

TEST REPORT

Format No. 7.8	Issue Date : 09.04.2025
Test Report No.:	10077635/2024/SS/1
Issue To :	DYNAMIC CABLES LIMITED, UNIT-IV A-129, A-129A, A-130, SKS Industrial Area, Reengus, Tehsil-Shri Madhopur, SRIMADHOPUR, SIKAR, RAJASTHAN, INDIA-332404
Discipline	Electrical
Group	Cables & Wires
Nature of Sample :	Electric cables for Photovoltaic Systems for Rated Voltage 1500 V. d.c.
Grade/Variety/Type/Class/Size etc:	1C x 400 sq.mm, Annealed Tinned Flexible Copper conductor Class 5 , XL halogen free low smoke Insulated, and sheathed Cable, Maximum Rated Voltage 1.8 KV DC 5 Meters Annealed Tinned Copper wire dia. 0.50 mm. for Annealing test & Persulphate Test before Stranding
Nature of Test (s) to Carried Out :	Type Test
Condition of Sample:	Good
Quantity of sample:	100 + 5 Meters (Approx.)
Declared Values, if any :	
Reference Specification :	As Per IS 17293:2020
Printing	"DYNAMIC CABLES 400 SQMM 1500V D.C. PV HALOGEN FREE LOW SMOKE 2024"
BIS Test Request No.	10077635/2024/SS/1
QR Code Number	100000758725
Encoded Code	24M7D39,24E65E8,24C88A3
Branch Name	
Serial No	
Batch No/ Control Unit No.	
Date of Manufacturing:	01.07.2024
Date of Receipt:	16.07.2024
Job Order No.	24071605
BIS seal:	
IO's Signature:	
Date of Commencement of Testing:	23.07.2024
Date Of Partial Testing complete :	27.09.2024
Date of Completion of Testing:	04.04.2025
Party Ref. No. & Date :	
Any other Information/Expiry date, if any:	Refer the Annexure for the Ageing Curve & Arrhenius Curve
Test Performed at:	Laboratory

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S. No.	TESTS/ CL. REF.	SPECIFIED REQUIREMENTS	RESULTS
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TEST RESULTS

1	Nominal Size of Cable	400 sq.mm	400																								
2	Type of Cable Cl.1 of IS 17293:2020	These Cables are designed to operate at a normal continuous conductor temperature of 90°C The permissible period of use at a maximum conductor temperature of 120°C is limited to 20000 h	Satisfactory																								
3	The specification is divided into One section	Section-1 General requirements	Section I																								
4	Conductor																										
4.1	Material Cl.4.1 of IS 17293:2020	Conductor shall consist of the following:- i) Annealed tinned copper wires complying with Class 5 as per IS 8130 for cable that is directly connected to PV module. ii) Annealed tinned copper wires complying with Class 2 as per IS 8130 for cable intended for fixed installation and not directly connected to PV module. A separator tape made of suitable material may be applied over conductor at the discretion of the manufacturer	Annealed tinned copper wires complying with class 5 N.A. Satisfactory																								
4.2	Annealing Test (Before Stranding),% Cl.7.1.2.1 of IS 8130:2013 ,Part-1 of IS 10810	<table> <tr> <th colspan="2">Wire Diameter</th><th>Elongation, Min</th><th></th></tr> <tr> <th>Over mm</th><th>Up to and including,mm</th><th>Percent</th><th></th></tr> <tr> <td>----</td><td>0.21</td><td>9.0</td><td>N.A</td></tr> <tr> <td>0.21</td><td>0.41</td><td>13.5</td><td>N.A</td></tr> <tr> <td>0.41</td><td>1.36</td><td>18.0</td><td>26.0</td></tr> <tr> <td>1.36</td><td>----</td><td>22.5</td><td>N.A</td></tr> </table>	Wire Diameter		Elongation, Min		Over mm	Up to and including,mm	Percent		----	0.21	9.0	N.A	0.21	0.41	13.5	N.A	0.41	1.36	18.0	26.0	1.36	----	22.5	N.A	
Wire Diameter		Elongation, Min																									
Over mm	Up to and including,mm	Percent																									
----	0.21	9.0	N.A																								
0.21	0.41	13.5	N.A																								
0.41	1.36	18.0	26.0																								
1.36	----	22.5	N.A																								
5	Insulation																										
5.1	Material Cl.5.1 of IS 17293:2020	The insulation shall be cross-linked compound and shall satisfy the requirements as specified in Table 11 of Annex B	Satisfactory																								
5.2	Application to the conductor Cl.5.2 of IS 17293:2020	The insulation shall be so applied by extrusion, such that it fits closely on the conductor The insulation shall be possible to remove it without damage to the insulation itself, to the conductor or to the tin coating, if any. It is permitted to apply the insulation in a single layer or in a number of coherent layers. When more than one layer is used, all testing shall be carried out on the complete insulation as though it were a single layer.	Satisfactory Satisfactory Satisfactory																								

