



TC-5389

**ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION**

(Accredited by the National Accreditation Board for Testing and Calibration Laboratories, Govt. of India)

ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

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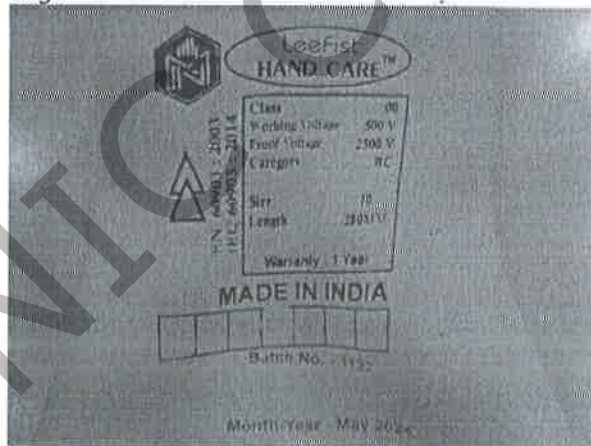



RP-2425-022819

ULR No.: TC538924000025455F

**TEST REPORT**

SHEET 1 of 8

<b>NAME &amp; ADDRESS OF CUSTOMER</b> M. N. Rubber Limited, Survey No. 461/Paiky 2/A Behind Suraj Packaging Taluko Muli, At. Shekhar, Surendranagar - 363 510. Gujarat		<b>TEST REPORT NO. :</b> RP-2425-022819 <b>DATE OF ISSUE :</b> 28-10-2024 <b>CUSTOMER REF. NO:</b> Letter <b>DATED :</b> 09-08-2024	
		<b>DATE OF SAMPLE RECEIPT</b> 24-08-2024	<b>DATE OF TESTING</b> 16-10-2024 to 26-10-2024
<b>SAMPLE DESCRIPTION</b> (As provided by customer) Insulating Rubber hand gloves for electrical purpose Class of gloves : Class 00 Length of glove : 280 mm Size: 10" Category : RC Material : Natural rubber Make : LEEFIST HANDCARE Identification: Electrical rubber hand gloves		<b>SAMPLE IDENTIFICATION</b> Printing:  ERDA Sample Code: ERDA-00597027	
<b>TEST DETAILS</b> As per sheet 2 of 8		<b>TEST SPECIFICATION</b> EN:60903:2003	
<b>REMARK :</b> The sample conforms to all requirements of test specification for the tests at Sr. Nos. 1 to 7 as per sheet 2 of 8.			
<b>CHECKED BY</b> 		<b>S. A. Panchal</b> <b>APPROVED BY</b>	
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ULR No.: TC538924000025455F

Discipline: Electrical

Group: Insulating Materials & Insulators

TEST REPORT NO. : RP-2425-022819

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SHEET 2 of 8

### TEST DETAILS :

Sr. No.	Cl. No. & test specification	Particulars of tests
1	As per Cl. No. 8.2.2 of EN:60903:2003	Dimensions
2	As per Cl. No. 8.2.3 of EN:60903:2003	Thickness
3	As per Cl. No. 8.3 of EN:60903:2003	Mechanical tests
4	As per Cl. No. 8.4 of EN:60903:2003	Dielectric tests
5	As per Cl. No. 8.5 of EN:60903:2003	Ageing tests
6	As per Cl. No. 8.6 of EN:60903:2003	Thermal tests
7	As per Cl. No. 8.7 of EN:60903:2003	Tests on gloves with special properties
8	As per Cl. No. 6.2.4 of EN:60903:2003	Tear resistance test

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Sr. No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
1	<b>Dimensions</b> [As per Cl. No. 8.2.2 of EN:60903:2003] Length, mm	280 ± 15	290	Conforms
2	<b>Thickness, mm</b> [As per Cl. No. 8.2.3 of EN:60903:2003]	Max. 1.10	0.754	Conforms
3	<b>Mechanical tests</b> [As per Cl. No. 8.3 of EN:60903:2003] <b>Tensile strength and elongation at break</b> [As per Cl. No. 8.3.1 of EN:60903:2003] -Tensile strength, MPa	Min. 16	23.5	Conforms
	-Elongation at break, %	Min. 600	840	Conforms
	<b>Resistance to mechanical puncture</b> [As per Cl. No. 8.3.2 of EN:60903:2003] -Resistance to mechanical puncture, N/mm	Min. 18	Sample 1- 22.81 Sample 2- 23.64	Conforms
	<b>Tension set test</b> [As per Cl. No. 8.3.3 of EN:60903:2003] -Tension set, %	Max. 15	0.86	Conforms

