



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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E-mail : erda@erda.org

Web : http://www.erda.org



RP-2425-022810

ULR No.: TC538924000025450F

**TEST REPORT**

SHEET 1 of 8

**NAME & ADDRESS OF CUSTOMER**

M. N. Rubber Limited,  
Survey No. 461/Paiky 2/A  
Behind Suraj Packaging  
Taluko Muli, At. Shekhar,  
Surendranagar - 363 510.  
Gujarat

**TEST REPORT NO. :** RP-2425-022810**DATE OF ISSUE :** 28-10-2024**CUSTOMER REF. NO:** Letter**DATED :** 09-08-2024**DATE OF SAMPLE RECEIPT**

24-08-2024

**DATE OF TESTING**

16-10-2024 to 25-10-2024

**SAMPLE DESCRIPTION**

(As provided by customer)

Insulating Rubber hand gloves for electrical purpose  
Class of gloves : Class 4  
Length of glove : 410 mm  
Size: 10"  
Category : RC  
Material : Natural rubber  
Make : LEEFIST HANDCARE  
Identification: Electrical rubber hand gloves

**SAMPLE IDENTIFICATION**

Printing:



ERDA Sample Code: ERDA-00597026

**TEST DETAILS**

As per sheet 2 of 8

**TEST SPECIFICATION**

EN:60903:2003

**REMARK :** The sample conforms to all requirements of test specification for the tests at Sr. Nos. 1 to 7 as per sheet 2 of 8.**CHECKED BY**

Note:

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6. Particulars of manufacturer/supplier, given in this report are based on information supplied by the customer, along with the test request/sample. ERDA does not assume any responsibility for the correctness of the information for above mentioned Sample Under Test (SUT). ERDA will not be responsible for any changes in SUT made after the test. This test report is given as per instrument status while testing.
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**S. A. Panchal  
APPROVED BY**

TC 3716249





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ULR No.: TC538924000025450F

Discipline: Electrical

Group: Insulating Materials &amp; Insulators

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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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SHEET 3 of 8

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	410 ± 15	423	Conforms
2	<b>Thickness, mm</b> [As per Cl. No. 8.2.3 of EN:60903:2003]	Max. 4.20	2.810	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	23.6	Conforms
	-Elongation at break, %	Min. 600	920	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- 34.63 Sample 2- 33.89	Conforms
	<b>Tension set test</b> [As per Cl. No. 8.3.3 of EN:60903:2003] -Tension set, %	Max. 15	1.57	Conforms

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SHEET 4 of 8

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 40 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 40 kV (rms) for 3 minutes   Max. 24   Sample shall withstand 50 kV (rms)	Withstood   15 mA   Withstood	Conforms   Conforms   Conforms
5	<b>Ageing test</b> [As per Cl. No. 8.5 of EN:60903:2003] (ageing at 70 $\pm$ 2°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 40 kV rms, mA	Min. 80 Max. 15 Sample shall withstand 40 kV (rms) for 3 minutes   Max. 24	92.4 1.81 Both gloves withstood   Sample 1- 13 mA Sample 2- 14 mA	Conforms Conforms Conforms   Conforms

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SHEET 5 of 8

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 40 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 40 kV (rms) for 3 minutes  Max. 24  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- 15 mA Sample 2- 14 mA Sample 3- 16 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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SHEET 6 of 8

Sr. No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
7	<b>Tests 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 ± 2 °C for 8 ± 0.5 hrs) -Dielectric proof test without being subjected to the moisture conditioning after acid immersion  -AC Proof test current at 40 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 EN:60903:2003] (after immersion in liquid 102 at 70 ± 2 °C for 24 ± 0.5 hrs) -Dielectric proof test without being subjected to the moisture conditioning after oil immersion -AC Proof test current at 40 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 40 kV (rms) for 3 minutes  Max. 24  Min. 75%  Min. 75%	Both gloves withstood  18 mA 19 mA  85.5  86.1	Conforms  Conforms  Conforms  Conforms  Conforms  Conforms  Conforms  Conforms

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SHEET 7 of 8

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 $40^\circ C \pm 2^\circ C$ and an ozone concentration of $1mg/m^3 \pm 0.01$ 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 40 kV (rms) for 3 minutes	Both gloves Withstood	Conforms
	-AC Proof test current at 40 kV rms, mA	Max. 24	21 mA 22 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 $-40 \pm 3^\circ C$ 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 40 kV (rms) for 3 minutes	All three gloves withstood	Conforms
	-AC Proof test current at 40 kV rms, mA	Max. 24	Sample 1- 17 mA Sample 2- 18 mA Sample 3- 17 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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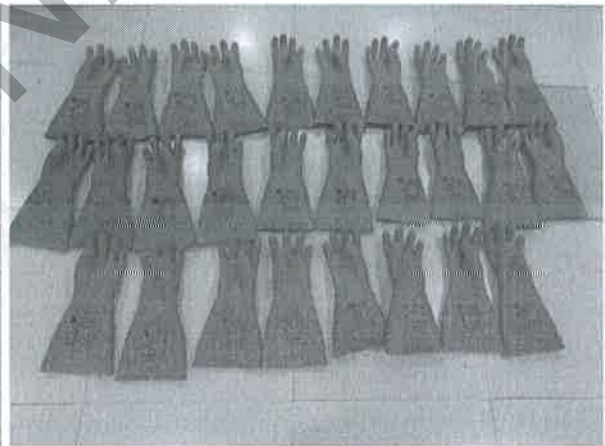
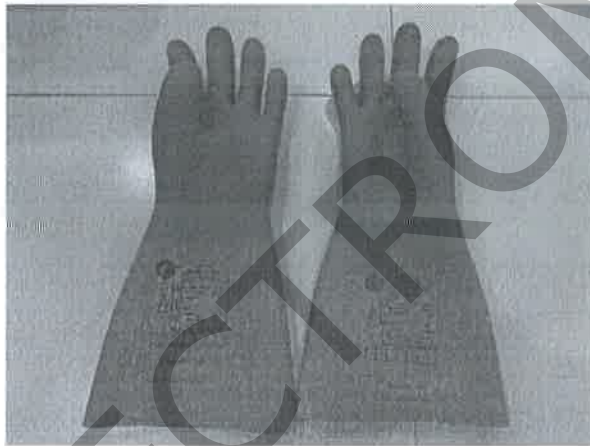


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TEST REPORT NO. : RP-2425-022810

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SHEET 8 of 8



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

TC 3716227

