

# CENTRAL ELECTRICAL TESTING LABORATORY



DEPARTMENT OF INDUSTRIES AND COMMERCE  
GOVERNMENT OF TAMILNADU  
KAKKALUR-602 003, TIRUVALLUR DISTRICT, TAMILNADU  
(044) 27660384 / 27660302



CERTIFICATE NO.: T - 0103



## TEST REPORT

TEST REPORT No.	TOTAL No. OF PAGES	PAGE
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### CUSTOMER DETAILS

M/s. Macoplast Pipe Industries,  
No: 84/3, Sait Palayam,  
Hennur Main Road,  
Bangalore - 560 084.

Ref.No. & Date : Nil, dt : 21.02.2012

Code No. : -----

Seal : -----

Date of Receipt : 01.03.2012

Period of Testing : 02.03.2012 to 12.04.2012

**REFERENCE** : IS: 9537 (Part - 3) : 1983  
Specification for Conduits for Electrical Installations.  
Part - 3 : Rigid Plain Conduits of Insulating materials.  
(With 1 Amendment)

**TEST CHARACTERISTICS** : ALL TEST

Number of samples required  
as per sampling procedure : 6 lengths

**GENERAL REMARKS** : The sample so far as, it has been examined and tested, Passes in the All Test.

### SAMPLE DETAILS

Item : Rigid plain conduits of  
insulating materials for  
electrical installations

Condition when : Physically  
received satisfactory

Brand : UNIVERSAL

Classification : Heavy

Nominal outside  
diameter : 32 mm

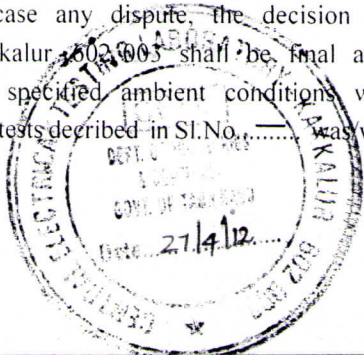
Length of the  
conduit : 3 mtrs.

Colour : Grey

Quantity : 6 Nos.

### Note:

1. This test report relates only to the products tendered for testing.
2. This test report shall not be reproduced, except in full without the written approval of the issuing authority.
3. In case any clarification on the issued test report, it has to be raised within one month from the date of receipt of the test report.
4. In case any dispute, the decision of The Deputy Director (E & E), Central Electrical Testing Laboratory, Kakkalur-602 003 shall be final and binding.
5. The specified ambient conditions were maintained during the test.
6. The tests described in Sl.No. .... was sub-contracted according to the established procedure of this laboratory.



*[Signature]*  
ISSUING AUTHORITY  
DEPUTY DIRECTOR 4/C  
OF INDUSTRIES & COMMERCE (E&E)  
CENTRAL ELECTRICAL TESTING LABORATORY  
KAKKALUR - 602003.

# CETL CENTRAL ELECTRICAL TESTING LABORATORY

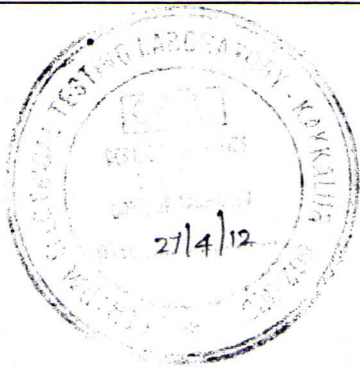
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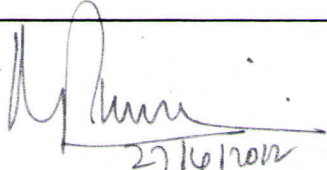
Test Report on Rigid plain conduits of insulating material for electrical installations (ALL TEST)

Sl. No.	Test and Requirements	Clause	Results	Remarks
1.	<u>Classification</u> Conduits shall be classified according to mechanical properties as specified.	5.0	Heavy	Conforms
2.	<u>Marking</u> i) Each length of the conduit shall be marked with the following information.  a) Manufacturer's name or trade mark, if any  b) Nominal size of the conduit  c) Country of manufacture  d) Information relating to Classification.  ii) Marking shall be durable and legible and it shall be checked by inspection and by the method specified.  iii) The conduits may also be marked with the ISI certification mark.	6.0	UNIVERSAL  32 mm  INDIA  HEAVY  Found durable and Legible  Marked	Conforms
3.	<u>Dimensions</u> i) The outside diameter shall be in between 31.6 mm and 32.0 mm.  ii) The minimum inside diameter shall be 26.6 mm for Heavy duty conduits.	7.0 7.1 7.2	(1) (2) (3) Minimum: 31.7 31.7 31.7 mm Maximum: 31.8 31.8 31.8 mm  Minimum: 26.8 26.8 26.8 mm	Passes