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S. No.	TESTS/ Cl. REF.	SPECIFIED REQUIREMENTS	RESULTS
6	Sheath		
6.1	Material Cl.6.1 of IS 17293:2020	The Sheath material shall be cross-linked compound and shall satisfy the requirements as specified in Table 11 of Annex B	Satisfactory
6.2	Application Cl.6.2 of IS 17293:2020	The sheath shall be applied homogenously by extrusion.	Satisfactory
		It is permitted to apply the sheath in a single layer, or number of coherent layers. When more than one layer is used, all testing shall be carried out on the complete sheathing as though it were a single layer.	Satisfactory
		The sheath shall not adhere to the core. A separator, consisting of a film or tape, or talcum powder may be placed under the sheath.	Satisfactory
7	Tests for Cables Table-3		
7.1	Electrical Tests		
7.1.1	Conductor Resistance test, ohm/km Table 3 of IS 8130:2013, Part-5 of IS 10810 Natural	0.0495 (Max.)	0.0459
7.1.2	Voltage test on completed cable with a.c or d.c Cl.11.2.1 of IS 17293:2020, Part 45 of IS 10810 Natural	Cables shall be immersed in water at ambient temperature 1 h before the testing and the test voltage of 6.5 kV a.c or 15 kV d.c shall be applied between conductor and water for duration of 5 min. No break down shall occur.	No Breakdown Observed
7.1.3	Measurement of the insulation resistance, M.Ω.Km Table-1 of IS 17293:2020, Part 43 of IS 10810 Natural		
7.1.3.1	At 27°C	230 (Min.)	3940.1
7.1.3.2	At 90°C	0.230 (Min.)	820.9
7.1.4	Long term resistance of insulation to d.c, Cl.11.2.4 of IS 17293:2020 Natural	The core shall be carefully removed from a sample approximately 5 m long from the finished cable. Core shall be so immersed in a water bath at 85 ± 5°C that their ends protrude at least 250 mm above the water level. A voltage of 1.8 kV d.c. shall be applied between conductor and water. The core shall withstand this d.c. voltage test for total 240 h without breakdown. After the test, exterior of the insulation shall show no sign of damage. Discoloration of the insulation should be ignored	The core withstood this d.c. voltage test for total 240h without breakdown. Exterior of the insulation did not show sign of damage.
7.1.5	Surface Resistance of Sheath, ohm Cl.11.2.5.2 of IS 17293:2020	This value shall be not less than 10 ⁹ ohm.	5.06 x 10 ¹⁰

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Reviewed by
HARENDRA SINGH
Deputy Technical Manager



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Quality Manager

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S. No.	TESTS/ Cl. REF.	SPECIFIED REQUIREMENTS		RESULTS
7.2	Constructional and Dimensional Test			
7.2.1	Diameter of wire in conductor, mm Cl.6.4.3 and Table-3 of IS 8130:2013	0.51 (Max.)		0.501
7.2.2	Checking Continuity of Tin (Persulphate Test),g/m ² Cl.7.1.1 of IS 8130:2013, Psrt-4 of IS 10810	Wire Diameter ,mm	Permissible Mass of Copper Dissolved, Max	
		Up to and including 0.41	5	N.A.
		Above 0.41	3	1.88
7.2.2.1	Checking Continuity of Tin (Persulphate Test),g/m ² (After Stranding) Cl.7.1.1 of IS 8130:2013, Psrt-4 of IS 10810	Wire Diameter ,mm	Permissible Mass of Copper Dissolved, Max	
		Up to and including 0.41	5	N.A.
		Above 0.41	3	1.75
7.2.2	Thickness of Insulation, mm Cl.5.3,Table-1 of IS 17293:2020,Part-6 of IS 10810 Natural	2.0(Nom.) 1.70 (Min.)		2.25 2.11
7.2.3	Thickness of Sheath, mm Cl.6.3,Table-1 of IS 17293:2020,Part-6 of IS 10810	2.0 (Nom.) 1.60 (Min.)		2.14 1.71
7.2.4	Overall Diameter,mm Cl.11.3.3 of IS 17293:2020	40.6 (Max.)		35.78
7.2.5	Ovality Cl.11.3.3 of IS 17293:2020	The difference between maximum and minimum measured values of the overall diameter of sheathed circular cable shall not exceed 15 percent of the maximum measured value at the same cross section.		2.85
7.2.6	Sheath Colour Cl.11.3.1,6.4 of IS 17293:2020	The colour of the sheath shall preferably be black Any other colour as agreed between the manufacturer and customer is also permissible.		Black
		A symbol “ + ” OR “ - ” may be used to identify the polarities, on the same base colour of sheath		NA
7.2.7	Sheath Marking Cl.11.3.2,8 of IS 17293:2020	The marking on the sheath shall comply with the requirement checked by given in 8.These shall be Checked by Visual examination and measurement		Marking on the sheath comply with the requirement by given in 8.

