



## TEST REPORT

### Compression vs. Deflection and Resistance Performance of CHO-SEAL<sup>®</sup> 1270 and CHO-SEAL<sup>®</sup> 1273

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Chomerics Approved Signatory:

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**Introduction:**

CHO-SEAL<sup>®</sup> 1270 and CHO-SEAL<sup>®</sup> 1273 are electrically conductive elastomers specifically formulated to provide shielding against electromagnetic interference (EMI). Both products contain silver plated copper particles dispersed within a silicone elastomer and are ideal for applications where superior mechanical performance, excellent conductivity, and long term stability are required.

While CHO-SEAL<sup>®</sup> 1273 (65 +/-8 Shore A durometer hardness) continues to be successfully molded in to a variety of complex shapes and sheets to satisfy the requirements of a wide range of applications, CHO-SEAL<sup>®</sup> 1270 (39 +/-6 Shore A durometer hardness) has been developed to provide our customers with a highly flexible low hardness material to address applications where seal hardness greater than 45 Shore-A may be impractical and cost prohibitive from a design perspective.

This test report examines the heat aging performance of CHO-SEAL<sup>®</sup> 1270 and CHO-SEAL<sup>®</sup> 1273 following 1000 hour dwells at 85°C and 125°C.

**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 - 1.00" (25.40 mm) long Solid D-Strip samples (Chomerics Part Number: 10-05-1577-XXXX).

Chomerics P/N	Nominal Dimensions		
	H	W	R(rad.)
10-05-1577-XXXX	0.175 in	0.178 in	0.089 in
	4.45 mm	4.52 mm	2.26 mm

Each sample was made per the manufacturing process instructions and post cured for 3 hours at 149°C +/- 2°C in an air circulating oven and subsequently 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

70% deflection. The material of construction for both the probe and base fixture is silver plated aluminum.

- 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 70%. 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.

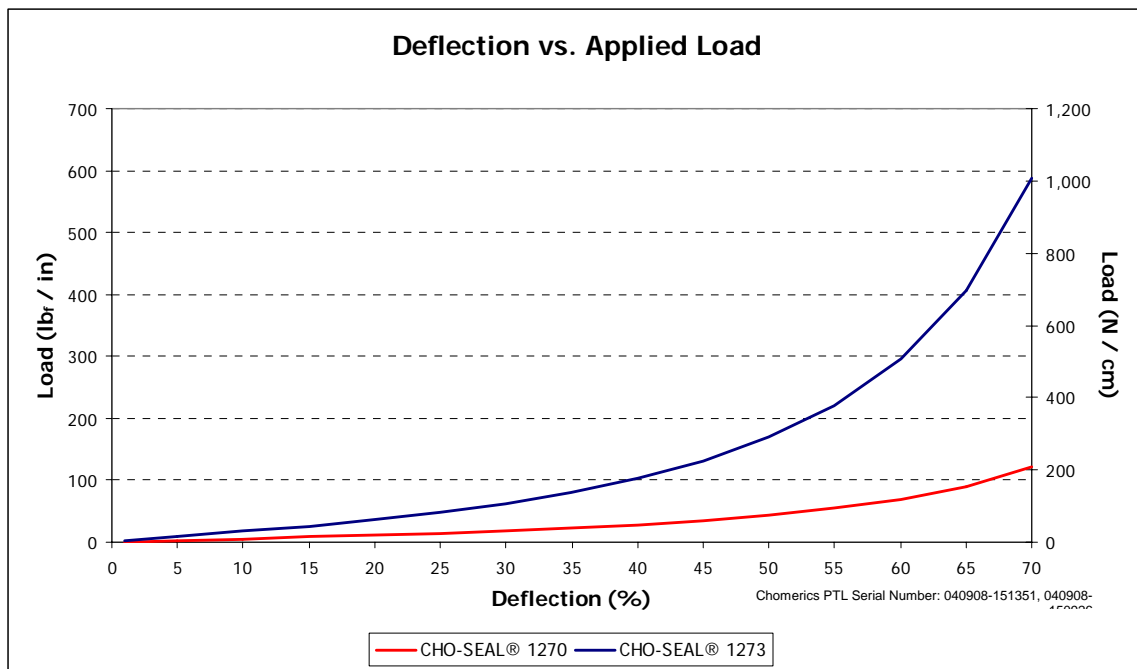


Figure 1: Deflection vs. Applied Load: CHO-SEAL® 1270 and CHO-SEAL® 1273 (Chomerics P/N 10-05-1577-XXXX)

		Deflection (%)						
		5	10	20	30	40	50	
Applied Load	CHO-SEAL® 1270	lbr / in	2.47	5.08	10.94	18.11	27.71	42.75
		N / cm	4.32	8.90	19.16	31.71	48.53	74.87
	CHO-SEAL® 1273	lbr / in	8.30	16.97	35.28	60.33	99.98	165.88
		N / cm	14.54	29.72	61.79	105.65	175.09	290.49

Table 1: Deflection vs. Applied Load: CHO-SEAL® 1270 and CHO-SEAL® 1273 – Points of Reference (Chomerics P/N 10-05-1577-XXXX)

Percent Deflection versus Electrical Through Resistance

Electrical through resistance measurements were recorded over a percent deflection range of 1% through 70%. The overall percent deflection versus applied load data has been plotted in Figure 2 with points of reference summarized in Table 2.

