



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-2425-022810

ULR No.: TC538924000025450F

## 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. Shekhpur, Surendranagar – 363 510. Gujarat	<b>TEST REPORT NO. : RP-2425-022810</b>				
	<b>DATE OF ISSUE :</b> 28-10-2024				
	<b>CUSTOMER REF. NO:</b> Letter				
	<b>DATED :</b> 09-08-2024				
<table border="1"> <thead> <tr> <th><b>DATE OF SAMPLE RECEIPT</b></th><th><b>DATE OF TESTING</b></th></tr> </thead> <tbody> <tr> <td>24-08-2024</td><td>16-10-2024 to 25-10-2024</td></tr> </tbody> </table>		<b>DATE OF SAMPLE RECEIPT</b>	<b>DATE OF TESTING</b>	24-08-2024	16-10-2024 to 25-10-2024
<b>DATE OF SAMPLE RECEIPT</b>	<b>DATE OF TESTING</b>				
24-08-2024	16-10-2024 to 25-10-2024				
<b>SAMPLE DESCRIPTION</b> (As provided by customer)	<b>SAMPLE IDENTIFICATION</b>				
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	<p>Printing:</p> <p>ERDA Sample Code: ERDA-00597026</p>				
<b>TEST DETAILS</b> As per sheet 2 of 8	<p><b>TEST SPECIFICATION</b></p> <p>EN:60903:2003</p>				
<p><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.</p>					
<i>W.</i> <b>CHECKED BY</b>	<p><b>S. A. Panchal</b> <b>APPROVED BY</b></p>				
<p><b>Note:</b></p> <ol style="list-style-type: none"> <li>This report relates only to the particular sample received for testing in good condition at ERDA, Vadodara.</li> <li>This report cannot be reproduced in part under any circumstances.</li> <li>Publication of this report requires prior permission in writing from Director, ERDA.</li> <li>This report shall not be used for any purpose such as PR brochures, propaganda, advertisement and/or legal proceedings, unless for the granted purpose.</li> <li>Only the tests asked for by the customer have been carried out.</li> <li>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.</li> <li>In case of any dispute, Vadodara will be the exclusive jurisdiction &amp; shall be construed as where the cause has arised.</li> </ol> <p><b>Caution:</b> ERDA is not responsible for the authenticity of photocopied or reproduced test reports.</p> <p>ERDA provides support to customers for verification of the authenticity of test reports issued by ERDA within 10 years of date of issue of report.</p>					

TC 3716249





ULR No.: TC538924000025450F

Discipline: Electrical

Group: Insulating Materials & Insulators

TEST REPORT NO. : RP-2425-022810		DATE OF ISSUE: 28-10-2024	SHEET 2 of 8
<b>TEST DETAILS :</b>			
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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TC 3716221



TC-5389

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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
		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	Withstood  15 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 40 kV rms, mA	Sample shall withstand 50 kV (rms)  Min. 80 Max. 15 Sample shall withstand 40 kV (rms) for 3 minutes  Max. 24	Withstood  92.4 1.81 Both gloves withstood  Sample 1- 13 mA Sample 2- 14 mA	Conforms Conforms Conforms Conforms

TC 37162223  
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Sr No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
6	<p><b>Thermal test</b>  [As per Cl. No. 8.6 of EN:60903:2003]</p> <p><b>Low temperature test</b>  [As per Cl. No. 8.6.1 of EN:60903:2003]</p> <p>-Low temperature test at (-25 ± 3 °C for 1 hour)</p> <p>-Dielectric proof test without being subjected to the moisture conditioning after low temperature test</p> <p>-AC Proof test current at 40 kV rms, mA</p> <p><b>Flame retardancy test</b>  [As per Cl. No. 8.6.2 of EN:60903:2003]</p>	<p>No tear, break or crack shall be visible on the gloves</p> <p>Sample shall withstand 40 kV (rms) for 3 minutes</p> <p>Max. 24</p> <p>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</p>	<p>No tear, break or crack was visible on the gloves</p> <p>All three gloves withstood</p> <p>Sample 1- 15 mA  Sample 2- 14 mA  Sample 3- 16 mA</p> <p>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</p>	<p>Conforms</p> <p>Conforms</p> <p>Conforms</p> <p>Conforms</p>

