



# Vasavibala Resins (P) Ltd.

## POLYMER DIVISION

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

#### **GRADE: VBR 5660 – Pre accelerated high HDT Fire retardant resin**

VBR 5660 is a versatile medium reactive pre accelerated fire retardant unsaturated polyester resin designed for potting applications. It can be used in a wide range of products where high fire retardant performance is needed. This resin contains inorganic fillers and other additives to ensure 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	:	Nature colour liquid
Viscosity at 25°C, mPa.s (Brookfield Viscometer LV DV II + Pro Spindle 64, rpm 10)	:	60000 - 90000
Density @ 25°C , g/ml	:	1.6 – 1.8
Monomer content, %	:	14 - 18
Gel time at 25°C, min*	:	10 - 20
T max		180 deg c
Shelf life at 25°C, months	:	3

\* Mix VBR 5660 Resin -100 gm, VBR 1204 - 1.0 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 5660 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)	:	45 - 55
Tensile strength, N/mm <sup>2</sup>	:	30 –35
Flexural strength, N/mm <sup>2</sup>	:	50-60
Heat distortion temperature, °C	:	180
Water absorption at 25°C over a period of 700 hrs, %	:	.30
Elongation at break, %	:	>1

PROPERTIES OF LAMINATE		
Horizontal Burning rate mm/minute IS 15061-2002 Clause3.2 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
Toxicity Index as per NCD 1409	:	< 1
Limiting Oxygen Index IS 13501-1992	:	Min 28 %
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 5660 is recommended for wide range of potting 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 5660 should be stored in closed containers inside covered area. The storage temperature not exceeding  $30^{\circ}$ 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 5660 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.