

# CRYSTIC<sup>®</sup> PD 9453PA

## Fire Retardant Polyester Resin for Resin Transfer Moulding

### Introduction

Crystic PD 9453PA is a pre-accelerated, filled polyester resin designed for use in RTM.

### Applications

Crystic PD 9453PA is suitable for use in the building and land transport industries, and for general RTM and Vacflo applications.

### Features & benefits

The viscosity characteristics of Crystic PD 9453PA have been designed to facilitate flow through the mould, while minimising filler settlement during storage.

### Approvals

Fully cured laminates moulded with Crystic PD 9453PA can obtain a Class 1 rating to B.S. 476 Part 7: 1987.

### Product characteristics

#### Formulation

Crystic PD9453PA must be thoroughly stirred and allowed to attain workshop temperature ( 18°C - 20°C ) before use. It needs only the addition of a catalyst to start the curing reaction. The recommended catalyst is Trigonox 44B which should be added at 1-2% into the resin. The gelltime of Crystic PD9453PA can be approximately determined from the table below.

### Pot life

Temperature	Pot life in minutes using Trigonox 44B		
	1.0	1.5	2.0
20°C	-	-	20
25°C	-	-	13
40°C	5	4.5	4
50°C	-	-	2

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

### Additives

Crystic PD 9453PA can be supplied in a restricted range of colours. This eliminates the potential for mixing errors with small quantities of Pigment Paste. The addition of Pigment Paste to Crystic PD 9453PA is not recommended due to the difficulty in obtaining specific colours. The addition of any pigment or other additives may 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

Satisfactory laminates for many applications can be made from Crystic PD9453PA by curing at workshop temperature (20°C). For optimum properties, however, laminates 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 16 hours at 40°C or 3 hours at 80°C.

### Typical properties

The following tables give typical properties of Crystic PD 9453PA when tested in accordance with the appropriate BS or BS EN ISO test method.

Property		Liquid resin
Appearance		Pinkish white
Viscosity at 25°C	Poise	1.7
Specific gravity at 20°C		1.48
Volatile content	%	76
Stability in the dark at 25°C	Months	3
Geltime at 25°C using 2% Trigonox 44B	Minutes	13

Property		Fully cured* resin (unfilled casting)
Barcol hardness (GYZJ 934 - 1)		50
Deflection temperature under load † (1.80 MPa)	°C	80
Water Absorption 24hrs @ 23°C	mg	17
Tensile strength	MPa	41
Tensile modulus	MPa	4050
Elongation at break	%	1.45

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

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

Property		**Laminate
Glass content	%	14.5
Tensile strength	MPa	67
Tensile modulus	MPa	5425
Elongation at break	%	1.9
Flexural strength	MPa	164
Flexural modulus	MPa	6650
Notched Izod impact	kJ/m <sup>2</sup>	104
Charpy impact	kJ/m <sup>2</sup>	41

\*\* Made with 1 layer Rovicore 600 D3 600  
Curing Schedule - 24hrs @ 20°C, 3hrs @ 80°C

**Storage**

Crystic PD 9453PA 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 PD 9453PA is supplied in 225kg steel containers.

**Health & Safety**

Please see separate Materials Safety Data Sheet.

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