

CRYSTIC[®] 1141PAMV

Orthophthalic Polyester Resin

for Closed Mould Use

Introduction

Crystic 1141PAMV is based on a tough, durable orthophthalic unsaturated polyester resin, Crystic 1141. It is designed for use in Resin Transfer Moulding (RTM) and may be used in other resin injection or vacuum assisted techniques. The resin is designed to accept calcium carbonate or alumina trihydrate fillers, at levels of up to 25phr, with minimal settling.

Formulation

Crystic 1141PAMV if used alone should be cured using AAP (acetylacetone peroxide – Andonox[®] PD40). MEKP catalysts may be used, and will give similar gelltimes, but the resins will take appreciably longer times to cure. When the resin is used filled, Andonox[®] KPM50 is recommended as it gives more rapid cure.

Versions

Crystic 1141PAMV is available as two versions: Crystic 1141PAMVS for summer use, and Crystic 1141PAMVW for winter use.

Geltime

The geltime of the resin will be determined by the level of catalyst used, the filler level, and the temperature of the workshop and mould (if heated). Between 1% and 3% catalyst may be used, depending on the temperature. However, gelltimes using AAP based catalysts are less sensitive to changes in catalyst level than MEKP catalysts. Customers are urged to carry out their own tests prior to embarking on production.

Curing of the resin should not be carried out at temperatures below 15°C. The resin, mould and workshop should all be at or above, 15°C before curing is carried out. Scott Bader (Pty) Ltd. will not be liable for problems caused by use at lower temperatures than recommended.

N.B. Peroxide catalysts are highly reactive and may decompose with explosive violence, or cause fires, if they come into contact with flammable materials, metals or accelerators. For this reason they must never be stored in metal containers or be mixed directly with accelerators.

Exotherm

The exotherm produced during the cure of the resin will depend on the amount of catalyst used. An increase in the temperature of the mould or the liquid resin will result in a higher peak exotherm. This will also be affected by other factors, such as the use of fillers, component thickness and the material from which the mould is constructed. For further recommendations please consult Scott Bader Technical Service Department.

Additives

Crystic 1141PAMV may be coloured using up to 5% of Crystic Pigment Paste. If other additives are to be used, please contact Scott Bader Technical Service Department before proceeding. Crystic 1141PAMV may be filled with up to 50% (100phr) of fine filler; grades such as Kulubrite[®] 5 (calcium carbonate) or Eggerding[®] M10LF (alumina trihydrate) are suitable. Higher filler loadings are possible but generally this requires the use of mixtures of coarse and fine fillers, or surface treated fillers.

Fillers should be dispersed in the resin using a high shear mixer such as a Cowles blade. If not used immediately, filled mixes of Crystic 1141PAMV must be kept gently agitated to prevent settling of the filler. Users should be aware that fillers affect the viscosity and geltime of the resin, and are advised to carry out tests before using them in production of parts.

Typical Properties

The following table gives typical properties of Crystic 1141PAMV when tested in accordance with SANS713-2007.

Table 3: Typical properties of liquid Crystic 1141PAMV

Resin		1141PAMVS	1142PAMVW
Property	Units	Nominal value	Nominal value
Viscosity at 25°C	centipoise	160	160
Geltime at 25°C with 1.5% Andonox® PD40	Mins	20	13
Appearance		Pale green	Pale green
Stability in the dark at 25°C	months	4	4

Storage

Crystic 1141PAMV should be stored in the dark in suitable, closed containers. It is recommended that the storage temperature should be less than 20°C where practical, but should not exceed 30°C. Ideally, containers should be opened only immediately prior to use. Where they have to be stored outside, it is recommended that drums be kept in a horizontal position to avoid the possible ingress of water. Wherever possible they should be stored under cover.

Packaging

Crystic 1141PAMV is supplied in 25kg kegs, 225kg drums and 1000kg flowbins. Bulk supplies can be delivered by road tanker.

Health and Safety

Please see the applicable Material Safety Data Sheets, depending on the curing system used.

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SCOTT BADER COMPANY LIMITED

Wollaston, Wellingborough, Northamptonshire, NN29 7RL

Telephone: +44 (0) 1933 663100

Facsimile: +44 (0) 1933 666623

www.scottbader.com