



# Vasavibala Resins (P) Ltd.

## POLYMER DIVISION

Manufacturers of Unsaturated Polyester Resins  
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### TECHNICAL DATA SHEET

#### **GRADE: VBR 5610 –Pre accelerated Halogen free Iso Fire retardant resin**

VBR 5610 is a versatile medium reactive pre accelerated Iso fire retardant unsaturated polyester resin designed for hand lay-up applications. It can be used in a wide range of products where fire retardant performance is needed. This resin contains inorganic fillers(Alumina Tri Hydrate) and other additives to ensure low smoke density and excellent fire retardant properties, with reference to IS 6746 - 1994, Type - 1.

It is a halogen free fire retardant resin with styrene and acrylic monomer for good weather resistance characteristics.

PROPERTIES OF LIQUID RESIN		
Appearance	:	Whitish opaque liquid
Viscosity at 25°C, MPa.s (Brookfield Viscometer LV DV II + Pro Spindle 63, rpm 60)	:	800 - 1500
Density @ 20°C , g/ml	:	1.40 – 1.50
Monomer content, %	:	22 - 24
Gel time at 25°C, min*	:	15 - 25
T max	:	120 deg c
Shelf life at 25°C, months	:	3

\* Mix VBR 5610 Resin -100 gm, VBR 1204 - 1.5 ml.

## PROPERTIES OF UNREINFORCED CURED RESIN CASTING

The specimens are prepared by mixing of VBR 1204 with VBR 5610 and casted in a closed cell of specified dimension. These castings are cured for 24 hrs at room temperature and post curing at 90°C for 4 hrs.

PROPERTIES OF RESIN CASTING		
Hardness (Barcol)	:	36 – 44
Tensile strength, N/mm <sup>2</sup>	:	50-55
Flexural strength, N/mm <sup>2</sup>	:	80-85
Heat distortion temperature, °C	:	>110
Water absorption at 25°C over a period of 700 hrs, %	:	0.30
Elongation at break, %	:	>3

PROPERTIES OF LAMINATE		
Specific gravity(ASTM D 792)	:	1.5 – 1.8
Tensile Strength ( N / mm <sup>2</sup> ) IS:1998	:	>100
Elongation at break IS:1998	:	>1
Tensile Modulus , N/mm <sup>2</sup> IS:1998		>8000
Hardness Barcol ASTM D 2583 81		>40
Interlaminar shear strength (N / mm <sup>2</sup> ) BS :4994		Min 7.5
Cross Breaking strength N / mm <sup>2</sup> IS:1998		>120
IZOD Impact strength (joule / mtr) IS:1998		>550
Glass Content by weight IS:13411 ANEXURE A		37 - 40
Toxicity Index as per NCD 1409	:	< 1
Critical Oxygen Index IS 13501-1992	:	Min 28 %
Resistance to Spread of flame as per Appendix-04 of UIC 564-2	:	Class A or B
Smoke Visibility as per Appendix-15 of UIC 564-2		Class A or B

Horizontal Burning rate mm/minute IS 15061-2002 Clause 3.2 and Annex A	:	0
Vertical Burning rate mm/minute as IS: 15061-2002 Clause 3.3 Annex B	:	The flame extinguished before reaching the first marker thread
Melting Behaviour test as per IS 15061-2002 Clause 3.4, Annex C	:	No drop was formed which ignites the cotton wool

## TEST METHODS

IS 6746 – 1994, IS-1998, ASTM –D2583-81

## APPLICATION

VBR 5610 is recommended for wide range of applications where fire retardant performance is significant along with good chemical corrosion resistant characteristics. It is recommended to post cure the molded product for 6 hours at  $80 \pm 5^{\circ}$  C in a dry atmosphere for optimum properties

## STORAGE

VBR 5610 should be stored in closed containers inside covered area. The storage temperature not exceeding  $25^{\circ}$ C is preferable. At higher storage temperature, the shelf life decreases sharply. It should not be exposed to direct sunlight, heat radiation and moisture; these may cause premature gelation. VBR 5610 is guaranteed for 3 months from the date of manufacture provided the storage conditions are strictly adhered to. Mix the content thoroughly before use.

## PACKING

40kg wide mouth carbuoys and 250 kg Steel barrel.