Crystic® Gelcoat LS 97PA

Low Styrene Emission Isophthalic Gelcoat for Spray Application

GELCOATS

Product Description and Approvals

Crystic® Gelcoat LS 97PA is a high performance isophthalic gelcoat. It is filled, pre-accelerated and formulated for spray application.
Crystic® Gelcoat LS 97PA has been developed to have excellent intrinsic water and weather resistance. The viscosity profile ensures even coverage with minimal drainage and low film porosity.
Crystic® Gelcoat LS 97PA is recommended for use in the marine, building and transport industries. It is also suitable for general moulding requirements. Crystic® Gelcoat LS 97PA is approved by Lloyd's Register of Shipping.

Features and Benefits

Features	Benefits
Isophthalic base resin	Excellent water / blistering resistance
High elongation	Good impact resistance
Easy to apply	Excellent surface finish
Low styrene emission	Less exposure to the environment and workers

Spray set up

Application temperature	15 - 25°C
Catalyst	2% Butanox® M-50 or equivalent catalyst.
Nozzle airless gun	423 - 535
Pressure	3 to 4.5 bars
Distance to mould	50 cm minimum
Wet film thickness	600 - 800 microns

Spray Application

Do	Don't
Ensure the gelcoat has attained workshop temperature of 15°C - 25°C before use.	Stir the gelcoat with high shear mixers as this will temporarily break down the thixotropy leading to drainage.
Add 2% Butanox® M-50 or equivalent catalyst.	Exceed a wet film thickness of 800 microns as thick films encourage air retention.
Gently stir the gelcoat by hand or low shear stirrer.	Apply excessive thickness in corner areas as this can cause pre-release.
Spray at the minimum practical pressure whilst maintaining an acceptable spray pattern and full fan width.	Apply backing laminate before the gelcoat has reached an appropriate degree of cure.
Apply a mist coat and then build up thickness in long, even passes of 100 - 150 microns until the recommended wet film thickness of 600 – 800 microns is reached.	Catalyse more gelcoat than can be applied before it starts to gel.
Apply the first layer of laminate within 24 hours of the gelcoat.	Allow vapour to be retained in deep mould sections as this can cause slow curing.

Additives and Variants

The information contained in this technical data sheet applies to all pigmented versions.
A topcoat version of this material is available called LS 97PAX. The topcoat can be formulated by addition of 2% Crystic® Solution MW into the gelcoat.
Incorporation of additional material may affect the working, weathering or cured properties of the gelcoat. Please check with Scott Bader's Technical Service department before using the gelcoat outside of specified parameters.

Post-Curing

Satisfactory laminates for many applications can be made with Crystic® Gelcoat LS 97PA by curing at workshop temperature (15°C - 25°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 workshop temperature and then oven-cured for 16 hours at 40°C

Recommended Testing
It is recommended that customers test all gelcoats before use under their own conditions of application to ensure that the product meets requirements.

Typical Properties – Uncured

Property	Typical Value
Viscosity, 25°C 0.6s^{-1}	250 poise
Viscosity, 25°C 4500s^{-1}	2.4 poise
Specific Gravity at 25°C	1.2
Styrene Content	32 - 33 %

Typical Properties – Cured

Property	Test Method	Typical Value
Barcol Hardness (Model GYZJ 934-1)	EN59	36
Water Absorption 24 hrs at 23°C	BS EN ISO 62 part 6.2	17 mg
Heat Deflection Temperature† (1.8MPa)	BS EN ISO 75-2 (1996)	63°C
Elongation at Break*	BS EN ISO 527-2	4.7%
Tensile Strength*	BS EN ISO 527-2	74 MPa
Flexural Strength*	BS EN ISO 178	110 MPa
Flexural Modulus*	BS EN ISO 178	2800 MPa

* Curing Schedule - 24hrs at 20°C, 3hrs at 80°C.
† Curing Schedule - 24hrs at 20°C, 5hrs at 80°C, 3hrs at 120°C.

Gel time & Backup time
Catalyst level and temperature will influence the gel time. The product only requires the addition of catalyst to start curing. We recommend the use of a 50% MEKP (type Butanox® M-50) which should be added at 2% in the gelcoat.

Temperature	Gel time (2% Butanox® M-50)**	Backup time (2% Butanox® M-50)**
15°C	17 minutes	55 minutes
20°C	15 minutes	45 minutes
25°C	12 minutes	40 minutes
30°C	5 minutes	25 minutes

**Measured under laboratory conditions. Information should be used as a guide only.

Packaging and Storage
Crystic® Gelcoat LS 97PA is available in 25kg, 225kg and 1000kg containers.
Crystic® Gelcoat LS 97PA should be stored in its original container and out of direct sunlight. These must be kept closed and airtight. It is recommended that the storage temperature should be between 10°C - 20°C where practical, and should not exceed 30°C. Storing the product above 30°C may affect the properties of the product and reduce its shelf life. Ideally, containers should be opened only immediately prior to use. Material should be used within 3 months of receipt.

Health and Safety
Read and understand separate Material Safety Data Sheet before using this product. Unsaturated polyester products release heat when they cure in bulk.

Eng - LS 97PA - January 2017

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