

# CRYSTIC 701PAX

## Polyester Resin for Vacuum Injection

### Introduction

Crystic 701PAX is a pre-accelerated, isophthalic polyester resin with low viscosity and controlled exotherm characteristics.

### Applications

Crystic 701PAX 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 701PAX make it particularly suitable for the manufacture of large structures by Vacuum Injection methods. Where longer geltimes are required, Crystic 701PA should be used.

### Features & Benefits

Fully cured laminates made with Crystic 701PAX have excellent strength retention in wet environments. Crystic 701PAX is compatible with most reinforcement types, including carbon fibre and polyaramids such as Kevlar®.

### Product Characteristics

#### FORMULATION

Crystic 701PAX 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 701PAX and Crystic 701PA, using various catalyst levels, can be approximately determined from the table below.

#### POT LIFE

Temperature	Pot Life in Minutes Using Catalyst M (Butanox M50)					
	701PAX			701PA		
	1.0 M	1.5 M	2.0 M	1.0 M	1.5 M	2.0 M
15°C	-	-	54	-	-	149
20°C	85	48	34	233	158	105
25°C	-	-	21	-	-	59

The resin, mould and workshop should all 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 advice from our Technical Service Department before making any additions.

## POST CURING

Satisfactory laminates for many applications can be made from Crystic 701PAX 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 701PAX when tested in accordance with the appropriate BS or BS EN ISO test method.

Property		Liquid Resin
Appearance		Mauvish
Viscosity at 25°C	poise	1.6
Specific Gravity at 25°C		1.08
Volatile Content	%	50
Stability in the dark at 20°C	months	3
Geltime at 25°C using 1% Catalyst M (or Butanox M50)	minutes	85

Property		Fully Cured* Resin (Unfilled Casting)
Barcol Hardness (Model GYZJ 934-1)		35
Deflection temperature under load† (1.80MPa)	°C	75
Water Absorption	mg	10
Tensile strength	MPa†	66
Tensile modulus	MPa†	3580
Elongation at break	%	2.5
Specific gravity at 20°C		1.19

\* Curing Schedule – 24 hrs @ 20°C, 3 hrs @ 80°C

† Curing Schedule – 24 hrs @ 20°C, 5 hrs @ 80°C, 3 hrs @ 120°C

Property		Laminate**
Glass Content	%	38
Tensile strength	MPa	154
Tensile modulus	MPa	8350
Elongation at break	%	2.3
Flexural strength	MPa	194
Flexural modulus	MPa	8200
Notched Izod Impact Strength	kJ/m <sup>2</sup>	101
Charpy Impact Strength	kJ/m <sup>2</sup>	79

\*\* Made with 1 layer Rovicore 600 D3 600  
Curing Schedule – 24 hrs @ 20°C, 16 hrs @ 40°C

## **Storage**

Crystic 701PAX 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 701PAX is supplied in 25kg, 200kg and 1tonne containers. Bulk supplies can be delivered by road tanker.

## **Health & Safety**

Please see separate Material Safety Data Sheet.



Scott Bader Company Limited  
Wollaston, Wellingborough,  
Northamptonshire NN29 7RL  
Telephone: +44 (0) 1933 663100  
Facsimile: +44 (0) 1933 664592  
[www.scottbader.com](http://www.scottbader.com)



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