



# Vasavibala Resins (P) Ltd.

## POLYMER DIVISION

Manufacturers of Unsaturated Polyester Resins  
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### **TECHNICAL BROCHURE - UNSATURATED POLYESTER RESIN**

#### **GRADE: VBR 5600 –Pre accelerated Halogen free ortho Fire retardant resin**

VBR 5600 is a versatile medium reactive pre accelerated ortho 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 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	:	1.480 – 1.520
Monomer content, %	:	22 - 24
Gel time at 25°C, min*	:	20 - 30
T max	:	120 deg c
Shelf life at 25°C, months	:	3

\* Mix VBR 5600 Resin -100 gm, VBR 1204 - 1.5 ml.

\*\* Under insulated condition for 100 gram mixture

## PROPERTIES OF UNREINFORCED CURED RESIN CASTING

The specimens are prepared by mixing of VBR 1204 with VBR 5600 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)	:	30 – 40
Tensile strength, N/mm <sup>2</sup>	:	40 – 50
Flexural strength, N/mm <sup>2</sup>	:	70-75
Heat distortion temperature, °C	:	>120
Water absorption at 25°C over a period of 700 hrs, %	:	0.3
Elongation at break, %	:	>1

PROPERTIES OF LAMINATE		
Specific gravity(ASTM D 792)	:	1.7 – 1.8
Tensile Strength ( N / mm2) IS:1998	:	>100
Elongation at break IS:1998	:	>1
Tensile Modulus , N/mm2 IS:1998		>8000
Hardness Barcol ASTM D 2583 81		>40
Interlaminar shear strength (N / mm2) BS :4994		Min 7.5
Cross Breaking strength N / mm2 IS:1998		>120
IZOD Impact strength (joule / mtr) IS:1998		>550
Glass Content by weight IS:13411 ANEXURE A		35 - 37
Toxicity Index as per NCD 1409	:	< 1
Critical Oxygen Index IS 13501-1992	:	Min 30 %
Resistance to Spread of flame as per Appendix-04 of UIC 564-2	:	Class A
Smoke Visibility as per Appendix-15 of UIC 564-2		Class A

## **TEST METHODS**

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

## **APPLICATION**

VBR 5600 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 5600 should be stored in closed containers inside covered area. The storage temperature not exceeding  $25^{\circ}\text{C}$  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 5600 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.