



Macoplast

UNIVERSAL PVC PIPES & FITTINGS

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PIPE INDUSTRIES

Website: www.universalpipes.in



TECHNICAL DATA SHEET

Material Composition

Product: Unplasticised UNIVERSAL ISI FRLS PVC Conduit Pipes

Sl No.	Raw Material	Dosage (Per Hundred Resin)
1	Virgin PVC Suspension Resin	100 PHR
2	Filler	8 PHR
3	Lubricant	0.2 PHR
4	Processing Aid	0.2 PHR
5	Heat Stabiliser	1.8 PHR
6	Impact modifier	2 PHR
7	UV Stabiliser	0.1 PHR
8	Colourants	0.1 PHR

Technical Properties

BIS Standards(ISI):

Sl No.	Property Description	Data
1	Make	UNIVERSAL
2	BIS Standards	IS:9537 (Part III) 1983
3	Licence No.	CM/L-4601248
4	Dimensions	As per table below
5	Length	Standard length of the conduit is 3 Metres
6	Bending Test	After the test on samples at room temp., the samples have shown no cracks visible to normal vision without magnification. Bending Test is applicable for 16mm,20mm and 25 mm
7	Compression Test	25% of compression done under load of 1250N for heavy and Medium Conduits and 10% after releasing the load.
8	Impact Test	After the test on Samples at specified temp., there was no sign of disintegration and crack visible to naked eye in all of twelve Samples.
9	Collapse Test	After the test on conditioned Samples, it was possible to pass gauge of specific dia for the size range of 16-25 mm Light, Medium and Heavy.



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10	Resistance to Heat	After the test ,dia of impression on the sample did not exceed 2mm.
11	Resistance to burning	Flame died out in less than 30 seconds after removal of burner.
12	Electrical Characteristics	(A) <u>Dielectric strength:</u> No breakdown of conditioned sample occurred at the voltage of 2000v & 50 Hz frequency for 15 minutes.
		(B) <u>INSULATION RESISTANCE</u> The insulation Resistance on conditioned Samples was not less than 100MΩ
13	Product Colour	UNIVERSAL PVC ISI FRLS Conduits are colour coded as per requirements. Standard colours are Black, White, Grey, Red, Green and Blue.
14	Packaging of product	UNIVERSAL PVC ISI FRLS Conduits are packed in Poly Propylene bags for transport.

Dimensions:

Nominal mm	Outside mm	Tolerance on OD mm	Inside Diameter(Min) in mm		
			Light	Medium	Heavy
16	16	-0.3	13.7	13	12.2
19(Non ISI)	19	-0.3	16.4	15.9	14.8
20	20	-0.3	17.4	16.9	15.8
25	25	-0.3	22.1	21.4	20.6
32	32	-0.4	28.6	27.8	26.6
40	40	-0.4	35.8	35.4	34.4
50	50	-0.5	45.1	44.3	43.2

Fire Resistant Low Smoke (FRLS) TESTS:

1	Oxygen Index Test (ASTM-D-2863-2017)	Above 40%, Passed.
2	Temperature Index Test (ASTM-D-2863-2017)	The Temperature for this test is specified to be minimum 250°C, Passed.
3	Flammability Test (ASTM-D-635 -2010)	(i) Average Extent of Burning: The specific requirement on the average extent of Burning is < 25 mm, Passed. (ii) Average Time of Burning: The specific requirement on the



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Low Halogen Smoke Free (LHSFT) TESTS:

1	Hydrochloric Acid Generation test (IEC 60754-1/2011)	Halogen acid generation was within prescribed limits.
2	Smoke density Test (ASTM-D-2843-2016)	A clear Beam reading was observed.

OTHER TESTS:

1	Impact resistance	High Impact Resistance
2	Thermal Stability Test (IS 10810 (PART-60))	Conduit were thermally stable for more than 20 minutes at 200°C.
3	Chemical Resistance	Inert to Inorganic Acids, Alkalis & Salts
4	Water Absorbtion	Negligible
5	Operative Temperature	"-5°C to 60°C"
6	Vicat Softening point	80°C
7	Coefficient of Linear Expansion	7x10/m/°C
8	Tensile Strength	450/565 Kg/cm ²

Product: Unplasticised UNIVERSAL ISI FRLS Lead and Mercury Free PVC Conduit Pipes

LEAD and Mercury Free TEST :

1	Lead Content (Pb) (Omnian standard ROHS Test by WDXRF)	None detected in Universal PVC Pipe
2	Mercury Content (Hg) (Omnian standard ROHS Test by WDXRF)	None detected in Universal PVC Pipe