

# CRYSTIC<sup>®</sup> 2-420 PA

## Introduction

Crystic 2-420PA is a low styrene emission, pre-accelerated orthophthalic polyester resin. It has a long gel time and low exotherm, which make it suitable for the moulding of large structures and for multi layering. Crystic 2-420PA is available pigmented white and all the information contained in this leaflet also applies to this version.

## Approvals

Crystic 2-420PA is approved by Lloyd's Register of Shipping for use in the construction of craft under their survey.

## Formulation

Crystic 2-420PA should be allowed to attain workshop temperature (18°C-20°C) before use. Stir well by hand, or with a low shear mixer to avoid aeration, and then allow to stand to regain thixotropy. Crystic 2-420PA requires only the addition of catalyst to start the curing reaction, and has a built-in colour change mechanism to indicate this. The recommended catalyst is Catalyst M (or Butanox M50) which should be added at 1.5% into the resin. (Please consult our Technical Service Department if other catalysts are to be used).

## Pot Life

Temperature	Catalyst M (Butanox M50)		
	1.0%	1.5%	2.0%
15°C	-	100 minutes	74 minutes
20°C	96 minutes	65 minutes	50 minutes
25°C	63 minutes	42 minutes	-

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

## Application

Crystic 2-420PA is designed for hand or spray laminating.

## Additives

The addition of filler or pigments may adversely affect the hardening of the resin. Users should evaluate the effect of any potential additives before use.

## Post Curing

Satisfactory laminates for many applications can be made with Crystic 2-420PA by curing at workshop temperature (20°C). However, for optimum properties, laminates must be post-cured before being put into service. The moulding should be allowed to cure for 24 hours at 20°C, and then be oven-cured for 3 hours at 80°C.

## Typical Properties

The following tables give typical properties of Crystic 2-420PA when tested in accordance with BS2782.

Property			Liquid Resin
Appearance			Greenish/blue Thixotropic
Viscosity at 25°C	37.35 sec <sup>-1</sup>	poise	4.2
Viscosity at 25°C	4500 sec <sup>-1</sup>	poise	2
Specific Gravity at 25°C			1.1
Acid Value		mgKOH/g	2.2
Stability at 20°C		months	3
Gellime at 20°C using 2% Catalyst M (Butanox M50)		minutes	65

Property		Fully Cured (Unfilled casting)	
		*	**
Barcol Hardness (model GYZJ 934-1)		41	35
Water Absorption 24 hrs at 23°C	mg	16.9	14.0
Deflection Temperature under load (1.80 MPA)	°C	57†	53
Elongation at Break	%	1.3	2.0
Tensile Strength	MPa	44	46
Tensile Modulus	MPa	3680	3030

Property		Fully cured laminate ††	
Water Absorption 24 hrs at 23°C	mg	20	13
Elongation at Break	%	1.9	1.8
Tensile Strength	MPa	108	101
Tensile Modulus	MPa	7500	7200
Flexural Strength	MPa	200	182
Flexural Modulus	MPa	6200	5700
Compressive Strength	MPa	185	156

\* Curing schedule - 24 hrs at 20°C, 3 hrs at 80°C

\*\* Curing schedule - 24 hrs at 20°C, 16 hrs at 40°C

† Curing schedule - 24 hrs at 20°C, 5 hrs at 80°C, 3 hrs at 120°C

†† Laminate made with 4 layers 450 g/m<sup>2</sup> EB mat.

### Storage

Crystic 2-420PA 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. Where they have to be stored outside, it is recommended that they are kept in a manner that avoids the possible ingress of water.

### Packaging

Crystic 2-420PA is supplied in 25 kg and 200 kg containers. Bulk supplies can be delivered by road tanker.

### Health & Safety

Please see separate Material Safety Data Sheet.

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