

CRYSTIC[®] VE 661PAT

Formerly CRYSTIC[®] VE 671PAT

Epoxy Vinyl Ester Based Resin

Introduction

Crystic VE 661PAT is a pre-accelerated Bisphenol A epoxy, thixotropic vinyl ester based resin with good chemical resistance to a wide range of substances at room and elevated temperatures. It is suitable for fabrication of fibre reinforced composites by contact moulding and for use in many chemical processing industry applications (storage tanks, vessels, ducts). Crystic VE 661PAT has good heat resistance and can be used as a tooling resin.

Product Characteristics

Features and Benefits

Crystic VE671 PAT has high thixotropy for application on vertical and difficult surfaces. The resin also has lower exotherm which helps in application of multiple layers of reinforcement with minimal distortion.

Formulation

Crystic VE 661PAT should be allowed to attain workshop temperature (18°C - 25°C) before use. It requires only the addition of a catalyst to start the curing reaction. The recommended catalyst is MEKP (50%), which should be added at 1% - 2% into the resin. The catalyst should be thoroughly incorporated into the resin, using a low shear mechanical stirrer where possible.

Additives

Crystic VE 661PAT may be pigmented by the addition of up to 5% of Crystic Pigment Paste. The addition of certain pigments, fillers or extra styrene may adversely affect the food taint, toxicity and chemical resistant properties of laminates so, for critical applications, customers should satisfy themselves that any additions made will give the performance required.

Typical Properties

The following table gives typical properties of Crystic VE 661PAT when tested in accordance with BS 2782.

Typical Liquid Resin Properties	-	Crystic VE 661PAT
Appearance	-	Pinkish Hazy
Gel time using 1.5% MEKP Butanox LPT	minutes	20 - 40
Viscosity Brookfield RVT SP3/50 @ 25°C	mPas	500 -900
Viscosity Brookfield RVT SP3/5 @ 25°C	mPas	1400 - 3000
Thixo index, Brookfield RVT SP3/6/60 @ 25°C	-	2 – 3.5
Volatile content	%	38 - 42
Stability from date of manufacture when stored in accordance with storage recommendations	months	6

Typical Cast Resin Properties	-	Crystic VE 661PAT
Barcol Hardness **	-	40
Deflection Temperature under load † (1.80 MPa) ***	°C	95 - 105
Tensile Modulus **	GPa	3.4
Tensile stress **	MPa	80
Tensile Elongation at break **	%	4 - 5
Flexural stress **	MPa	130

** Curing Schedule: 24 hrs at 20 °C followed by 3 hrs at 80 °C.

*** Curing Schedule: 24 hrs at 20 °C followed by 5 hrs at 80°C and then 3 hrs at 120 °C.

Post Curing

Satisfactory laminates for many applications can be made from Crystic VE 661PAT by curing at workshop temperature (20°C). For optimum properties and long term performance, however, laminates should be post cured before being put into service. The laminate should be allowed to cure for 24 hours at 20°C, and then be oven cured for 3 hours at 80°C, or 16 hours at 40°C. Post curing at 100°C is advisable for high operating temperatures.

Chemical Resistance

Fully cured **Crystic® VE661PAT** may be suitable for use in several chemical environments, including aqueous solutions, edible oil (including foodstuffs) and mild organic acid and salt solutions. For specific advice around chemical containment requirements please contact Scott Bader Technical Support.

For particularly aggressive environments additional Crystic® Vinyl ester grades are available, and recommendations should be sought from the Scott Bader Technical Support department.

Storage

Crystic VE 661PAT should be stored between 5°C and 25°C in the original, unopened container in a dry, well ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. If stored outside of these recommendations, shelf life will be significantly reduced.

Packaging

Crystic VE 661PAT is supplied in 200kg, 1000kg containers or bulk tankers.

Health and Safety

Please see separate Material Safety Data Sheets

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