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Sr. No	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
7	<p><b>Tests on Gloves with special properties</b>  [As per Cl. No. 8.7 of EN:60903:2003]</p> <p><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 <math>23 \pm 2</math> °C for <math>8 \pm 0.5</math> hrs)</p> <p>-Dielectric proof test without being subjected to the moisture conditioning after acid immersion</p> <p>-AC Proof test current at 40 kV rms, mA</p> <p><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</p> <p><b>Category H – Oil resistance</b>  [As per Cl. No. 8.7.2 of EN:60903:2003]  (after immersion in liquid 102 at <math>70 \pm 2</math> °C for <math>24 \pm 0.5</math> hrs)</p> <p>-Dielectric proof test without being subjected to the moisture conditioning after oil immersion</p> <p>-AC Proof test current at 40 kV rms, mA</p> <p><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</p>	<p>Sample shall withstand 40 kV (rms) for 3 minutes</p> <p>Max. 24</p> <p>Min. 75%</p> <p>Min. 75%</p> <p>Sample shall withstand 40 kV (rms) for 3 minutes</p> <p>Max. 24</p> <p>Min. 50%</p> <p>Min. 50%</p>	<p>Both gloves withstood</p> <p>18 mA 19 mA</p> <p>85.5</p> <p>86.1</p> <p>Both gloves withstood</p> <p>18 mA 20 mA</p> <p>78.5</p> <p>77.7</p>	<p>Conforms</p> <p>Conforms</p> <p>Conforms</p> <p>Conforms</p> <p>Conforms</p> <p>Conforms</p>

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Sr. No.	Particulars of test & Cl. No.	Requirement as per Specification	Obtained value	Remarks
	<p><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 <math>3h \pm 0.5</math> h at a temperature of <math>40^\circ C \pm 2^\circ C</math> and an ozone concentration of <math>1mg/m^3 \pm 0.01</math> at standard atmospheric pressure of 1013 mbar</p> <p>-Dielectric proof test without being subjected to the moisture conditioning</p> <p>-AC Proof test current at 40 kV rms, mA</p>	<p>After conditioning the gloves shall exhibit no cracks under visual inspection</p> <p>Sample shall withstand 40 kV (rms) for 3 minutes</p> <p>Max. 24</p>	<p>No any crack was observed in both gloves</p> <p>Both gloves Withstood</p> <p>21 mA 22 mA</p>	<p>Conforms</p> <p>Conforms</p> <p>Conforms</p>
	<p><b>Category C - Extremely Low temperature resistance</b>  [As per Cl. No. 8.7.4 of EN:60903:2003]  -Extremely low temperature test at <math>-40 \pm 3^\circ C</math> for <math>24 \pm 0.5</math> hours</p> <p>-Dielectric proof test without being subjected to the moisture conditioning after low temperature test</p> <p>-AC Proof test current at 40 kV rms, mA</p>	<p>No tear, break or crack shall be visible on the gloves</p> <p>Sample shall withstand 40 kV (rms) for 3 minutes</p> <p>Max. 24</p>	<p>No tear, break or crack was visible on the gloves</p> <p>All three gloves withstood</p> <p>Sample 1- 17 mA Sample 2- 18 mA Sample 3- 17 mA</p>	<p>Conforms</p> <p>Conforms</p> <p>Conforms</p>
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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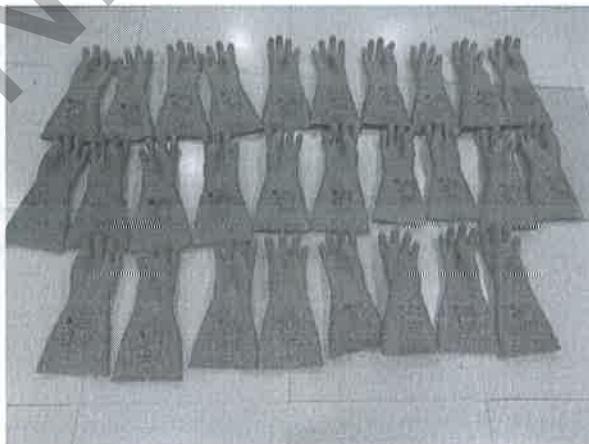
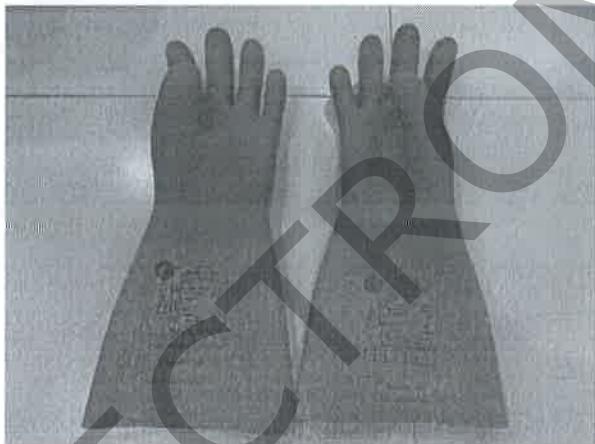


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\*\*\*\*\* End of Test Report \*\*\*\*\*

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