Place :

Date :



  
 27/4/12  
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**DEPUTY DIRECTOR/IC**  
**OF INDUSTRIES & COMMERCE (E&E)**  
**CENTRAL ELECTRICAL TESTING LABORATORY**  
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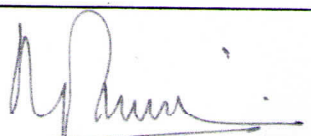
Sl. No.	Test and Requirements	Clause	Results			Remarks
			(1)	(2)	(3)	

	iii) a) The outside diameter of the socket end shall not exceed 29.8 mm	7.1.1				Not applicable
	b) The inside diameter shall be in between 25.1 mm and 25.4 mm					Not applicable
	c) The length of the socket end shall not be less 40 mm					Not applicable
	iv) The maximum and minimum outside diameters and the minimum inside diameter of the conduit shall be checked by means of the gauges specified	7.1.2				Complied with the requirements
	v) The minimum length of the conduit shall be 3 metres.	7.3				3 metres
	vi) <u>Uniformity of the wall thickness</u> In no case the difference between the measured value and the average of the 12 values obtained from three samples shall exceed 0.1mm + 10 % of the average value. [0.1 + 0.266 = 0.366 mm]	7.4				Maximum : 0.04 mm Within the limits
4.	<u>Construction</u> The inside and outside surfaces of conduits shall be smooth and free from burrs, flash and similar defects. The edges over which the conductors or cables are likely to be drawn shall not damage the cables or conductors.	8.0				Conforms  Complied with the requirements
5.	<u>Mechanical Properties</u> The Conduit shall have adequate mechanical strength and the compliance is checked by the following tests.	9.0				Passes

Place :

Date :



  
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Sl. No.	Test and Requirements	Clause	Results			Remarks
			(1)	(2)	(3)	

i) Bending test 9.2

Three samples at room temperature and three samples at  $(-5 \pm 2^\circ\text{C} / 2 \text{ hours})$  are bent as specified.

After the test, the sample shall show no cracks visible to normal or corrected vision without magnification.

Not applicable

ii) Compression test 9.3

The difference between the initial diameter and the diameter of the flattened sample shall not exceed 25 % of the initial diameter while the compression force is still applied.

(1)	(2)	(3)
20	19	19 %

The difference between the initial diameter and the diameter of the flattened sample, after removal of compression force after one minute, shall not exceed 10 % of the outside diameter, measured before the test.

8	7	8 %
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iii) Impact test 9.4

12 samples shall be conditioned at  $60 \pm 2^\circ\text{C}$ . for 240 hours and then at  $(-5 \pm 2^\circ\text{C})$  for 2 hours.

An impact energy of 6.0 joule shall be applied by a hammer of 2.0 Kg which is allowed to fall from a height of  $300 \pm 1 \text{ mm}$ .

No sign of disintegration and cracks.

Place :

Date :



*[Handwritten Signature]*  
27/4/12

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Test Report on Rigid plain conduits of insulating material for electrical installations (ALL TEST)						
Sl. No.	Test and Requirements	Clause	Results			Remarks
			(1)	(2)	(3)	

There shall be no sign of disintegration, neither shall there be any crack visible on the samples after the test specified.

iv) Collapse test

9.5

The sample shall be bent at room temperature and fixed to a rigid support as specified and kept at  $60 \pm 2^\circ\text{C}$  for 24 hours.

After the period, the sample still being secured to the support, the minimum internal diameter is checked by gauge and it shall be possible to pass the gauge through the conduit.

Not applicable

6. Resistance to Heat

10.0

Passes

The sample is kept at  $60 \pm 2^\circ\text{C}$  for 2 hours and it shall be pressed by the ball pressure apparatus as specified.

The impression caused by the ball pressure apparatus shall not exceed 2mm.

(1)	(2)	(3)
1	1	1 mm

7. Resistance to Burning

11.0

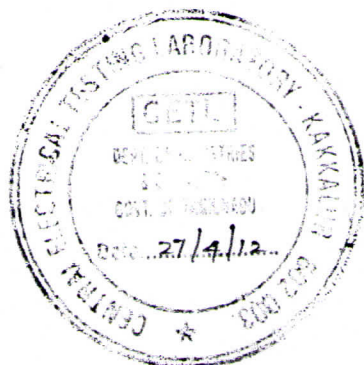
Passes

During the exposure of the sample to the flame as specified, the flame shall not spread appreciably and the flame shall have died out in less than 30 seconds after removal of the burner.

(1)	(2)	(3)
6	6	7 Seconds

Place :

Date :



*[Handwritten Signature]*  
27/4/12

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