



Vasavibala Resins (P) Ltd.

POLYMER DIVISION
Manufacturers of Unsaturated Polyester Resins

TECHNICAL BROCHURE – UNSATURATED POLYESTER RESINS

GRADE: VBR 4503 M – ISO MARINE GRADE RESIN

VBR 4503M is a versatile medium reactive isophthalic acid based polyester resin, suitable for high performance marine applications. This resin exhibits excellent chemical and weather resistance along with good mechanical and electrical properties.

PROPERTIES OF LIQUID RESIN

Appearance	Straw yellowish clear liquid
Colour (on Gardner scale, max)	3-5
Viscosity at 25°C, cps Brookfield Viscometer LV DV +Pro Spindle 63, rpm 60	400 – 600
Specific gravity at 25°C gm/ml	1.10 - 1.12
Acid value, mg KOH/gm	15 – 20
Volatile content, %	36 – 40
Shelf life at 25°C, months	3
Gel time at 25°C, minutes*	15 - 25
Peak exotherm, °C**	185 - 190

* Mix - VBR 4503M - 100 gm, VBR 1201 - 1.5ml, 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 4503M 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)	35 - 40
Tensile strength, N/mm ²	50 – 55
Flexural strength, N/mm ²	90 - 95
Heat distortion temperature, °C	>85
Water absorption at 25°C over a period of 700 hrs, %	0.32 – 0.35
Elongation @break	>3

CHEMICAL RESISTANCE

Castings of VBR 4503M show a good resistance to most acids at ambient temperature. It resists petroleum products, oils, salt solution etc. It shows poor resistance towards strong oxidising acids and alkalies.

THERMAL STABILITY

Castings of VBR 4503M shows better dry heat stability than orthophthalate resins.

TEST METHODS

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APPLICATION

VBR 4503M is recommended for the manufacture of glass fibre reinforced chemical process equipment, storage tanks, transport tankers, fume extraction systems, pipe lines, lining works and marine applications etc. for use at ambient to moderate temperature.

STORAGE

VBR 4503M 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 4503M is guaranteed for 3 months from the date of manufacture provided the storage conditions are strictly adhered to.

PACKING: 35 kg HDPE carboys and 225 kg coated steel barrels.