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S. No.	TESTS/ Cl. REF.	SPECIFIED REQUIREMENTS	RESULTS
7.3	Mechanical Characteristics For Insulation and Sheath Material Cl.5.1,Annex B & Table-11 of IS 17293:2020		
7.3.1	Tensile Strength (before Ageing), N/mm ² Part-7 of IS 10810 Natural Sheath	8.0 (Min.)	10.41 12.63
7.3.2	Elongation at break (before Ageing),% Part-7 of IS 10810 Natural Sheath	125 (Min.)	167.5 185.0
7.3.3	Tensile Strength (After Ageing), N/mm ² Part-11 of IS 10810 Natural Sheath		11.18 13.11
7.3.4	Elongation at break (After Ageing),% Part-11 of IS 10810 Natural Sheath		157.5 177.5
7.3.5	Variation for Tensile Strength (After Ageing), N/mm ² Natural Sheath	-30 (Max.)	-7.40 -3.80
7.3.6	Variation for Elongation at Break (After Ageing),% Natural Sheath	-30 (Max.)	+5.97 +4.05
7.3.7	Hot set test (Elongation under load),% Part-30 of IS 10810 Natural Sheath	100 (Max.)	63.15 N.A.
7.3.8	Hot set test(Permanent Elongation),% Part-30 of IS 10810 Natural Sheath	25 (Max.)	3.70 N.A.

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S. No.	TESTS/ CI. REF.			SPECIFIED REQUIREMENTS	RESULTS
7.3.9	Thermal Endurance Test IS 8504 (Part 1) and (Part 2)				
7.3.9.1	Temperature index corresponding to 20 000 h Natural Sheath			≥ 120	122.0 122.7
7.3.9.2	Elongation at break,% Natural				
7.3.9.2.1	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 180°C
	1	1	1.00		100.0
	2	72	4.28		83.6
	3	144	4.97		64.2
7.3.9.2.2	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 165°C
	1	1	1.00		100.0
	2	72	4.28		94.0
	3	144	4.97		80.6
	4	216	5.38		76.1
	5	320	5.77		68.7
	6	690	6.54		53.7
7.3.9.2.3	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 150°C
	1	1	1.00		100.0
	2	72	4.28		94.1
	3	144	4.97		88.1
	4	216	5.38		82.1
	5	320	5.77		76.1
	6	690	6.54		68.7
	7	1050	6.96		64.2
	8	2184	7.69		52.2

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S. No.	TESTS/ CL. REF.			SPECIFIED REQUIREMENTS	RESULTS
7.3.9.2.4	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 135°C
	1	1	1.00		100.0
	2	72	4.28		98.5
	3	144	4.97		95.5
	4	216	5.38		92.5
	5	320	5.77		89.6
	6	690	6.54		86.6
	7	1050	6.96		80.6
	8	2184	7.69		77.6
	9	3164	8.06		68.7
	10	4144	8.33		62.7
	11	5124	8.54		58.2
7.3.9.3	Elongation at break,% Sheath				
7.3.9.3.1	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 180°C
	1	1	1.00		100.0
	2	72	4.28		85.1
	3	144	4.97		67.6
	4	216	5.38		51.4
7.3.9.3.2	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 165°C
	1	1	1.00		100.0
	2	72	4.28		96.0
	3	144	4.97		82.4
	4	216	5.38		78.4
	5	320	5.77		67.6
	6	690	6.54		55.4
7.3.9.3.3	S.no	Hrs	Ln(Hrs)	50 (Min.)	% Retention at 150°C
	1	1	1.00		100.0
	2	72	4.28		97.3
	3	144	4.97		89.2
	4	216	5.38		85.1
	5	320	5.77		77.0
	6	690	6.54		71.6

