



# Vasavibala Resins (P) Ltd.

POLYMER DIVISION  
Manufacturers of Unsaturated Polyester Resins

## TECHNICAL BROCHURE – UNSATURATED POLYESTER RESINS

### GRADE : VBR 4550 TEREPHTHALIC RESIN

VBR 4550 is a versatile high reactive terephthalic acid based polyester resin, suitable for high performance lamination applications. This resin exhibits excellent chemical and weather resistance along with good mechanical and electrical properties.

PROPERTIES OF LIQUID RESIN	
Appearance	Clear to hazy Liquid
Colour (on Gardner Scale, max)	4 – 5
Viscosity at 25°C (cPs) Brookfield Viscometer LV DV + Pro Spindle 63,rpm 60	400 – 600
Specific gravity at 25° C gm/ml	1.090 – 1.100
Acid value, mg KOH/gm	11 – 15
Volatile content, %	40 – 44
Shelf life at 25° C, months	3
Gel time at 25° C, minutes*	15 – 25
Peak exotherm, °C**	190 – 200

\* Mix – VBR 4550 – 100 gm, VBR 1201 – 1.5 ml, VBR 1204 – 1.5 ml

\*\* Under insulated Condition for 100 gm mixture.

**Caution :** VBR 1201 should never be independently mixed with VBR 1204, as this would cause explosion.

### PROPERTIES OF UNREINFORCED CURED RESIN CASTING

The specimens are prepared by separately mixing 1.5% each of VBR 1201 and VBR 1204 with VBR 4550 and casted in a closed cell of specified dimension. These castings are cured for 24 hrs at room temperature and post cured at 90°C for 4 hrs.

<b>PROPERTIES OF RESIN CASTING</b>	
Hardness (Barcol)	40 – 45
Tensile Strength, N/mm <sup>2</sup>	>80
Flexural Strength, N/mm <sup>2</sup>	>135
Heat distortion temperature, °C	>120
Water Absorption at 25°C over a period of 700 hrs, %	0.30 – 0.40
Elongation at break, %	> 3

## **CHEMICAL RESISTANCE**

Castings of VBR 4550 show a good resistance to most acids at ambient temperature. It resists petroleum products, oils, salt solutions etc. It shows poor resistance towards strong oxidizing acids and alkalies. In terms of resistance to boiling water, VBR 4550 shows better performance than the orthophthalic polyesters.

## **THERMAL STABILITY**

Castings of VBR 4550 show better dry heat stability than orthophthalate and isophthalate resins.

## **TEST METHODS**

IS 6746 – 1994.

## **APPLICATION**

VBR 4550 is recommended for the manufacture of glass fibre reinforced chemical process equipment, storage tanks, transport tankers, fume extraction systems, pipe lines, lining works etc. for use at ambient to moderate temperature.

## **STORAGE**

VBR 4550 should be stored in closed containers inside covered area. The storage temperature not exceeding 30°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 4550 is guaranteed for 3 months from the date of manufacture provided the storage conditions are strictly adhered to.

## **PACKING**

35 Kg. HDPE carbuoys and 220 Kg. coated steel barrels.