

CPRI

DOMESTIC ELECTRICAL APPLIANCES LABORATORY

ELECTRICAL APPARATUS TESTING DIVISION

TEST REPORT

NO. 188/ EATD / DEA- 14S1 / 96 - 97 Date. 04.03.97



Central Power Research Institute

(A Govt. of India Society,)

RMV Extn. Hind Stage, Prof. Sir. C. V. Raman Avenue,

P.B. No. 9401, Bangalore-560 094



Test report No. & Date : 188/EATD/DEA/14S1/96-97 Date.04.03.97
 Client, his address & reference : M/s. Mecoplast pipe industries,
 84/3, Salkalyam, Hennur main road,
 Bangalore- 560 084
 Ref.: Your letter No. Nil, dated. 31 .01.97

Manufacturer, his address & reference : ----

Particulars of apparatus tested :

Designation : Rigid Plain conduits of Insulating Materials
 Type : PVC Conduits, Medium
 SI.No. : ----
 Rating : 25 mm, PVC Conduit for Electrical Installation
 Identification No. : 25 mm dia PVC conduits, "UNIVERSAL" Brand
 Date of receipt of sample : 31.01.97
 CPRI sample code No. : DEA-14S1/96-97

Particulars of test conducted :

No. of samples tested : One batch of 3 Conduits
 Date(s) of test (s) : 05.02.97 to 12.02.97
 Test requested : As per list at Page No.2
 Test conducted : As per list at Page No.2
 Test in general accordance with standard / specification : As per IS:9537 (Part 1)-1980 & IS:9537(Part 3)-1983
 Clients requirement : ----
 Deviations if any : Digital Calliper was used for measuring dimensions

Name of the witnessing person(s) :

Client's representative(s) : ----
 Other than client's representative(s) : ----

Documents constituting this report :

No. of pages : Five only
 No. of oscillograms : ----
 No. of drawings : ----
 No. of graphs : ----
 No. of photos : ----


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TEST RESULTS

- Test requested :
1. Marking
 2. Dimensions
 3. Construction
 4. Bending test
 5. Compression test
 6. Collapse test
 7. Resistance to heat
 8. Resistance to burning.
 9. Electrical Characteristics

- Test conducted :
1. Marking
 2. Dimensions
 3. Construction
 4. Compression test
 5. Resistance to heat
 6. Resistance to burning.
 7. Electrical Characteristics

Note: i) Bending test and collapse test at SI. No. 4 & 6 of test requested not conducted since the facilities are not available at present.
ii) For results of compression test please refer report No. DTM/94/96-97 dt.19.2.97


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TEST RESULTS

Sl. No.	TESTS CONDUCTED	SPECIFIED REQUIREMENTS/ PARAMETERS MEASURED	RESULTS/VALUES OBTAINED
1.0	Marking As per Clause 6. of IS : 9537 (Part-1) - 1980 & IS : 9537 (Part-3) 1983.	6.1] Conduit of insulating material shall be marked with the following Informations: a) Name of the manufacturer trade -mark or identification mark ; b) Nominal size of the conduits ; c) Country of manufacture ; d) Information relating to classification ; e) BIS certification mark ; 6.2] Marking shall be checked by rubbing lightly by hand for 15 seconds with a piece of cloth soaked with water and again for 15 seconds with petroleum spirit. Markings shall be legible and durable after the test.	Marked as "UNIVERSAL" Not marked. Not marked. Not marked. Not marked.
2.0	Dimensions As per clause 7. of IS : 9537 (Part-1)- 1980 & IS:9537(Part-3) 1983	7.1] The dimensions of conduits for Medium stresses shall be as follows: The inside diameter of the conduits shall not be more than 21.4 mm The out side diameter of the conduits shall not be less than 24.6 mm The complete manufactured length shall not be less than 3 Mts.	Average=21.34 mm Min =21.23 mm Max=21.45 mm Average=24.77 mm Min=24.73 mm Max=24.86 mm Average=3.02 m Min=3.015 m Max=3.02 m