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7.3.9.3.4	7	1050	6.96	50 (Min.)	66.2
	8	2184	7.69		51.4
	S.no	Hrs	Ln(Hrs)		% Retention at 135°C
	1	1	1.00		100.0
	2	72	4.28		97.3
	3	144	4.97		93.2
	4	216	5.38		89.2
	5	320	5.77		87.8
	6	690	6.54		85.1
	7	1050	6.96		82.4
	8	2184	7.69		79.7
	9	3164	8.06		64.9
	10	4144	8.33		56.8
	11	5124	8.54		54.1
	*Refer the Annexure for the Ageing Curve & Arrhenius Curve required as per IS 8504 (Part 1 & 2)				
7.3.10	Cold bend test (Bending at low temperature Part-20 of IS 10810 Natural Sheath			No Cracks N.A N.A	
7.3.11	Cold Impact test Part-21 of IS 10810 Natural Sheath			No cracks No cracks	
7.3.11	Elongation at low temperature,% Annex F of IS 17293:2020 Natural Sheath			30 (Min) 60.0 65.0	
7.3.12	Sheath resistance against acid and alkaline solution Annex I of IS 17293:2020				
7.3.12.1	Acid Solution : N- Oxalic Acid				
7.3.12.1	Variation for Tensile Strength,% Sheath			± 30 (Max.) +3.56	
7.3.12.2.2	Elongation at break, % Sheath			100 (Min.) 175.0	

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S. No.	TESTS/ Cl. REF.	SPECIFIED REQUIREMENTS	RESULTS
7.3.12.2	Alkaline solution : N-Sodium Hydroxide		
7.3.12.2.1	Variation for Tensile Strength %	± 30 (Max.)	+3.33
7.3.12.1.2	Elongation at Break %	100 (min.)	172.5
7.3.13	Compatibility Test		
7.3.13.1	Variation for Tensile Strength (After Ageing),% Natural Sheath	± 30 (Max.)	-5.28 -4.67
7.3.13.2	Variation for Elongation at Break (After Ageing),% Natural Sheath	± 30 (Max.)	+4.48 +6.76
8	Ozone Resistance on complete Cable, Annex G of IS 17293:2020	No Cracks	No Cracks
9	Weathering/UV Resistance on sheath, Annex E of IS 17293:2020		
9.1	Tensile Strength after exposure %	The tensile strength after 720 h of exposure shall be at least 70 % of the values measured on not exposed test pieces.	96.68 %
9.2	Elongation at break after exposure,%	The Elongation at break after 720 h of exposure shall be at least 70 % of the values measured on not exposed test pieces.	94.87 %
10	Dynamic Penetration, Annex D of IS 17293:2020	The mean value of the four test results shall not be less than the minimum value F determined with the formula $F=150\sqrt{DL}=756N$	1095.0
11	Damp Heat Test on Sheath, Annex H of IS 17293:2020		
11.1	Variation for Tensile Strength (After Ageing),%	-30(Max.)	-8.00
11.2	Variation for Elongation at Break (After Ageing),%	-30(Max.)	-9.46
12	Shrinkage test on sheath,% Part-12 of IS 10810	2 (Max.)	1.33

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S. No.	TESTS/ CL. REF.	SPECIFIED REQUIREMENTS			RESULTS
13	Test for vertical flame propagation on complete cable Part-53 of IS 10810	Cable shall pass the test if the distance between the lower edge of the top support and the onset of charring is greater than 50 mm. In addition, charring shall not extend downwards to a point greater than 540 mm from the lower edge of the top support.			The distance between the lower edge of the top support and the onset of charring is 420mm .In addition, charring extend downwards to a point is 490 mm from the lower edge of the top support.
14	Smoke emission of complete Cable Light Transmission, %	60 (Min.)			90.65
15	Assessment of Halogen Annex J of IS 17293:2020 Natural	Step 0	HF	Negative value	Positive Process for Step 1 & 2
			HCL and HBr		
		Step 1	pH	<4.3	6.40
			Conductivity	$\leq 2.5 \mu S/mm$	N.A
		Step 2	HCL and HBr	$>2.5 < 10$	5.96
			HCL and HBr	$\leq 0.5 \%$	0.22
			Fluorine Content	$\leq 0.1 \%$	0.025
			Fluorine Content	$\leq 0.1 \%$	0.021
	Sheath	Step 0	HF	Negative value	Positive Process for Step 1 & 2
			HCL and HBr		
		Step 1	pH	< 4.3	N.A.
			pH	≥ 4.3	5.90
		Step 2	Conductivity	$\leq 2.5 \mu S/mm$	N.A
			HCL and HBr	$>2.5 < 10$	5.11
			HCL and HBr	$\leq 0.5 \%$	0.23
			Fluorine Content	$\leq 0.1 \%$	0.021