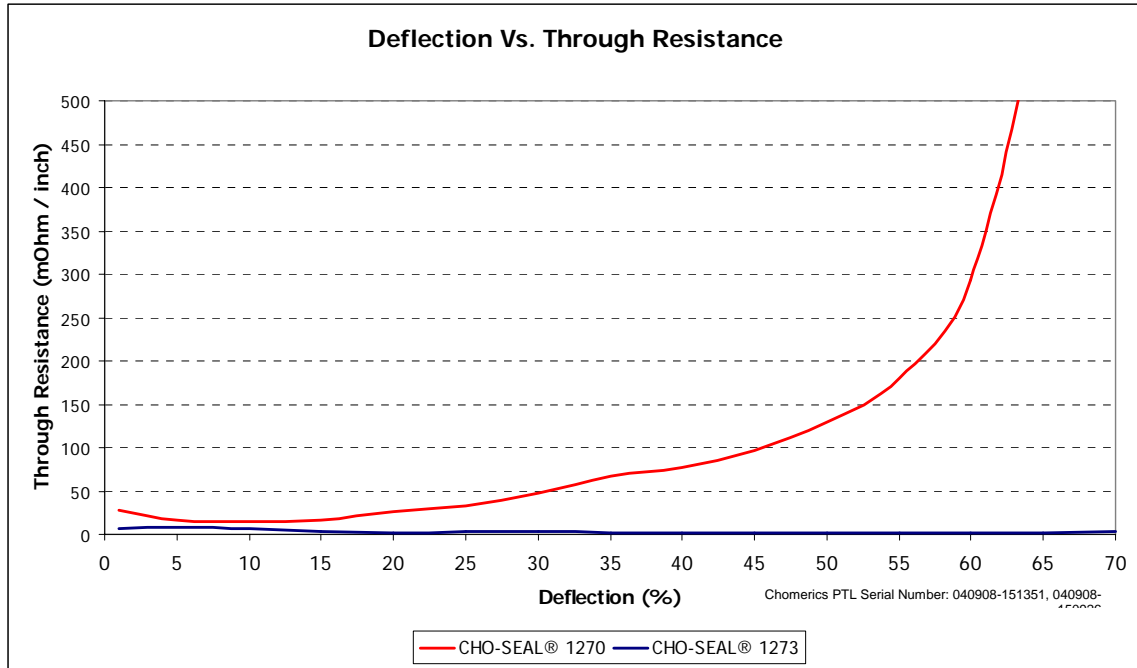


Figure 2: Deflection vs. Resistance: CHO-SEAL® 1270 and CHO-SEAL® 1273 (Chomerics P/N 10-05-1577-XXXX)

		Deflection (%)						
		5	10	20	30	40	50	
Through Resistance	CHO-SEAL® 1270	mOhm / in	17.0	14.0	26.0	48.0	77.0	129.0
	CHO-SEAL® 1273	mOhm / in	8.0	6.0	2.0	2.5	2.0	1.5

Table 2: Deflection vs. Resistance: CHO-SEAL® 1270 and CHO-SEAL® 1273 – Points of Reference (Chomerics P/N 10-05-1577-XXXX)

**Conclusions:**

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.

Percent Deflection versus Applied Load

For the Solid-D profile evaluated, the applied load required to deflect CHO-SEAL<sup>®</sup> 1270 was approximately 70% less than what was needed to deflect CHO-SEAL<sup>®</sup> 1273 at the equivalent deflection intervals listed in Table 3 below:

		Deflection (%)					
		5	10	20	30	40	50
CHO-SEAL <sup>®</sup> 1270	% Delta	-70.3	-70.1	-69.0	-70.0	-72.3	-74.2

*Table 3: Percent Difference of Applied Load at Select Deflection Intervals:  
CHO-SEAL<sup>®</sup> 1270 vs. CHO-SEAL<sup>®</sup> 1273 (Chomerics P/N 10-05-1577-XXXX)*

Percent Deflection versus Electrical Through Resistance

As the deflection of the sample increases, a design limit can be reached where the electrically conductive network within the material degrades to the point where the shielding effectiveness can become reduced. Though dependent on sample geometry, percent deflection versus electrical through resistance for Chomerics P/N 10-05-1577-XXXX indicates that the electrical through resistance of CHO-SEAL<sup>®</sup> 1270 increased above 100 mohm per inch as the sample deflected in excess of 45%. CHO-SEAL<sup>®</sup> 1273 did not exhibit a significant change in through resistance as the sample was increasingly deflected.