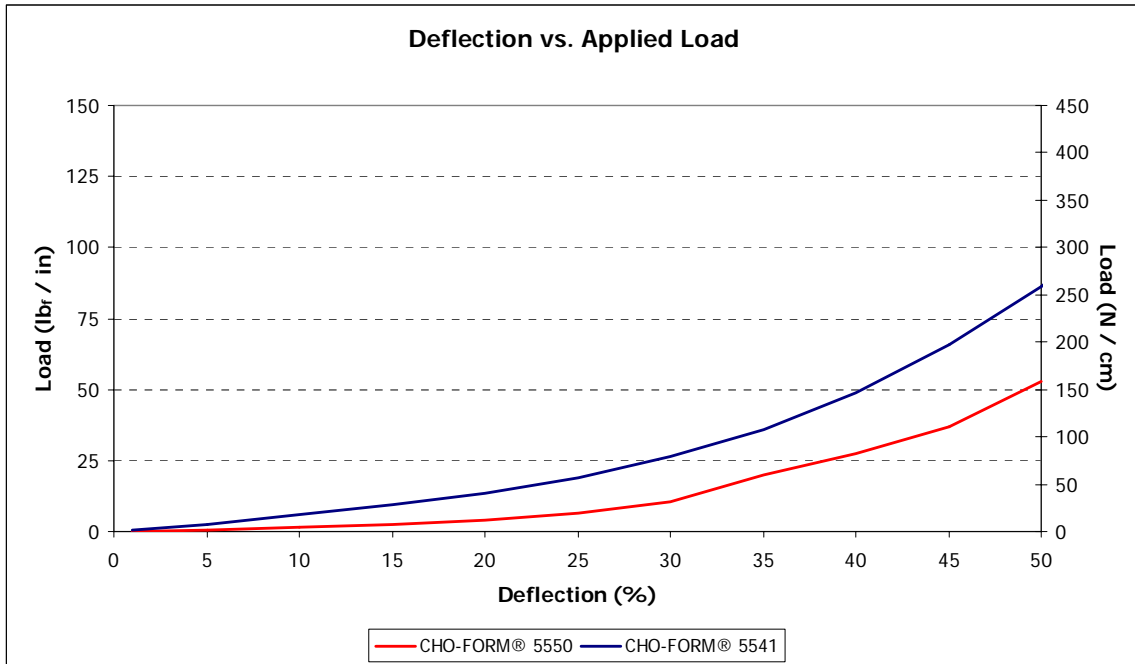


Figure 1: Deflection vs. Applied Load: CHO-FORM® 5541 and CHO-FORM® 5550
1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead.

		Deflection (%)						
		5	10	20	30	40	50	
Applied Load	CHO-SEAL® 5550	lb _f / in	0.81	2.34	6.89	18.15	46.66	90.72
	N / cm	1.42	4.10	12.07	31.79	81.71	158.88	
CHO-SEAL® 5541	lb _f / in	4.44	10.44	22.98	45.14	83.47	147.99	
	N / cm	7.77	18.29	40.24	79.05	146.18	259.18	

Table 1: Deflection vs. Applied Load: CHO-FORM® 5541 and CHO-FORM® 5550 – Points of Reference
1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead.

Percent Deflection versus Electrical Through Resistance

Electrical through resistance measurements were recorded over a percent deflection range of 1% through 50%. The overall percent deflection versus applied load data has been plotted in Figure 2 with points of reference summarized in Table 2.