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S. No.	TESTS/ Cl. REF.	SPECIFIED REQUIREMENTS	RESULTS
16	Cable Identification Cl. 8 of IS 17293:2020	The printing, indentation or embossing shall be done on the sheath. The manufacturer shall be identified throughout the length of the cable by manufacturer's name or trade-mark being printed, indented or embossed on the cable. Cables shall be marked with the nominal cross sectional area, for example, "1.5 sqmm". Cables shall also be marked with code designation 'PV'. Additionally, cable shall also be marked with words 'HALOGEN FREE LOW SMOKE'. The distance between any two consecutive printing, indentation or embossing shall not be more than 550 mm.	Satisfactory
17	Continuity of Marking Cl. 8.1 of IS 17293:2020	Each specified marking shall be regarded as continuous if the distance between the end of the mark and the beginning of the next identical mark does not exceed 550 mm	Satisfactory
		Other marking, such as, that required under recognized volunteer third party approval schemes, may also follow the requirements of this sub clause	N.A
18	Durability Cl. 8.2 of IS 17293:2020	In case of printed marking, it shall be durable. The durability of printed marking shall be checked by trying to remove the marking by rubbing lightly ten times with a piece of cotton wool or cloth soaked in water.	Satisfactory
19	Legibility Cl. 8.3 of IS 17293:2020	All markings shall be clear and legible.	Satisfactory
20	Core Identification Cl. 9 of IS 17293:2020	The preferred colour of the insulated core is Red or black.	N.A
		Any other colour scheme agreed to between the purchaser and manufacturer is also permissible.	Natural

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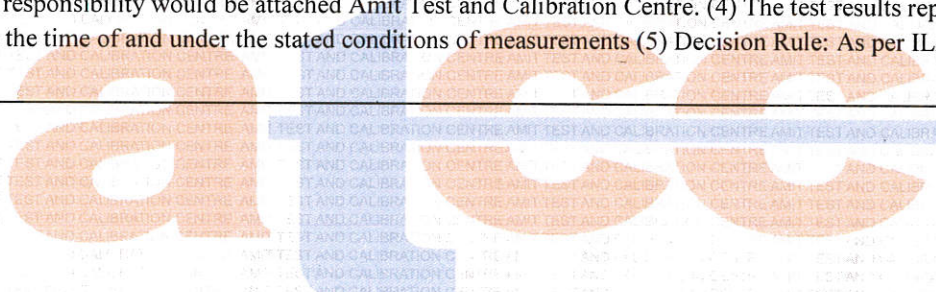
S. No.	TESTS/ CI. REF.	SPECIFIED REQUIREMENTS	RESULTS
21	Colour Combination CI.9.1.1 of IS 17293:2020	It is permissible to provide stripes in case of colour combination. In such case, the distribution of the colours shall comply with the following condition: For every 15 mm length of cores one of these colours shall cover approximately, but not exceeding, 70 percent of the surface of the core, the other colour covering the remainder	N.A.

REMARKS: The Sample conforms to Various Requirements specified in As Per IS17293:2020

Note: Any Deviation from the Standard, Test method/Specification – NIL

XXXXXXXXXX END OF REPORT XXXXXXXXXXXX

Notes : (1). This Test Report refers only to the particular sample(s) submitted for testing. (2) This Test Report shall not be reproduced, except in full, unless written permission for the publication of an approved abstract has been obtained from the CEO, Amit Test and Calibration Centre, New Delhi. (3) Test Report shall not be utilized for any legal purpose and will not be produced in the court of law & no responsibility would be attached Amit Test and Calibration Centre. (4) The test results reported in this certificate are valid at the time of and under the stated conditions of measurements (5) Decision Rule: As per ILAC G8:2009 simple acceptance.



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Annexure A: Observation Value of Insulation

Temperature Exposure °C	180	165	150	135
Time to end-point in hours corresponding to an elongation of less than 50% Elongation at break	213	749	2549	5641

Observed value of retention % with respect to inverse of ageing duration in hrs,

S.no	Hrs	Ln(Hrs)	Insulation Compound			
			% Retention at 180°C	% Retention at 165°C	% Retention at 150°C	% Retention at 135°C
1	1	0.00	100.0	100	100	100
2	72	4.28	83.6	94.0	94.1	98.5
3	144	4.97	64.2	80.6	88.1	95.5
4	216	5.38	49.3	76.1	82.1	92.5
5	320	5.77	32.8	68.7	76.1	89.6
6	690	6.54		53.7	68.7	86.6
7	1050	6.96		31.3	64.2	80.6
8	2184	7.69			52.2	77.6
9	3164	8.06			46.3	68.7
10	4144	8.33				62.7
11	5124	8.54				58.2
12	6820	8.83				31.3

