



# परीक्षण/कैलिब्रेशन रिपोर्ट TEST/CALIBRATION REPORT

NABL Accredited Laboratory  
In the field of  
Electrical / Chemical / Metallurgy / Mechanical



MICRO, SMALL & MEDIUM ENTERPRISES  
सूक्ष्म, लघु एवं मध्यम उद्यम

एम. एस. एम. ई. परीक्षण केन्द्र

(भूतपूर्व : क्षेत्रीय परीक्षण केन्द्र (पक्षे), मुम्बई)  
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय,

भारत सरकार

**MSME TESTING CENTRE**

{Formerly: Regional Testing Centre (WR), Mumbai}  
Min. of Micro, Small & Medium Enterprises,

Government of India,

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भारत सरकार, सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय

कुर्ला अंधेरी रोड, साकी नाका,

मुम्बई - 400 072.

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सत्यमेव जयते



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TEST/CALIBRATION REPORT

कार्य संख्या : Job Order No.:	MSME-TC/M/ELECT/587 /2010-11	तिथि : Date:	22.02.11	रिपोर्ट संख्या : Report No.:	587
को जारी किया : Issued to: M/s.	Miracles Cables, Plot No. A-571, TTC Industrial Area, M.I.D.C., Mahape, Navi Mumbai - 400 701	106		जारी करने की तिथि : Date of Issue:	
				टी.आर.-5 तथा तिथि /TR-5 No. & Date	
				1323 dt. 23.02.2011	
				1347 dt. 03.03.2011	
सैम्पल पर पहचान चिन्ह/Identification Mark of Sample :	MIRACLE CABLES	आवेदन संख्या/ Request No.:	MC/MSME	तिथि /Date :	22.02.2011
वांछित परीक्षण/ Test Required :	Type Test As Per : IS.694 -1990 (Reaffirmed 2005) Specification for PVC Insulated cable for working voltage upto and including 1100 Volts and Smoke Density Test as per ASTM D 2843	सामान का ब्यौरा:/Material Details:	FRLS PVC Insulated & unsheathed single core cable with flexible copper conductor of size 2.5 mm <sup>2</sup> , Voltage grade 1100 V, Category : C2, Colour : Grey - 25 mtrs.		
क्रम संख्या Sr. No.	परीक्षण का नाम Name of the Test	मानक विशिष्ट Standard Specification	वास्तविक परिणाम Actual Sample Results	टिप्पणी Remarks	
1	Manufacturer's Identification (cl.17)	Manufacturer shall be identified throughout the length of the cable by name or trade mark being printed/embossed/ indented on the cable.	"MIRACLE CABLES" 2.50 SQMM FRLS 650/1100V printed	Satisfactory	
2	Packing and marking (cl.18)	The cable shall be either wound on reels or drums or supplied in coils packed and labeled with the following information. a) Reference to Indian Standard b) Manufacturer's name , brand name or trade mark c) Type of cable & voltage grade d) Number of cores e) Nominal cross-sectional area of conductor	-----	Label not supplied with the cable	

टिप्पणी : यह रिपोर्ट परीक्षण के लिये जमा करवाए गए विशेष सैम्पल के लिये है। बिना लिखित अनुमति के इसे दुबारा न बनाया जाए। परीक्षण किए गए सैम्पल परीक्षण रिपोर्ट जारी करने के तीस दिन के भीतर वापस लिये जा सकते हैं। पार्टी द्वारा परीक्षित सैम्पल रिपोर्ट जारी किये जाने के तारीख से 30 दिनों के भीतर निश्चित रूप में वापस ले जाया जाए अन्यथा इस सम्बन्ध में किसी भी प्रकार के दावे या पत्राचार पर विचार नहीं किया जाएगा तथा एम सैम्पल / सैम्पलों का सरकारी प्रक्रिया के अनुसार निपटारा किया जाएगा।

- N.B. 1) This report pertain to the particular sample submitted for test  
2) This report may not be reproduced without prior written permission of DIRECTOR, MSME TESTING CENTRE, Mumbai.  
3) This tested sample (s) should be collected positively within 30 days from issue of this report failing which no claim whatsoever and no correspondence in matter shall be entertained and such sample(s) will be disposed as per Government Procedure

द्वारा जारी :  
Issued by:

22/2/2011  
V. P. Singla  
Authorized Signatory

प्राधिकृत हस्ताक्षरकर्ता  
Authorized Signatory

एम एस एम ई परीक्षण केन्द्र, भारत सरकार, सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय, मुंबई - 400 072.

MSME Testing Centre, Govt. of India, Min. of MSME, Mumbai - 400 072.

