



MICROSTAT LABORATORIES
RIVER'S EDGE TECHNICAL SERVICE

Specialists in Materials Testing and Technical Services

TEST REPORT

AntiStat Inc
Static Shielding Bags

Stock Code: 010-0024

Metal Shield

8" X 10"

203x254mm

Bin A9/F51/F71

Stamp on Sealed Edge of Bags: 011215

TESTED FOR

Surface Resistance per ESD STM 11.11
Static Discharge Shielding per ESD STM 11.31

Report #: 2016-041
April 25th, 2016



SUMMARY

One-hundred static shielding bags were submitted for testing to industry specifications ANSI/ESD STM11.11 (surface resistance measurements of the inside and outside of the bags) and ANSI/ESD STM11.31 (static discharge shielding). The tested bags meet or exceed the requirements of ANSI/ESD STM541 and ANSI/ESD S20.20.

EXPERIMENTAL AND DISCUSSION

The bags were randomly selected and conditioned for 48 hours at the specified conditions (12% & 50% R.H., & 23°C) before testing was started. Testing was carried out in the conditioning environment.

Surface resistance is reported as “resistance,” as specified in ANSI/ESD STM11.11. To obtain resistivity values, multiply the resistance numbers by 10. The data from this testing is included below in Table 1.

The static discharge shielding test was performed using the test methods called out in ANSI/ESD STM11.31. The data from this testing is summarized below in Table 2, detailed data is included as appendix A.

Table 1
Surface Resistance Data
Stock Code: 010-0024 - Metal Shielding Bag

Surface Resistance per ANSI/ESD STM11.11		
Sample #	Inside	Outside
1	6.95 x 10 ⁹ Ω	1.17 x 10 ¹⁰ Ω
2	3.79 x 10 ⁹ Ω	8.66 x 10 ⁹ Ω
3	3.29 x 10 ⁹ Ω	7.84 x 10 ⁹ Ω
4	3.03 x 10 ⁹ Ω	8.68 x 10 ⁹ Ω
5	3.00 x 10 ⁹ Ω	8.02 x 10 ⁹ Ω
6	3.50 x 10 ⁹ Ω	7.79 x 10 ⁹ Ω
Average	3.75 x 10 ⁹ Ω	8.69 x 10 ⁹ Ω
Median	3.40 x 10 ⁹ Ω	8.34 x 10 ⁹ Ω
Minimum	3.00 x 10 ⁹ Ω	7.79 x 10 ⁹ Ω
Maximum	6.95 x 10 ⁹ Ω	1.17 x 10 ¹⁰ Ω



Table 2
Static Discharge Shielding Data Summary
Stock Code: 010-0024 - Metal Shielding Bag

Static Discharge Shielding Per ANSI/ESD STM11.31				
	12% Data		50% Data	
	Calculated Data		Calculated Data	
	Energy (nJ)	Peak I (mA)	Energy (nJ)	Peak I (mA)
Average	14.46	68.67	14.38	69.85
St. Dev.	3.47	16.69	3.71	14.61
Min	8.21	42.41	7.53	44.81
Max	19.44	99.54	23.14	101.63

EQUIPMENT USED FOR ELECTRICAL TESTING

Surface Resistance Measurements:

Keithley Model 6517a Electrometer/High Resistance Meter
ETS Model 803B Resistance Probe
ETS Model 809 Surface Resistance Verification Fixture

Static Discharge Shielding Measurements:

ETS Model 811/412 Electrostatic Discharge Unit/Shielding Bag Tester
Tektronix TDS 520A Digital Oscilloscope.

The results provided in this report are accurate within the limits appropriate to each test standard. The results of this report are statistically significant only to the samples submitted for testing. MicroStat Laboratories/River's Edge Technical Service, Inc. has no controls, and assumes no responsibility for the tested product's functionality or use.

Carl E Newberg

April 25th, 2016

Date

Static Shielding Per ESD STM 11.31					
		12% Data		50% Data	
		Calculated Data		Calculated Data	
Sample #	Test #	Energy (nJ)	Peak I(mA)	Energy (nJ)	Peak I(mA)
1	1	10.29	42.41	15.04	64.82
1	2	15.81	61.62	13.73	64.82
1	3	17.89	93.63	23.14	84.83
1	4	18.65	99.23	14.29	56.82
1	5	12.25	57.62	11.40	68.02
1	6	19.04	77.62	9.22	54.42
2	1	13.86	64.02	16.90	57.62
2	2	8.70	50.42	17.05	55.22
2	3	16.33	81.63	17.50	101.63
2	4	16.23	72.02	9.94	56.02
2	5	11.44	67.22	17.36	84.83
2	6	16.78	81.63	15.45	76.02
3	1	14.83	68.82	10.76	64.02
3	2	9.52	60.02	7.53	44.81
3	3	18.81	99.54	9.28	54.42
3	4	8.54	50.42	15.07	64.82
3	5	15.72	99.23	18.54	82.43
3	6	14.82	71.22	16.10	66.42
4	1	15.55	48.02	15.28	82.43
4	2	16.10	78.43	17.68	98.43
4	3	19.44	74.42	14.92	83.23
4	4	8.21	54.42	7.56	48.82
4	5	9.40	59.22	9.82	56.02
4	6	12.07	59.22	14.59	80.83
5	1	16.46	88.03	16.74	80.83
5	2	14.89	46.41	15.09	76.82
5	3	14.83	54.42	18.43	98.43
5	4	15.03	69.62	18.24	72.82
5	5	13.71	59.22	15.03	76.32
5	6	8.29	56.82	8.22	48.02
6	1	18.33	48.82	16.31	85.63
6	2	18.73	76.02	17.79	66.42
6	3	11.55	49.62	15.27	68.02
6	4	18.59	80.03	17.13	67.22
6	5	12.62	99.23	10.98	57.62
6	6	17.43	69.62	10.21	64.82
		Calculated Data		Calculated Data	
		Energy (nJ)	Peak I(mA)	Energy (nJ)	Peak I(mA)
Average		14.46	68.61	14.38	69.85
St. Dev.		3.47	16.58	3.71	14.61
Min		8.21	42.41	7.53	44.81
Max		19.44	99.54	23.14	101.63