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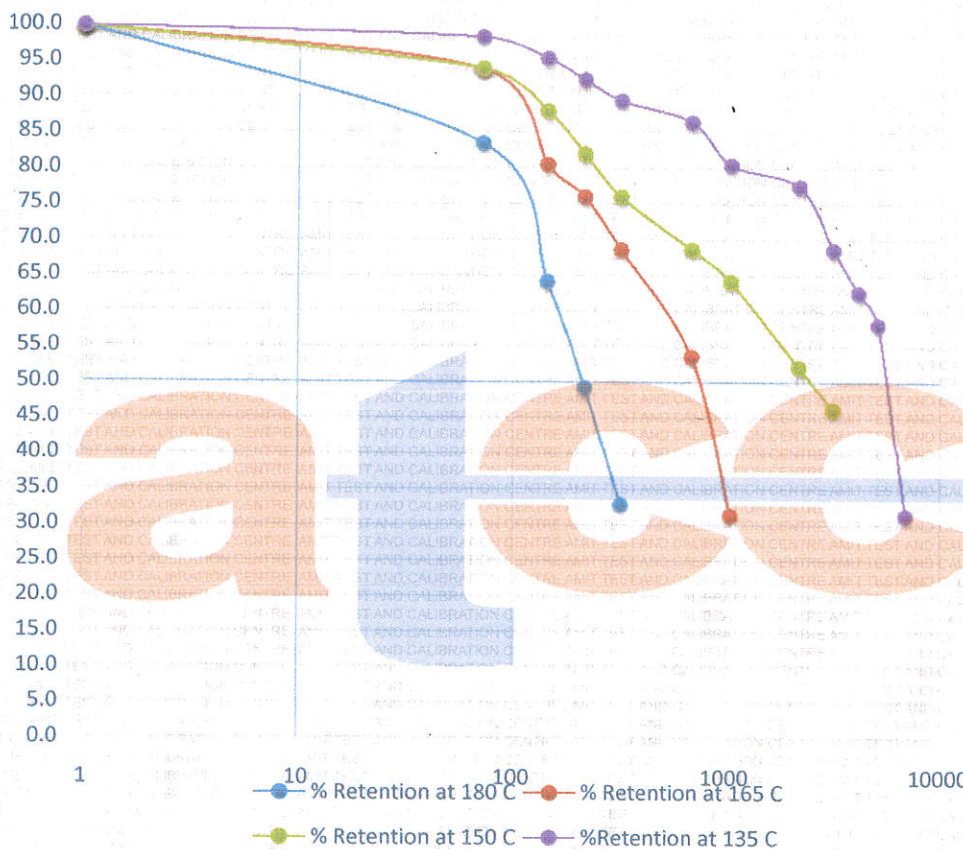


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Annexure B: Ageing Curve of Insulation



% Retention at 180°C	% Retention at 165°C	% Retention at 150°C	% Retention at 135°C
213	749	2549	5641

Hrs

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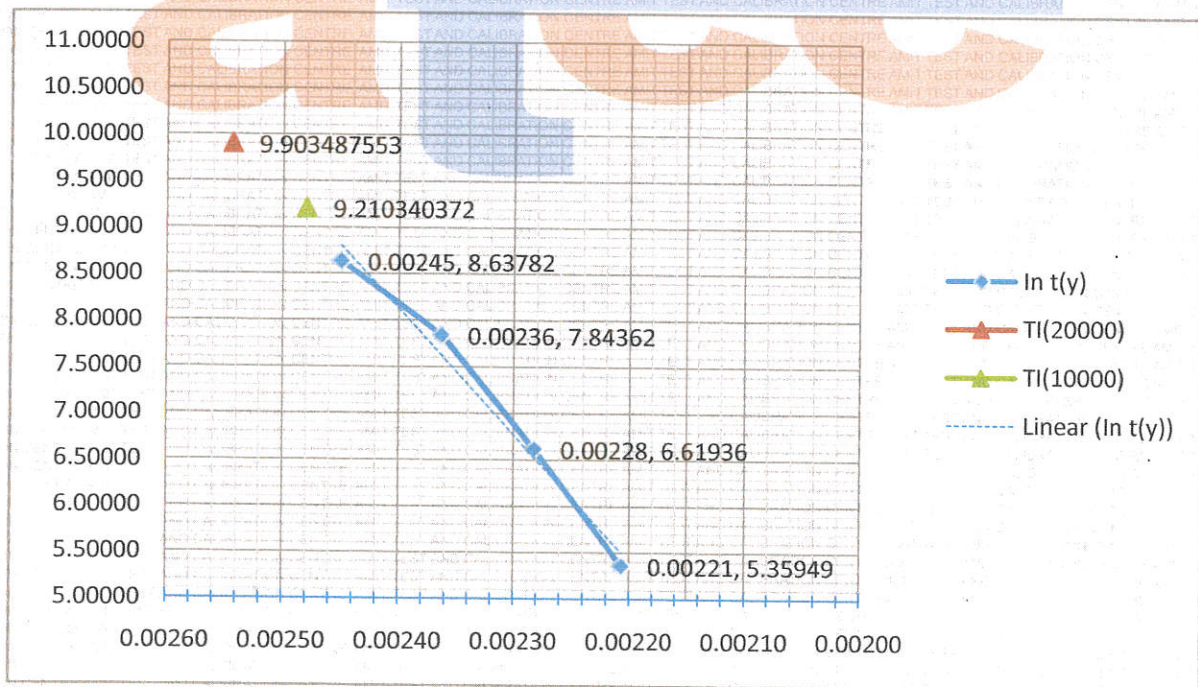
Annexure C :Arrhenius curve of Insulation