Job Order no. MSME-TC/M/ELECT/ 587/2010-11

क्रम संख्या Sr. No.	परीक्षण का नाम Name of the Test	मानक विशिष्ट Standard Specification	वास्तविक परिणाम Actual Sample Results	टिप्पणी Remarks
		e) Cable code f) Colour of core (in case of single core) g) Length of cable on the reel, drum or coil h) Approximate gross mass i) Country of manufacture j) Year of manufacture		
3	General Construction of cable	-----	Flexible copper conductor of size 2.5 mm <sup>2</sup> with grey core PVC insulation applied by extrusion.	----
4	Insulation			
a)	Application (cl.10.4)	Should be as per Cl. 10.4	As per cl.10.4	Satisfactory
b)	Core identification	Red/Black/Yellow/Blue/White/Grey/Green	Grey	Satisfactory
5	Conductor (cl.4, 9 & 15)			
a)	i) Conductor ii) Flexibility iii) Dia. of wire iv) No. of wires	Solid/ Standed / Flexible Class 1 / 2 / 5 / 6 0.26 mm Max. ... ( Min )	Flexible Class 5 0.17 ....	Satisfactory
b)	Annealing Test ( for Copper ) (Before stranding)	Should have a minimum elongation of 13.5%	....	....
c)	Tensile Test ( for Aluminium after stranding )	Grade O Upto and including 100N/mm <sup>2</sup> H <sub>2</sub> Above 100 upto and including 150 N/mm <sup>2</sup> & above 150 N/mm <sup>2</sup> H <sub>4</sub>	....	NA
d)	Wrapping Test (for Aluminium after stranding ) Test conducted as per Part 3 of IS : 10810.	The wire should not break.	....	NA
e)	Resistance Test Conductor Resistance at 20° C for	7.98 ohm/km max.	7.534 ohm/km	Satisfactory
6	Dimensions			
a)	Thickness of Insulation (cl.10.2 & 10.3)	Avg. value : 0.8 mm min Min. value : 0.62 mm min	0.93 mm 0.88 mm	Satisfactory
b)	Overall dimensions (cl.14.1)	4.2 mm (max.)	3.35 mm	Satisfactory

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7	<b>PHYSICAL TESTS ON INSULATION AND SHEATH ( Cl. 15.1 )</b>			
a)	<b>Without Ageing</b> Insulation Tensile strength Elongation at break	12.5 N/mm <sup>2</sup> min. 150 % / <del>125</del> % min.	16.46 N/mm <sup>2</sup> 354 %	Satisfactory
b)	<b>After Ageing in air oven</b> i) Insulation Tensile strength Variation ( % ) Elongation at break ( % ) Variation ( % )	12.5 N/mm <sup>2</sup> min. + 20 / 25 % max. 150 % / 125 % min. ± 20 / 35 % max.	16.60 N/mm <sup>2</sup> -0.85% 351% + 0.85 %	Satisfactory Satisfactory
c)	<b>Loss of mass in air oven.</b> Insulation	2 mg /cm <sup>2</sup> max	0.44 mg /cm <sup>2</sup>	Satisfactory
d)	<b>Shrinkage Test</b> Insulation	4% max	1.5 %	Satisfactory
e)	<b>Hot deformation Test</b> Depth of indentation. Insulation	50 % max	24 %	Satisfactory
f)	<b>Heat shock Test</b> Insulation	There should be no sign of crack or scale on the sample.	No sign of crack or scale observed	Satisfactory
8	<b>INSULATION RESISTANCE TEST ( Cl. 15.1 )</b>			
8.1	<b>Insulation resistance constant</b>			
a)	at 27°C	36.7 Megohm.Km min	89.435 Megohm.Km	Satisfactory
b)	At maximum temperature.	0.037 Megohm km. min	7.155 Megohm.Km	
8.2	<b>Volume Resistivity</b>			
(a)	at 27°C	1 x 10 <sup>13</sup> Ohm-cm Min	2.43 x 10 <sup>13</sup> Ohm-cm	Satisfactory
(b)	At maximum temperature	1 x 10 <sup>10</sup> Ohm-cm Min	1.91 x 10 <sup>12</sup> Ohm-cm	
9	<b>HIGH VOLTAGE TEST</b>			
a)	At room temperature ( Cl. 16.3 ).	Should withstand 3 *KV (rms) for five minutes for each connection	Withstood the test	Satisfactory

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	b) Water Immersion Test ( Cl.16.2 ) at 60°C i) A. C. Test	A voltage of 3 KV (rms) is applied between conductors and water. This voltage raised to 6 KV (rms) in ten seconds and held for 5 minutes should withstand the test.	Withstood the test	Satisfactory
	ii) D.C. Test.	Should withstand 1.2 KV DC for 240 hours without breakdown.	Withstood the test	Satisfactory
10	FLAMABILITY TEST ( Cl. 16. 5 )	Period of burning 60 sec. max.  Unaffected portion 50 mm min.	1 sec.  357 mm	Satisfactory
11	OXYGEN INDEX TEST (Cl.16.8) Test conducted as per IS:10810(P-58)-1988	a) The oxygen index shall not be less than 29.  b) There should be no any unusual behaviour observed during the test.	Above 32  No any unusual behaviour observed	Satisfactory  Satisfactory
12	TEMPERATURE INDEX TEST (Cl. 16.13) Test conducted as per IS:10810(P-64)-1988	The temperature index should be 250°C at oxygen index of 21.	Above 300°C	Satisfactory
13	TEST FOR HALOGEN ACID GAS EVALUATION (Cl. 16.9) Test conducted as per IS:10810(P-59)-1988	The HCL evolved should not exceed 20 percent by weight.	4.1 %	Satisfactory
14	SMOKE DENSITY TEST Test as per ASTM D 2843-99	Smoke density rating : 60 % max. (Requirement As per party's specification)	52.14 %	Satisfactory

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3/5/2011