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Final Report

9/2/2022

ASTM D120-22 Standard Specification for Rubber Insulating Gloves
ASTM D412-16 (2021) Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension

ELTEK Labs Project #: 220809-1-CW

SUBMITTED TO

R and R Lotion

155547 North 77th Street
Scottsdale, AZ 85260

Attention: R. Fletcher Rich

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Test Data Sheet -Ivy Block in contact with rubber lineman's gloves (Type 1, Class 2, ANSI/ASTM D120-22) to determine if any significant changes occur in the tested properties of the gloves.

ELTEK Project #: 220809-1-CW Technician Name: Turner, Jessie Technician Signature: Jessie Turner

Company: R and R Lotion Designation: IC Ivy Block
Contact: R. Fletcher Rich
Address: 15547 North 77th Street
Scottsdale, AZ
85260

Room conditions during test: 23 ± 2 °C and 50 ± 5 % R. H.

PROCEDURE

Tensile Properties

The outer-surface of the glove was sprayed with a liberal amount of Ivy Block, wiped off, allowed to stand thusly for 4 hours and then washed with mild soap and warm water. The above procedure was repeated once a day for 3 days. On the fourth day, samples were tested as reported.

Area Swell

Test samples were measured after a 24-hour soak at 75°F in the Ivy Block.

AC Electrical Proof Tests

Glove samples exposed to the Ivy Block as per tensile property samples but were not cut up. Test was performed at 20 KV @ 3 minutes, maximum proof test current was recorded during the last 20 seconds of the test. Pass/Fail criteria is based on a maximum proof test current of 16 mA as dictated by the Class 2 and 14" glove length. Clearance from cuff to water line was set at 3 inches. Test was repeated after 16 hour soak in distilled water.

Tensile Properties (ASTM D412-16 (2021), Avg. of 5)

Table 1 Tensile Strength (psi)

Specimen Number	Control psi	Candidate 3 day exposure (psi)	Percent change from initial	Control after 7 day aging at 158 °F (psi)	Control percent change from Initial	Candidate 3 day exposure followed by 7 day aging at 158 °F	Candidate percent change from initial
1	651	725	11%	662	2%	682	5%
2	667	647	-3%	676	1%	676	1%
3	814	621	-24%	590	-28%	734	-10%
4	796	723	-9%	693	-13%	555	-30%
5	746	767	3%	728	-2%	677	-9%
Average:	735 psi	697 psi	-4%	670 psi	-8%	665 psi	-9%

Table 2 Ultimate Elongation %

Specimen Number	Control Percent Ultimate Elongation	Candidate 3 day exposure	Percent change from initial	day aging at 158 °F	change from Initial	exposure followed by 7 day aging at	Candidate percent change from initial
1	829	988	19%	961	16%	948	14%
2	930	923	-1%	913	-2%	988	6%
3	927	883	-5%	913	-2%	965	4%
4	1059	958	-10%	1000	-6%	893	-16%
5	977	1015	4%	1009	3%	942	-4%
Average:	944%	953%	2%	959%	2%	947%	1%

Table 3 500% Modulus, (psi)

Specimen Number	Control psi	Candidate 3 day exposure (psi)	Percent change from initial	Control after 7 day aging at 158 °F (psi)	Control percent change from Initial	Candidate 3 day exposure followed by 7 day aging at 158 °F	Candidate percent change from initial
1	53	41	-23%	50	-6%	48	-9%
2	46	41	-11%	50	9%	48	4%
3	56	48	-14%	52	-7%	49	-13%
4	45	44	-2%	46	2%	52	16%
5	52	55	6%	46	-12%	49	-6%
Average:	50 psi	46 psi	-9%	49 psi	-3%	49 psi	-2%

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Area Swell, % (Avg. of 3)

Table 4 Percent Change From Initial

Specimen Number	Initial Weight (g)	Weight After a 24 Hour @ 75°F (g)	Initial Thickness (in)	Thickness After a 24 @ 75°F
1	1.6679	1.6686	0.08050	0.08025
2	1.4953	1.4959	0.08080	0.08085
3	1.5461	1.5470	0.07675	0.07765
Average	1.5207	1.5705	0.07935	0.07958
	Percent Change	3 %	Percent Change	0 %

Table 5 Percent Change From Initial

Specimen Number	Initial Weight (g)	Weight After a 24 Hour Soak in Ivy Block (g)	Initial Thickness (in)	Thickness After a 24 Hour Soak in Ivy Block (in)
1	1.5582	1.5846	0.0769	0.07840
2	1.3774	1.3976	0.07945	0.08140
3	1.5946	1.6202	0.07610	0.07910
Average	1.5101	1.5341	0.07748	0.07963
	Percent Change	2 %	Percent Change	3 %