TI (20000)	
Calculated	Required
122.0	120

TI (10000)	HIC
130.1	8.13

	Hours		X-AXIS	Y-AXIS
Temp.°C	Actual	Min. Required	1/K	ln t (y)
120		20000	0.00254	
135	5641	5000	0.00245	8.63782
150	2549	-	0.00236	7.84362
165	749	-	0.00228	6.61936
180	213	100	0.00221	5.35949

INTERCEPTION TREND				
	Hours		X AXIS	Y AXIS
Temp°C	Calculated	Min. Required	1/K	ln t(y)
120	22899	20000	0.00254	10.039



Reviewed by
HARENDRA SINGH
Deputy Technical Manager



Authorised by :
SADHANA JADON
Quality Manager

TEST REPORT

Test Report No.: 10077635/2024/SS/1

Annexure A : Observation value of Sheath

Temperature Exposure °C	180	165	150	135
Time to end-point in hours corresponding to an elongation of less than 50% Elongation at break	222	786	2328	6412

Observed value of retention % with respect to inverse of ageing duration in hrs,

S.no	Hrs	Ln(Hrs)	Sheath Compound			
			% Retention at 180°C	% Retention at 165°C	% Retention at 150°C	% Retention at 135°C
1	1	0.00	100.0	100	100	100
2	72	4.28	85.1	96.0	97.3	97.3
3	144	4.97	67.6	82.4	89.2	93.2
4	216	5.38	51.4	78.4	85.1	89.2
5	320	5.77	35.1	67.6	77	87.8
6	690	6.54		55.4	71.6	85.1
7	1050	6.96		35.1	66.2	82.4
8	2184	7.69			51.4	79.7
9	3164	8.06			41.9	64.9
10	4144	8.33				56.8
11	5124	8.54				54.1
12	6820	8.83				48.7

Reviewed by

HARENDRA SINGH
Deputy Technical Manager

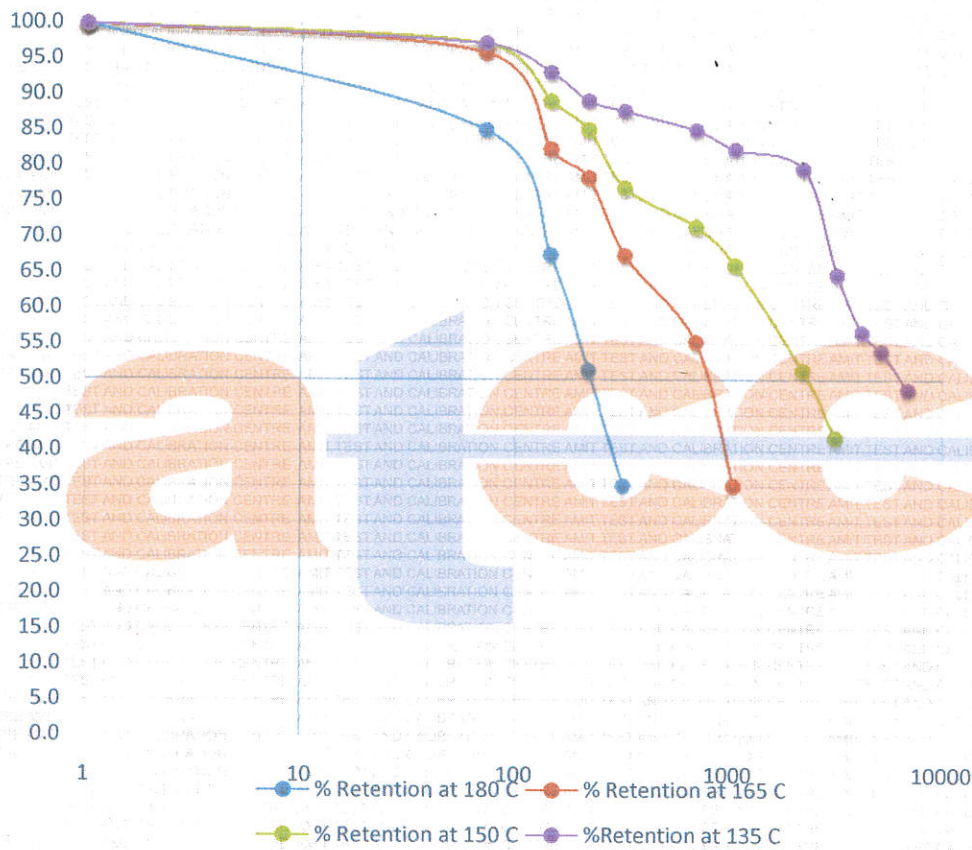
Authorised by :

