

# CRYSTIC<sup>®</sup> Envirotec LS88PA

## Brush Gelcoat with Excellent Weather Resistance

### Introduction

Crystic Envirotec LS88PA is a pre-accelerated, isophthalic gelcoat. It has been formulated for brush application, but spray versions are available. A wide range of colours is available and the information contained in this leaflet also applies to these pigmented versions.

### Applications

Crystic Envirotec LS88PA is designed for general use in brush gelcoat applications.

### Approvals

Crystic Envirotec LS88PA is approved by Lloyd's Register of Shipping for construction of craft under their survey. The gelcoat base has also been tested in accordance with BS EN ISO 12215-1:2000.

### Features and Benefits

Crystic Envirotec LS88PA is a low styrene gelcoat maintaining excellent exterior weather resistance, typically containing 25-27% styrene when formulated as a pigmented gelcoat.

### Formulation

Crystic Envirotec LS88PA 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 Envirotec LS88PA requires only the addition of catalyst to start the curing reaction. The recommended catalysts are Norox<sup>®</sup> KP9, and Norox<sup>®</sup> MEKP-925H, which should be added according to the recommendations in table 1. (Please consult our Technical Service Department if other catalysts are to be used).

N.B. Peroxide catalysts are highly reactive and may decompose with explosive violence, or cause fires, if they come into contact with flammable materials, metals or accelerators. For this reason they must never be stored in metal containers or be mixed directly with accelerators.

### Pot life

The temperature, and the amount of catalyst affect the geltime, and hence pot life, of Crystic Envirotec LS88PA, as shown in Table 1.

**Table 1:** Geltimes using varying amounts and types of catalyst in Crystic Envirotec LS88PA

Catalyst type		Norox <sup>®</sup> KP9			Norox <sup>®</sup> MEKP-925H	
		3%	2%	1%	2%	1%
Temp.	35°C				13	33
	30°C				23	
	25°C		10	32		
	20°C	12	18			
	15°C	27				

### Application

For normal moulding, the application of Crystic Gelcoat LS88PA should be controlled to 0.4-0.5 mm (0.015-0.020 inch) wet film thickness. As a guide, approximately 450-600 g/m<sup>2</sup> of gelcoat mixture (depending on pigment) will give the required thickness when evenly applied.

### Do

- Use clean brushes and containers.
- Ensure that the gelcoat is well stirred in its container before measuring quantities for use.
- Measure catalyst carefully and thoroughly stir it into the gelcoat.
- Ensure that the mould temperature is close to that of the gelcoat. Even if the gelcoat is kept warm in its container, applying it to a cold mould will absorb all the heat and cause it to cure slowly. Applying cold gelcoat with an appropriate catalyst level to a warm mould will result in too fast a film geltime and possibly cause pinholes.
- Brush the gelcoat onto the mould using even, long, vigorous strokes, dipping the brush into the gelcoat often. As a rule, each brush load should cover the length of your forearm.
- Ensure that the gelcoat is well sheared by the brush when applying it. The bristles must touch the mould surface.
- Touch up thin patches by adding extra gelcoat, not by brushing over from the gelcoat nearby.

### Don't

- Use brushes contaminated with cleaning solvents or moisture.
- Brush the gelcoat out too far – it is designed to be applied at 0.5mm thickness with the proper brush technique.
- Apply too thick a layer – this can cause pre-release, and runs can cause colour streaking.
- Mix fillers into gelcoat.
- Thin with styrene, acetone or thinners.
- Allow puddles and blobs of gelcoat to accumulate on the mould, or pour it onto the mould and use this as a reservoir for brushing. This may cause pinholes and colour streaking.
- Begin laminating too soon. The back-up time will vary with temperature, but a good test is to touch the back of the gelcoat with a thumb. It will feel tacky but none should transfer to the skin.
- Use low catalyst levels in order to give a long pot life. This can result in undercure. Rather mix smaller quantities so they can be used up within the pot life.

### Additives

Crystic Envirotec LS88PA is supplied as a natural gelcoat, and in a wide range of colours. This eliminates the potential for mixing errors with small quantities of pigment paste. The addition of fillers or pigments can adversely affect the water and weather resistance of the cured gelcoat. Crystic Envirotec LS88PA can be used as a topcoat provided that 2% Crystic Solution MW is added to overcome the normal tackiness.

### Typical Properties

The following tables give typical properties of Crystic Envirotec LS88PA when tested in accordance with BS2782.

**Table 2:** Typical properties of liquid Crystic Envirotec LS88PA.

Property	Units	Nominal value
Appearance		Mauvish, cloudy (natural)
Viscosity at 25°C (Brookfield RVT; sp 5 @ 20rpm)	Cps	51500
Thixotropic Index	Ratio	4.5
Specific Gravity at 25°C		1.11 (natural)
Styrene content	%	26.8 (natural)
Gel time at 25°C using 2% Norox KP9 catalyst	minutes	10
Stability in the dark at 20°C	months	3

**Table 3:** Typical properties of cast fully cured \* white Crystic Envirotec LS88PA (unfilled casting).

Property	Units	Nominal value
Barcol Hardness (Model GYZJ 934-1)		50
Water Absorption 24 hrs at 23°C	mg	17
Deflection Temperature under load † (1.80 MPa)	°C	70
Elongation at Break	%	2.3
Tensile Strength	MPa	60
Tensile Modulus	MPa	3850

\*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 Envirotec LS88PA 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.

### Storage

Crystic Envirotec LS88PA 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 drums be kept in a horizontal position to avoid the possible ingress of water. Wherever possible, containers should be stored under cover.

### Packaging

Crystic Envirotec LS88PA is supplied in 25kg and 225kg containers.

### Health and Safety

Please see separate Material Safety Data Sheet.

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Before you use this information, kindly verify that this data sheet is the latest version.

All information is given in good faith but without warranty. We cannot accept responsibility or liability for any damage, loss or patent infringement resulting from the use of this information.

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