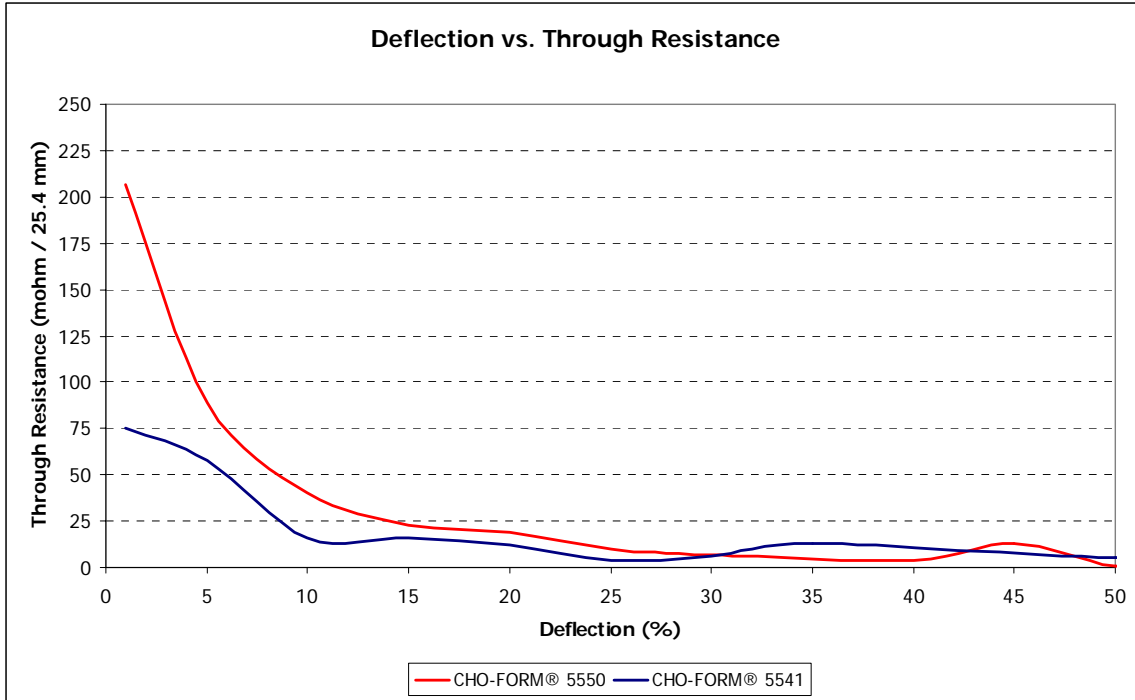


Figure 2: Deflection vs. Resistance: CHO-FORM® 5541 and CHO-FORM® 5550
1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead.

		Deflection (%)						
		5	10	20	30	40	50	
Through Resistance	CHO-SEAL® 5550	mohm / 25.4 mm	89.0	40.5	19.0	6.5	4.0	1.0
	CHO-SEAL® 5541	mohm / 25.4 mm	58.0	16.0	12.0	6.0	5.5	5.0

Table 2: Deflection vs. Resistance: CHO-FORM® 5541 and CHO-FORM® 5550 – Points of Reference
1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead.

Conclusions:

It is strongly recommended that customers work with the Chomerics Applications Department to model and prototype solutions to a given unique set of application requirements.

Percent Deflection versus Applied Load

When evaluating a 1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead, the applied

load required to deflect CHO-FORM[®] 5550 was approximately 40 to 80% less than load needed to deflect CHO-FORM[®] 5541 at the equivalent deflection intervals listed in Table 3 below:

		Deflection (%)					
		5	10	20	30	40	50
CHO-SEAL [®] 5550	% Delta	-81.7%	-77.6%	-70.0%	-59.8%	-44.1%	-38.7%

*Table 3: Percent Difference of Applied Load at Select Deflection Intervals:
CHO-FORM[®] 5550 vs. CHO-FORM[®] 5541
1.00" (25.40 mm) x 0.05" (1.27 mm) dispensed bead.*

Percent Deflection versus Electrical Through Resistance

Though dependent on sample geometry, the percent deflection versus electrical through resistance for the samples described within this test report, indicates that the electrical through resistance of CHO-FORM[®] 5541 and CHO-FORM[®] 5550 are approximately equivalent through a deflection range of 15 through 50 percent.