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Sr. No.	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
4	<b>Dielectric test</b> [As per Cl. No. 8.4 of EN:60903:2003] <b>AC proof test</b> -AC proof test after conditioning for moisture absorption by total immersion in water for a period of 16 hours $\pm$ 0.5 hours [As per Cl. No. 8.4.2.1 of EN:60903:2003] -AC Proof test current at 2.5 kV rms, mA  <b>AC withstand test</b> [As per Cl. No. 8.4.2.2 of EN:60903:2003]  - Withstand test voltage, kV rms	Sample shall withstand 2.5 kV (rms) for 3 minutes   Max. 12	Withstood   4.3 mA	Conforms   Conforms
5	<b>Ageing test</b> [As per Cl. No. 8.5 of EN:60903:2003] (ageing at $70 \pm 2^\circ\text{C}$ for 168 h and with less than 20% relative humidity) -Tensile strength at break after ageing, % of the unaged value -Tension set after ageing, % -Dielectric proof test without being subjected to the moisture conditioning after ageing  -AC Proof test current at 2.5 kV rms, mA	Sample shall withstand 5 kV (rms)   Min. 80 Max. 15 Sample shall withstand 2.5 kV (rms) for 3 minutes   Max. 12	Withstood   93.2 1.00 Both gloves withstood   Sample 1- 3.3 mA Sample 2- 3.5 mA	Conforms  Conforms Conforms   Conforms

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Sr No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
6	<b>Thermal test</b> [As per Cl. No. 8.6 of EN:60903:2003] <b>Low temperature test</b> [As per Cl. No. 8.6.1 of EN:60903:2003] -Low temperature test at (-25 ± 3 °C for 1 hour)  -Dielectric proof test without being subjected to the moisture conditioning after low temperature test  -AC Proof test current at 2.5 kV rms, mA  <b>Flame retardancy test</b> [As per Cl. No. 8.6.2 of EN:60903:2003]	No tear, break or crack shall be visible on the gloves  Sample shall withstand 2.5 kV (rms) for 3 minutes  Max. 12  Flame shall not have reached the reference line located on the test piece 55 mm from its edge, within 55 second after withdrawal of the flame	No tear, break or crack was visible on the gloves  All three gloves withstood  Sample 1- 4.4 mA Sample 2- 4.5 mA Sample 3- 4.3 mA  Flame did not reach the reference line located on the test piece 55 mm from its edge, within 55 second after withdrawal of the flame	Conforms  Conforms  Conforms  Conforms

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Sr. No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
7	<b>Test on Gloves with special properties</b> [As per Cl. No. 8.7 of EN:60903:2003] <b>Category A – Acid resistance</b> [As per Cl. No. 8.7.1 of EN:60903:2003] (after immersion in 32 °B Sulfuric Acid solution at $23 \pm 2$ °C for $8 \pm 0.5$ hrs) -Dielectric proof test without being subjected to the moisture conditioning after acid immersion  -AC Proof test current at 2.5 kV rms, mA <b>Tensile strength and elongation at break after acid immersion</b> - Change in tensile strength, Percent of the value unexposed to acid - Change in elongation at break, Percent of the value unexposed to acid  <b>Category H – Oil resistance</b> [As per Cl. No. 8.7.2 of IS:13774-2021] (after immersion in liquid 102 at $70 \pm 2$ °C for $24 \pm 0.5$ hrs) -Dielectric proof test without being subjected to the moisture conditioning after oil immersion -AC Proof test current at 2.5 kV rms, mA <b>Tensile strength and elongation at break after oil immersion</b> - Change in tensile strength, Percent of the value unexposed to oil - Change in elongation at break, Percent of the value unexposed to oil	Sample shall withstand 2.5 kV (rms) for 3 minutes  Max. 12  Min. 75%  Min. 75%	Both gloves withstood  5.2 mA 5.3 mA  86.2 87.2	Conforms  Conforms  Conforms  Conforms  Conforms  Conforms  Conforms  Conforms

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Sr. No.	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
	<b>Category Z - Ozone resistance</b> [As per Cl. No. 8.7.3 of EN:60903:2003] The gloves shall be conditioned in an oven for 3h $\pm$ 0.5 h at a temperature of 40° C $\pm$ 2° C and an ozone concentration of 1mg/m <sup>3</sup> $\pm$ 0.01 at standard atmospheric pressure of 1013 mbar	After conditioning the gloves shall exhibit no cracks under visual inspection	No any crack was observed in both gloves	Conforms
	-Dielectric proof test without being subjected to the moisture conditioning	Sample shall withstand 2.5 kV (rms) for 3 minutes	Both gloves Withstood	Conforms
	-AC Proof test current at 2.5 kV rms, mA	Max. 12	6.8 mA 7.0 mA	Conforms
	<b>Category C - Extremely Low temperature resistance</b> [As per Cl. No. 8.7.4 of EN:60903:2003] -Extremely low temperature test at -40 $\pm$ 3 °C for 24 $\pm$ 0.5 hours	No tear, break or crack shall be visible on the gloves	No tear, break or crack was visible on the gloves	Conforms
	-Dielectric proof test without being subjected to the moisture conditioning after low temperature test	Sample shall withstand 2.5 kV (rms) for 3 minutes	All three gloves withstood	Conforms
	-AC Proof test current at 2.5 kV rms, mA	Max. 12	Sample 1- 4.8 mA Sample 2- 4.7 mA Sample 3- 4.8 mA	Conforms
8	<b>Tear resistance test</b> [As per Cl. No. 6.2.4 of EN:60903:2003]	Not applicable	Not applicable	

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\*\*\*\*\* End of Test Report \*\*\*\*\*

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