AC Electrical Proof Test (ASTM D120)

Table 6 AC Proof Tests

Initial	
Leakage Current at 20 kV, mA	10.69
Pass/Fail	pass
Breakdown Voltage kV	36.4
3 Day Ivy Block Exposure	
Leakage Current at 20 kV, mA	11.49
Pass/Fail	pass
Breakdown Voltage kV	36.6
16 Hour Distilled Water Soak	
Leakage Current at 20 kV, mA	12.45
Pass/Fail	pass
Breakdown Voltage kV	35
3 Day Ivy Block Exposure Followed by 16 Hour Distilled Water Soak	
Leakage Current at 20 kV, mA	15.6
Pass/Fail	pass
Breakdown Voltage kV	28

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Project Test Equipment Record Sheet

ELTEK Labs Project #: 220809-1-CW **Technician Name:** Turner, Jessie **Technician Signature: Jessie Turner**

Company: R and R Lotion
Contact: R. Fletcher Rich
Address: 15547 North 77th Street
Scottsdale, AZ 85260

ELTEK Equipment Number	ELTEK Equipment Name	Manufacturer's Information Name	Model	Serial No.	Function	Range	Last Calibration	Next Calibration
562	Phenix High Voltage Tester	Phenix Technologies	6TC150-30	99-500	AC Proof and Breakdown Strength Tests	Range 1: 150.00 kV & 200.00 mA: Range 2: 15.00 kV & 2.00 A; Time: 0000:00:00 to 9999:59:59	3/30/2022	3/30/2023
61	Oven 838-A-	Fisher Scientific	838F	114	Aging test specimens - samples	30°C - 280°C	6/30/2022	6/30/2023
661	Insight 30kN Test System	MTS Systems	569329-05	260394	Tensile strength, compressive strength, flexual strength	Force: 0 to 6500 lbf; Length: 0 to 10 in; Speed: 0 to 20 in/min	3/10/2022	3/10/2023
728	24 Inch Stainless Steel Rule	GEI International, Inc.	2020A	C45953	Linear measurements for testing.	0.000 to 24.000 in (0.00 to 600.00 mm)	9/30/2021	9/30/2022
258	Bench Top Environ-Cap Humidity Chamber	Lab-Line Instruments, Inc.	685A	0702-0004	To provide Standard Laboratory Conditions [23 °C & 50 %RH] for conditioning of test specimens prior to testing.	Temperature: 5C to 60C; Humidity: 30%RH to 90%RH	7/14/2022	7/14/2023

Note: Calibration dates listed reflect the most recent calibration interval. All equipment listed was verified to be within a current calibration interval prior to initiation of testing. Previous calibration records are available upon request.

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Company: R and R Lotion
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ELTEK Equipment		Manufacturer's Information					Last	Next
Number	Name	Name	Model	Serial No.	Function	Range	Calibration	Calibration
168	Temperature & Humidity Wi-Fi Data Logger	Lascar Electronics	EL-WiFi-TH	98:8B:AD:20:D1:40	Monitoring Lab Conditions	Temperature [-20°C to 60°C]; Relative Humidity [0 to 100 %RH]	4/20/2021	4/20/2023
1112	Digital Analytical Balance	Cole-Parmer	PA - 224I	PL9YCN311	Weight Measurements	0-220g	4/13/2022	4/13/2023
176	Electronic Long-Reach Outside Micrometer	Mitutoyo	389-714	62032742	Precise measurements of thickness.	0.00000 in to 1.00000 in	2/28/2022	2/28/2023

Note: Calibration dates listed reflect the most recent calibration interval. All equipment listed was verified to be within a current calibration interval prior to initiation of testing. Previous calibration records are available upon request.

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This report contains the data obtained by the test performed. These are the actual results for the test which ELTEK International Laboratories conducted for: R and R Lotion

Project #: 220809-1-CW

The results contained in this report relate to only the specimens tested. These specific values may not be duplicated in all cases.

Report Submitted By: Jessie Turner Digitally signed by Jessie Turner Date: 2022.09.02 13:47:41 -05'00'

Reviewed By: Corina Wenzara Digitally signed by Corina Wenzara Date: 2022.09.02 14:08:03 -05'00'

Laboratory Technician

Date: 9/2/2022

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