CRYSTIC® 781PALV

Polyester Resin
for Resin Transfer Moulding

Introduction
Crystic 781PALV is a pre-aceelerated, orthophthalic polyester resin, designed for use in RTM and RTM Light processes. A non-accelerated version of this resin is available, as Crystic 781LV.

Applications
Crystic 781PALV is especially suited to those Resin Transfer Moulding applications which require the addition of filler to the resin system. In RTM Light applications Crystic 781PALV is recommended to be used un-filled.

Features and Benefits
The viscosity characteristics of Crystic 781PALV allow the addition of up to 40 parts per hundred of filler, with no adverse effect on flow properties. This means that the filled resin mix can be easily injected into the RTM mould. In RTM Light applications the viscosity characteristics of Crystic 781PALV ensure excellent flow through the mould. Crystic 781PALV has good mechanical properties and impact resistance.

Formulation
Crystic 781PALV should be allowed to attain workshop temperature (18°C — 20°C) before use. It requires only the addition of a catalyst to start the curing reaction. The recommended catalyst is Trigonox 44B (acetyl acetone peroxide), which should be added at 1-2% into the resin. Trigonox 524, an acetyl acetone peroxide/tert-butyl peroxybenzoate mixture developed specifically to obtain a more efficient cure in RTM, can also be used. Geltimes of Crystic 781PALV can be approximately determined from the Table below.

Pot Life

Temperature	Pot Life in minutes using Trigonox 44B		
	1.0	1.5	2.0
Pot life in minutes at 20ºC	-	-	8.5
Pot life in minutes at 25ºC	-	-	6
Pot life in minutes at 40ºC	5	3.5	2

The resin, mould and workshop should be at, or above 15°C before curing is carried out.

Additives
The addition of pigment pastes, fillers or other additives can adversely affect the Resin Transfer Moulding process and the properties of the cured laminate. Users should consult Scott Bader's Technical Service Department before making any such additions.

Post Curing
For optimum properties, laminates made using Crystic 781PALV 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 a minimum of 16 hours at 40°C or 3 hours at 80°C.

Typical Properties
The following tables give typical properties of Crystic 781PALV when tested in accordance with the appropriate BS or BS EN ISO test method.

Property		**Liquid Resin**
Appearance		Mauvish
Viscosity at 25 ºC	Poise	1.75
Volatile Content	%	42
Specific Gravity at 25 ºC		1.09
Stability at 20 ºC	months	3
Geltime at 20 ºC using 2% Trigonox 44B	minutes	8.5
Property		**Fully Cured* Resin (unfilled casting)**
Barcol Hardness (Model GYZJ 934-1)		48
Deflection Temperature under load † (1.80 MPa)	ºC	78
Water Absorption 24 hours at 23ºC	mg	19
Tensile Strength	MPa	72
Tensile Modulus	MPa	3600
Elongation at Break	%	3.1
Specific Gravity at 20ºC		1.2

* Curing schedule – 24 hours at 20 ºC, 3 hours at 80ºC
† Curing schedule – 24 hours at 20 ºC, 5 hours at 80ºC, 3 hours at 120ºC

Property		**C.S.M** Laminate**
Glass Content	%	28
Tensile Strength	MPa	96
Tensile Modulus	MPa	7400
Elongation at Break	%	1.6
Flexural Strength	MPa	184
Flexural Modulus	MPa	5800
Notched Izod Impact Strength	kJ/m^2	74
Charpy Impact Strength	kJ/m^2	70

** Made with 1 layer Rovicore 600 D3 600
Curing schedule – 24 hours at 20ºC, 16 hours at 40ºC

Storage
Crystic 781PALV should be stored in the dark in suitable closed containers. It is recommended that the storage temperature should be less than 20ºC where practical, but should not exceed 30ºC. Ideally, containers should be opened only immediately prior to use.

Packaging
Crystic 781PALV is supplied in 25kg, 200kg and 1 tonne containers. Bulk supplies can be delivered by road tanker.

Health & Safety
Please see separate Material Safety Data Sheet.

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