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TEST RESULTS

Sl. No.	TESTS CONDUCTED	SPECIFIED REQUIREMENTS/ PARAMETERS MEASURED	RESULTS/VALUES OBTAINED
3.0	Construction As per Clause 8 of IS : 9537 (Part-1) - 1980 & IS : 9537 (Part-3)-1983	The inside and outside surfaces of conduit shall be reasonably smooth & free from burrs, flash & similar defects : in addition, the edges over which the conductors or cables are likely to be drawn shall not damage the cable or conductors. Compliance is checked by inspection, if necessary, after cutting sample apart.	Complied. (No defects were observed)
4.0	Resistance to heat As per Clause 10 of IS : 9537 (Part-1) - 1980 & IS : 9537 (Part-3)- 1983.	Conduits shall be adequate to resistance to heat. Compliance shall be checked by a ball pressure test, as per the procedure specified in clause 10 of IS:9537 (Part-3)- 1983. The impression diameter shall be measured after two hours of removal of sample from the oven. The impression diameter so measured shall not exceed 2.0mm.	Measured impression diameter =0.2mm.
5.0	Resistance to burning. As per Clause 11 of IS : 9537 (Part-1) - 1980 & IS : 9537 (Part-3)- 1983.	11.1] Non-flame propagating insulating conduit shall not ignite or, if ignited, not continue to burn, when the source of ignition as specified is removed. Compliance is checked by exposing the sample of conduits to flame specified three times successively each time for 25 seconds, with interval of 5 seconds between each of the application.	The sample c conduit did not continue to burn after the source of ignition was removed.

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TEST RESULTS

Sl. No	TESTS CONDUCTED	SPECIFIED REQUIREMENTS/ PARAMETERS MEASURED	RESULTS/VALUES OBTAINED
6.0	Electrical Characteristics As per Clause 12 of IS : 9537 (Part-1) - 1980 & IS: 9537 (Part-3)- 1983.	<p>12.1] insulating conduits shall have adequate electrical strength and insulation resistance. Compliance is checked by subjecting the sample of conduit for the condition specified as per clause 12 of IS: 9537 - (Part -1)-1980.</p> <p>12.1.1 Electric strength: After 24 hours of condition as specified , a voltage of 2000 V A.C. of substantially sine-wave form and having a frequency of 50 Hz is applied for 15 minutes between the electrodes. No breakdown shall occur during the test.</p> <p>12.1.2 Insulation resistance: After two hours of condition as specified, the insulation resistance of each sample is measured by applying D.C. Voltage of approximately 500 V between the electrodes, the conductive coating also being connected to the voltage source, but not included in the measuring circuit. The measurements are made one minute after the application of the voltage. The insulation resistance so measured shall not be less than 100 MΩ.</p>	Withstood 2KV A.C for 15 minutes Measured insulation resistance =1.2 M Ω .


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MATERIALS TECHNOLOGY DIVISION

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Test report No. and date	:	DTM/94/96-97 dt.19.2.97
Clients address & ref.	:	M/s Macoplast Pipe Industries 84/3, Sailpalyam, Hennur Road Bangalore - 84 Ref. No. Nil dated 30.1.97
Particulars of apparatus tested	:	PVC Conduit pipe
Type	:	Medium category
Identification No./Model	:	25 mm diameter
Sl. Nos.	:	
Date(s) of test(s)	:	7.2.97
No. of samples tested	:	One no.
Particulars of test conducted	:	Compression test
Test in accordance with standard specification	:	As per IS 9537 (Part -1)-1980 and IS 9537 (Part 3) - 1983
Clients requirements	:	---
Names of witnessing persons	:	---
Clients representatives	:	---
Documents constituting this test report (in words)	:	
No. of pages	:	Two
No. of graphs	:	---
No. of drawings	:	---


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RESULTS

Sample tested : PVC conduit pipe
Test conducted : Compression test on PVC conduit pipe
Test procedure :

The sample PVC conduit pipe was held in the dynamic testing machine using flat plates and the compression load at a uniform rate is applied on to the test specimen till the max. load was reached. The sample was held at this max. load for a period of one minute and the final diameter was measured (Obtained from the stroke readings of the machine). The load on the sample was removed and the change in the diameter in the flattened region was measured after one minute.

Observations :


SAMPLE DESIGNATION	MAXIMUM LOAD APPLIED (N) *	INITIAL DIAMETER (mm)	DIFFERENCE BETWEEN THE INITIAL DIAMETER AND THE DIAMETER OF FLATTENED SAMPLE	
			WITH LOAD IN POSITION	AFTER REMOVAL OF LOAD ON THE SAMPLE
25 MM DIAMETER	755	24.78	1.91 (7.70)	0.24 (0.97)

* - The load readings in "kg" obtained in the machine has been converted to "Newton" taking 1 kgf = 9.81N.

Note : The values in the brackets indicates the percent change in the diameter values observed, adjusted to two decimals


Facility in-charge


Checked By


Test Engineer