LONESTAR ELECTROSTATIC SOLUTIONS

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SUMMARY

Testing of material samples were performed to ANSI/ESD STM11.11 and 11.12 to determine Surface and Volume resistance of the material. A qty of 6 samples were conditioned to the requirements of the test methods. Each was then tested per the referenced test methods with data recorded and shown below. Results showed a range on Surface Resistance of 10^3 – 10^5 Ohms. Range for Volume Resistance is 10^3 – 10^5 Ohms. Material was also tested for charge generation per S541-2019 with max voltage measuring 24 volts (Tribo measurement).

MATERIAL:

Primex Cor-X Conductive
Sample Thickness: 0.125”

TEST CONDITIONS:

Qty 6 specimens @ 12.9% RH, 23°C, 64 hours conditioning.
Qty 6 specimens @ 50.5% RH, 23°C, 60 hours conditioning.
Test Voltage (@ Upper Resistance): 100 Volts
Electrification Period (@ Upper Resistance): 8-10 seconds

TEST METHOD/S:

- **ANSI/ESD STM11.11-2022**
- **ANSI/ESD STM11.12-2021**

STANDARDS:

- **PROSTAT PRS-801 RESISTANCE METER (CAL DATE 1-2023)**
- **PROSTAT PRF-911 CONCENTRIC RING (CAL DATE 2-2023)**
- **PROSTAT PFM 711A ELECTROSTATIC FIELD METER (CAL DATE 1-2023)**
- **ALL STANDARDS ON 1 YEAR CAL CYCLE.**

TEST DATA

TABLE 1: SURFACE RESISTANCE DATA

Test Method ANSI/ESD STM 11.11	Surface Resistance (Ohms) @ 12.9% RH, 23°C, 64 hours conditioning								
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Min	Max	Mean
	5.5×10^4	4.3×10^4	2.1×10^5	4.7×10^4	7.2×10^4	9.9×10^4	9.9×10^4	2.1×10^5	8.77×10^4

Test Method ANSI/ESD STM 11.11	Surface Resistance (Ohms) @ 50.5% RH, 23°C, 60 hours conditioning								
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Min	Max	Mean
	8.3×10^3	8.8×10^3	8.0×10^3	1.0×10^4	1.0×10^4	9.2×10^3	8.0×10^3	1.0×10^4	9.05×10^3

TABLE 2: VOLUME RESISTANCE DATA

Test Method ANSI/ESD STM 11.12	Volume Resistance (Ohms) @ 12.9% RH, 23°C, 64 hours conditioning								
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Min	Max	Mean
	4.6×10^4	7.4×10^4	6.9×10^4	3.2×10^4	5.7×10^4	1.9×10^5	3.2×10^4	1.9×10^5	7.8×10^4

Test Method ANSI/ESD STM 11.12	Volume Resistance (Ohms) @ 50.5% RH, 23°C, 60 hours conditioning								
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Min	Max	Mean
	6.9×10^3	8.2×10^3	8.1×10^3	1.1×10^4	7.6×10^3	7.5×10^3	6.9×10^3	1.1×10^4	8.22×10^3

TABLE 3: CHARGE GENERATION DATA

Charge Generation Test Data (Volts) @ 33.4% RH, 23.4°C									
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Min	Max	Mean
Static	7	6	9	7	6	10	6	10	7.5
Tribo (Material)	19	24	21	16	23	15	15	24	19.7
Decay (Material)	11	14	10	10	13	9	9	14	11.2

Max voltage measured (static) = **10 volts**
Max charge measured (tribo) = **24 volts**
Max voltage decay (10 seconds) = **14 volts**

NOTE: Tribo charge was measured on the material. A bare PCB was used as the source of contact/separation. After they were contacted for 30 seconds, they were then separated by slowly sliding the bare PCB across the material sample. After first voltage measurement was taken, a second voltage measurement was taken on the material after 10 seconds to determine if the charge was decaying.