

CRYSTIC GELCOAT 251PA

Low Styrene Emission Isophthalic Brush Gelcoat for Use with Epoxy Laminating Systems

Introduction

Crystic Gelcoat 251PA is a very low styrene emission, pre-accelerated, isophthalic gelcoat designed as an in-mould gelcoat with excellent adhesion to epoxy resins and pre-pregs without the need for a tie-coat. Formulated for brush application, Crystic Gelcoat 251PA is available in a wide range of colours and the information contained in this technical data sheet also applies to these pigmented versions.

Applications

Crystic Gelcoat 251PA is designed for use with wet lay and vacuum injected epoxy systems.

If 251PA is used as a gelcoat with polyester laminating systems, then adhesion failure is likely to occur. Similarly if 251PA is “double gelled”, then this is also likely to lead to adhesion failure. For these reasons, neither of these procedures is recommended.

It is not recommended for use in any application which is subject to continuous immersion in water.

Features and Benefits

Crystic Gelcoat 251PA has good epoxy bonding characteristics and excellent weather resistance.

It has been shown to give a robust, reliable bond with a number of wet lay, and vacuum injection, epoxy resin systems, but users should check with their specific epoxy system supplier or perform a test themselves before proceeding with use.

Formulation

Crystic Gelcoat 251PA 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 Gelcoat 251PA requires only the addition of catalyst to start the curing reaction. The recommended catalyst is Butanox M50 (or other equivalent catalyst), which should be added at 1-2% into the gelcoat. (Please consult our Technical Service Department if other catalysts are to be used). The catalyst should be thoroughly incorporated into the gelcoat, with a low shear mechanical stirrer where possible.

Pot Life

Temperature	Pot Life in Minutes
15°C	25
20°C	15
25°C	10

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

Application

For normal moulding, the application of Crystic Gelcoat 251PA should be controlled to 0.4-0.5 mm (0.015-0.020 inch) wet film thickness. As a guide, approximately 450-600 g/m² of gelcoat mixture (depending on pigment) will give the required thickness when evenly applied. The recommended application temperature is between 15 and 25 °C. Outside of this temperature range, users should ensure that they are satisfied with the gelcoat/laminate bond obtained. The delay period prior to laminating should be a minimum of 1 hour and a maximum of 24 hours at ambient temperatures. Higher curing temperatures will mean the gelcoat curing faster and the maximum time for back-up will reduce. Prepregs that can be used with Crystic Gelcoat 251PA should have a cure temperature of at least 80 - 85°C to ensure adequate adhesion.

Additives

Crystic Gelcoat 251PA is supplied in a wide range of colours. This eliminates the potential for mixing errors with small quantities of pigment paste. The addition of fillers or other additives can adversely affect the properties of the gelcoat and are not recommended.

Recommended Testing

It is recommended that customers test Crystic Gelcoat 251PA before use under their own conditions of application to ensure the required surface finish and adhesion is achieved.

Typical Properties

The following tables give typical properties of Crystic Gelcoat 251PA when tested in accordance with SB, BS, EN or BS, EN, ISO test methods.

Property		Liquid Gelcoat
Appearance		mauvish, cloudy
Viscosity at 25°C		thixotropic
Specific Gravity at 25°C		1.11
Volatile Content	%	34
Geltime at 25°C using 2% Butanox M50 (or other equivalent catalyst)	minutes	9
Stability at 20°C	months	3

Property		Fully cured* (unfilled casting)
Barcol Hardness (Model GYZJ 934-1)		44
Water Absorption 24hrs at 23°C	mg	17
Deflection Temperature under load (1.80MPa)†	°C	68
Elongation at Break	%	2.1
Tensile Strength	MPa	66
Tensile Modulus	MPa	4000

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

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

Post-Curing

Satisfactory laminates for many applications can be made with Crystic Gelcoat 251PA by curing at workshop temperature (20°C). However, for optimum properties, laminates must be post-cured before being put into service. Post cure temperatures up to 80°C can be used with no noticeable discolouration of the gelcoat, but for appropriate post cure schedules, users should refer to their supplier's recommendations.

Storage

Crystic Gelcoat 251PA should be stored in its original container and out of direct sunlight. 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 Gelcoat 251PA is supplied in 25kg and 225kg containers.

Health and Safety

See separate Material Safety Data Sheet.

January 2010
Version 2