



Vasavibala Resins (P) Ltd.

POLYMER DIVISION
Manufacturers of Unsaturated Polyester Resins

TECHNICAL BROCHURE – UNSATURATED POLYESTER RESINS

GRADE : VBR 4517 SUPERIOR VINYLESTER TOOLING RESIN

VBR 4517 is a high reactive superior vinylester resin with an epoxy novalac backbone and methacrylic acid unsaturation as terminals more than one. It incorporates the workability and cure characteristics of epoxy resin to the level of unsaturated polyester resin. The multi functional epoxy novalac backbone gives a highly cross linked structure on cure, which provides superior chemical resistance characteristics incomparable to conventional normal temperature curing type resins that are currently used for corrosion resistant applications. It offers well-balanced mechanical and bonding properties along with electrical characteristics.

PROPERTIES OF LIQUID RESIN	
Appearance	Straw yellowish clear liquid
Colour (on Gardner Scale, max)	9 – 10
Viscosity at 25°C, cps	700 – 900
Specific gravity at 25°C gm/ml	1.09 – 1.11
Acid value, mg KOH/gm	08 – 12
Volatile content, %	26 - 30
Shelf life at 25°C, months	2
Gel time at 25°C, minutes*	20 – 40
Peak exotherm, °C**	140 – 150

* Mix VBR4517 – 100gm, VBR 1201 – 1.5ml, VBR 1206 – 1.5ml and VBR 1204 – 1.5ml.

** Under insulated Condition for 100 gm mixture.

Caution : VBR 1201&VBR1206 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 , VBR 1206 and VBR 1204 with VBR 4517 and casted in a closed cell of specified dimension. The castings are cured for 24 hrs at room temperature and post curing at 130°C for 2 hrs.

PROPERTIES OF CURED RESIN CASTING

Hardness (Barcol)	35 – 40
Tensile Strength, N/mm ²	75 – 85
Flexural Strength, N/mm ²	115 – 120
Heat distortion temperature, °C	125 – 135
Water Absorption at 25°C over a period of 700 hrs, %	0.25 – 0.35
Elongation at break, %	>3

CHEMICAL RESISTANCE

Castings of VBR 4517 exhibit excellent resistance towards acids, bases, solvents and oxidizing media over a wide range of temperature. In highly corrosive chemical atmosphere, VBR 4517 is found to be more effective than general purpose Vinylester Resins and Bisphenol – A fumarate resin.

THERMAL STABILITY

Castings of VBR 4517 shows better dry-heat stability than any of its counter part. It retains good strength toughness over a wide range of temperature.

TEST METHODS IS 6746 – 1994.

APPLICATION

VBR 4517 has outstanding corrosion resistance and stress cracking properties. This can be applied using similar procedure applicable to unsaturated polyester resins. The resin characteristics fulfill the requirements of hand-lay-up, Tooling, pultrusion, filament winding, resin transfer moulding, pressure moulding and polymer concrete. Depending upon the process and usage, the volatile content and other additives can be incorporated.

STORAGE

VBR 4517 should be stored in closed containers inside covered area. The storage temperature not exceeding 25°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 4517 is guaranteed for 2 months from the date of manufacture provided the storage conditions are strictly adhered to.

PACKING

35 Kg. HDPE carbuoys and 200 Kg. coated steel barrels.