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QUALIFICATION REPORT – ANSI/ESD S20.20 DESCO STATFREE® ESD ULTRA CLEAR BAG

ANSI/ESD S20.20	DESCO Test Results	Test Methods
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Surface Resistance (ohms) @ 12% RH, 23°C, 48-72 hours conditioning, N=10 specimens, 100V

Interior (Sealing Surface)	$\geq 1.0 \times 10^4$ to $< 1.0 \times 10^{11}$	See Table 1	ANSI/ESD STM11.11
Exterior	$\geq 1.0 \times 10^4$ to $< 1.0 \times 10^{11}$	See Table 1	ANSI/ESD STM11.11

Surface Resistance (ohms) @ 50% RH, 23°C, 48-72 hours conditioning, N=6 specimens, 100V

Interior (Sealing Surface)	$\geq 1.0 \times 10^4$ to $< 1.0 \times 10^{11}$	See Table 1	ANSI/ESD STM11.11
Exterior	$\geq 1.0 \times 10^4$ to $< 1.0 \times 10^{11}$	See Table 1	ANSI/ESD STM11.11

Discharge Shielding (nJ) @ 23°C, minimum 48 hours conditioning, N=6 specimens @ 6 individual readings per specimen

@ 12% RH	Not Applicable	-	ANSI/ESD STM11.31
@ 50% RH	Not Applicable	-	ANSI/ESD STM11.31

Test Equipment (Calibration records and test results are located at corporate lab (Sanford, NC)):

For Test Method ANSI/ESD STM11.11:

- ETS Controlled Environment Chamber (Model 5532)
- SCS Surface Resistance Meter (Model 770761)
- SCS Concentric Ring Probe (Model 770007)

For Test Method ANSI/ESD STM11.31:

- ETS Controlled Environment Chamber (Model 5532)
- ETS Shielded Bag Test System (Model 4431T)

Table 1: Test Results:

Specimen	Surface Resistance (ohms) 48-72 hours conditioning				Discharge Shielding (nJ) min. 48 hours conditioning	
	Interior @ 23°C, 12%RH	Exterior @ 23°C, 12%RH	Interior @ 23°C, 50%RH	Exterior @ 23°C, 50%RH	@ 23°C, 12%RH (avg 6 individual)	@ 23°C, 50%RH (avg 6 individual)
1	2.90×10^9	8.93×10^9	4.83×10^9	8.20×10^9	-	-
2	2.50×10^9	6.76×10^{10}	8.93×10^9	8.96×10^9	-	-
3	3.20×10^9	4.06×10^9	6.80×10^9	6.55×10^9	-	-
4	3.70×10^9	4.51×10^9	9.22×10^9	7.33×10^9	-	-
5	2.50×10^9	3.17×10^9	7.29×10^9	8.50×10^9	-	-
6	1.14×10^9	1.90×10^9	7.60×10^9	8.71×10^9	-	-
7	1.03×10^{10}	2.00×10^9				
8	3.61×10^9	7.80×10^9				
9	1.02×10^9	2.80×10^9				
10	6.52×10^9	2.80×10^9				
Min Ind=	1.02×10^9	1.90×10^9	4.83×10^9	6.55×10^9	-	-
Max Ind=	1.03×10^{10}	6.76×10^{10}	9.22×10^9	8.96×10^9	-	-
Mean of Ind=	3.74×10^9	1.06×10^{10}	7.45×10^9	8.04×10^9	-	-
Std Dev Ind =	2.77×10^9	2.02×10^{10}	1.59×10^9	9.23×10^8	-	-