CRYSTIC® 471 PALV

Low viscosity fast curing resin for quick production cycles

Introduction
Crystic 471PALV is a pre-accelerated, low viscosity polyester resin with rapid hardening characteristics. It combines rapid impregnation of reinforcements and fillers with a very short mould release time, and is suitable for hand-lay or spray applications. Crystic 471PALV is recommended for automotive, marine and resin concrete applications.

Approvals
Crystic 471PALV is approved by Lloyd's Register of Shipping for use in the construction of craft under their survey. It also meets the requirements of BS 3532:1990, Type A.

Product Characteristics

Formulation
Crystic 471PALV should be allowed to attain workshop temperature (18ºC - 20ºC) before use. It requires only the addition of a catalyst to start the curing reaction. The recommended catalysts are Catalyst M (or Butanox M50) or, where ambient temperatures are high, Catalyst O (or Interox LA3). Either catalyst should be added at 1% or 2% into the resin and thoroughly dispersed. The geltime of the resin can be approximately determined from the table below.

Pot Life

Parts of Catalyst M to 100 Parts Resin	2.0
Pot life in Minutes at 15ºC	18
Pot life in Minutes at 20ºC	12
Pot life in Minutes at 25ºC	8

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

Additives
Crystic 471PALV may be pigmented by the addition of up to 10% of Crystic Pigment Paste. The addition of fillers may change the hardening rate of the resin, and should be evaluated before large scale use.

Post Curing
Satisfactory laminates for many applications can be made with Crystic 471PALV by curing at workshop temperature (20ºC). For optimum properties and long term performance, however, laminates should be post cured before being put into service. Mouldings should be allowed to cure for 24 hours at 20ºC, and then be oven cured for 3 hours at 80ºC or 16 hours at 40ºC.

Typical Properties
The following tables give typical properties of Crystic 471PALV when tested in accordance with BS 2782.

On liquid resin		
Appearance		Cloudy, mauvish
Viscosity @ 25ºC 37.35 sec-1	poise	3.8
Viscosity @ 25ºC 4500 sec-1	poise	2.4
Specific Gravity @ 25ºC		1.11
Volatile Content	%	42
Acid Value	mg KOH/g	18
Stability in the dark @ 20ºC	months	3
Geltime @ 25ºC using 2% Catalyst M	minutes	8

On fully cured* resin (unfilled casting)		
Barcol Hardness (Model GYZJ 934-1)		47
Deflection Temperature under load † (1.80 MPa)	ºC	78
Water Absorption 24 hours at 23ºC	mg	18
Tensile Strength	MPa	68
Tensile Modulus	MPa	3700
Elongation at Break	%	2.5
Specific Gravity at 25ºC		1.22

* Curing Schedule - 24 hrs @ 20ºC, 3 hrs @ 80ºC
† Curing Schedule - 24 hrs @ 20ºC, 5 hrs @ 80ºC, 3 hrs @ 120ºC

On C.S.M Laminate**			
		PB	**EB**
Glass Content	%	27.5	28.8
Tensile Strength	MPa	99	96
Tensile Modulus	MPa	6100	6700
Elongation at Break	%	2.0	1.6
Flexural Strength	MPa	218	176
Flexural Modulus	MPa	6300	6200

** Made with 4 layers 450g/m2 CSM
Curing schedule - 24hrs @ 20ºC, 16hrs @ 40ºC

Storage
Crystic 471PALV 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. Where they have to be stored outside, it is recommended that they are kept in a horizontal position to avoid the possible ingress of water.

Packaging
Crystic 471PALV is supplied in 25kg and 200kg containers. Bulk supplies can be delivered by road tanker.

Health & Safety
Please see separate Material Safety Data Sheet.

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