SADHANA JADON
Quality Manager

TEST REPORT

Test Report No.: 10077635/2024/SS/1

Annexure B: Ageing Curve of sheath



% Retention at 180°C	% Retention at 165°C	% Retention at 150°C	% Retention at 135°C
222	786	2328	6412

Hrs

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TEST REPORT

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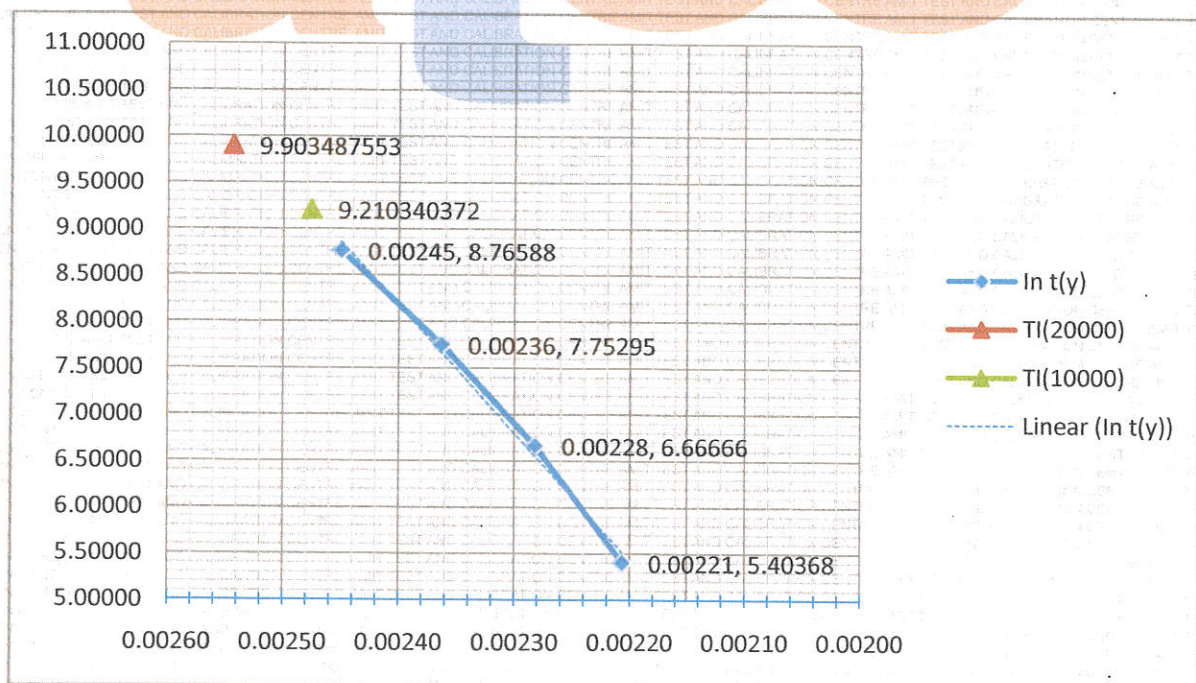
Annexure C :Arrhenius curve of sheath

TI (20000)	
Calculated	Required
122.7	120

TI (10000)	HIC
130.8	8.06

	Hours		X-AXIS	Y-AXIS
Temp.°C	Actual	Min. Required	1/K	ln t.(y)
120		20000	0.00254	
135	6412	5000	0.00245	8.76588
150	2328	-	0.00236	7.75295
165	786	-	0.00228	6.66666
180	222	100	0.00221	5.40368

INTERCEPTION TREND				
	Hours		X AXIS	Y AXIS
Temp.°C	Calculated	Min. Required	1/K	ln t.(y)
120	22925	20000	0.00254	10.039



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