

CRYSTIC[®] 703PA

Polyester Resin for Vacuum Injection

Introduction

Crystic 703PA is a pre-accelerated, DCPD based polyester resin with low viscosity and controlled exotherm characteristics.

Approvals

Crystic 703PA is approved by Lloyd's Register of Shipping for use in construction of craft under their survey.

Applications

Crystic 703PA was developed primarily as a Vacuum Injection resin, but its properties make it suitable for use in other, similar techniques. The viscosity and exotherm characteristics of Crystic 703PA make it particularly suitable for the manufacture of large structures by Vacuum Injection methods.

Features and Benefits

Crystic 703PA has excellent mechanical properties and impact resistance. It is compatible with most reinforcement types.

Formulation

Crystic 703PA 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 Catalyst M (or Butanox M50), 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. Geltimes of Crystic 702PAX and Crystic 702PA, using various catalyst levels, can be approximately determined from the table below.

Pot Life

Temperature	Pot Life in minutes using Butanox M50		
	Crystic 703PA		
	1.0% M50	1.5% M50	2.0% M50
Pot life in minutes at 15°C	318	196	140
Pot life in minutes at 20°C	205	124	84
Pot life in minutes at 25°C	128	84	64

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

Additives

The addition of fillers or pigment pastes can adversely affect the Vacuum Injection process and also the properties of the cured laminate. Users should seek the advice of Scott Bader's Technical Service Department before making any additions.

Post Curing

Satisfactory laminates for many applications can be made from Crystic 703PA by curing at workshop temperature (20°C). For optimum properties, however, laminates should be postcured before being put into service. The laminate should be allowed to cure for 24 hours at 20°C, and then be oven cured for 16 hours at 40°C or 3 hours at 80°C.

Typical Properties

The following tables give typical properties of Crystic 703PA when tested in accordance with BS or BS EN ISO test method.

Property		Liquid Resin	
Appearance		Mauvish	
Viscosity at 25 °C	Poise	1.6	
Volatile Content	%	28	
Acid Value	Mg KOH/g	22	
Stability at 20 °C	months	3	
Geltime at 20 °C using 1.5% Butanox M50	minutes	124	
Property		Fully Cured* Resin (unfilled casting)	
		(1)	(2)
Barcol Hardness (Model GYZJ 934-1)		42	43
Deflection Temperature under load (1.80 MPa)	°C	59	64
Water Absorption 24 hours at 23°C	mg	-	11
Tensile Strength	MPa	49	38
Tensile Modulus	MPa	2758	3162
Elongation at Break	%	2.1	1.3

(1) Curing schedule – 24 hours at 20 °C, 16 hours at 40°C

(2) Curing schedule – 24 hours at 20 °C, 3 hours at 80°C

Property		C.S.M** Laminate
Glass Content	%	25
Tensile Strength	MPa	75
Tensile Modulus	MPa	6170
Elongation at Break	%	1.54
Flexural Strength	MPa	1185
Flexural Modulus	MPa	5180

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

Storage

Crystic 703PA 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.

Packaging

Crystic 703PA is supplied in 25kg, 225kg and 1.1 tonne containers. Bulk supplies can be delivered by road tanker.

Health & Safety

Please see separate Material Safety Data Sheet.

Version 2 : February 2013

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