

# CRYSTIC<sup>®</sup> 702PAX

## Polyester Resin for Vacuum Injection

### Introduction

Crystic 702PAX is a pre-accelerated, orthophthalic polyester resin with low viscosity and controlled exotherm characteristics.

### Applications

Crystic 702PAX 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 702PAX make it particularly suitable for the manufacture of large structures by Vacuum Injection methods. Where longer geltimes are required, Crystic 702PA should be used.

### Features and Benefits

Crystic 702PAX has excellent mechanical properties and impact resistance. It is compatible with most reinforcement types, including polyaramids, such as Kevlar<sup>®</sup>.

### Formulation

Crystic 702PAX 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 Catalyst M (Butanox M50)					
	Crystic 702PAX			Crystic 702PA		
	1.0 M	2.0 M	3.0 M	1.0 M	2.0 M	3.0 M
Pot life in minutes at 15°C	-	-	41	-	-	120
Pot life in minutes at 20°C	65	33	25	192	98	67
Pot life in minutes at 25°C	-	-	16	-	-	40

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 702PAX 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 702PAX when tested in accordance with 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
Acid Value	Mg KOH/g	22
Stability at 20 °C	months	3
Geltime at 25 °C using 1% Catalyst M (or Butanox M50)	minutes	65
Property		Fully Cured* Resin (unfilled casting)
Barcol Hardness (Model GYZJ 934-1)		42
Deflection Temperature under load † (1.80 MPa)	°C	74
Water Absorption 24 hours at 23°C	mg	20
Tensile Strength	MPa	44
Tensile Modulus	MPa	3890
Elongation at Break	%	1.2
Specific Gravity at 25 °C		1.20

\* Curing schedule – 24 hours at 20 °C, 3 hours at 80°C

† Curing schedule – 24 hours at 20 °C, 5 hours at 80°C, 3 hours at 120 °C

Property		C.S.M** Laminate
Glass Content	%	38
Tensile Strength	MPa	115
Tensile Modulus	MPa	6600
Elongation at Break	%	2.3
Flexural Strength	MPa	180
Flexural Modulus	MPa	8250

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

**Storage**

Crystic 702PAX 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 702PAX 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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