

CRYSTIC[®] ECOGEL S1PA

Low Styrene Emission Polyester Gelcoat for Spray Application

Introduction

Crystic Ecogel S1PA is a very low styrene emission polyester spray gelcoat. It is pre-accelerated and has been formulated to offer exceptionally low styrene emission both during the spray application and during the curing period. It is available in RAL colours and the information contained in this technical datasheet also applies to pigmented versions.

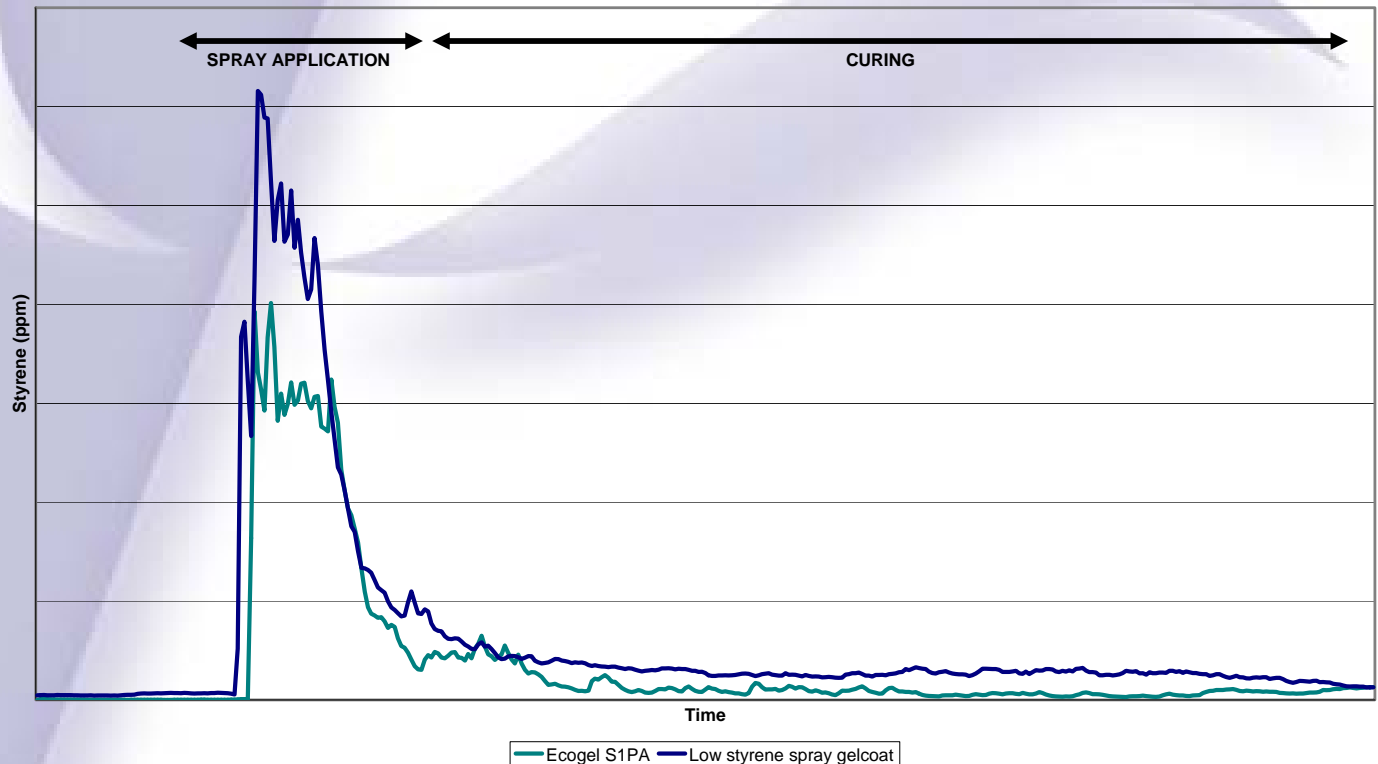
Applications

Crystic Ecogel S1PA is recommended for use in general industrial, land transport and building applications. It is also suitable for general moulding requirements. It is not suitable for a marine environment.

Features and Benefits

Crystic Ecogel S1PA has been developed to ensure very low styrene emission. The chart below demonstrates the performance versus a current low styrene emission spray gelcoat, when styrene emission is measured in the spray booth under comparable conditions using a MiniRae 3000i.

Styrene Emission of Crystic Ecogel S1PA versus Low Styrene Emission Gelcoat During Spray Application



Due to the low styrene content of Crystic Ecogel S1PA, parts manufactured using this gelcoat also display good UV resistance.

Product Characteristics

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

Crystic Ecogel S1PA should be allowed to attain workshop temperature (18°C - 20°C) before use. Stir well by hand or with a low shear stirrer to avoid aeration and then allow to stand to regain thixotropy. Crystic Ecogel S1PA 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 1.5% 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.

Spray Application : Do

- Gently stir the gelcoat before use by hand or low shear stirrer.
- Ensure the gelcoat has attained workshop temperature of 18°C - 20°C before use (temperatures below 18°C will require higher pressure to achieve an acceptable spray pattern and this will encourage porosity).
- Spray at the minimum practical pressure whilst maintaining an acceptable spray pattern and full fan width.
- Apply a mist coat and then build up thickness in long, even passes of 0.125mm (0.005 inch) until the recommended wet film thickness of 0.5 - 0.6mm (0.020-0.025 inch) is reached. This will minimise porosity and colour defects.
- Ensure the first layer of laminate is always applied on the same day as the gelcoat.

Don't

- Stir the gelcoat with high shear mixers as this will temporarily break down the thixotropy leading to drainage.
- Exceed a wet film thickness of 0.600mm (0.025 inch) as thick films encourage air retention.
- Apply excessive thickness in corner areas as this can cause pre-release.
- Leave the gelcoat over 24 hours before applying the backing layers.

Physical Data - Uncured

The following tables give typical properties of Crystic Ecogel S1PA when tested in accordance with SB, BS, BS EN or BS EN ISO test methods.

Property	Method	Liquid Gelcoat
Viscosity, 25°C 0.6s ⁻¹	3.41	300 Poise
Viscosity, 25°C 4500s ⁻¹	3.6	2.6 Poise
Specific Gravity at 25°C	-	1.25
Stability at 20°C	-	3 Months
Styrene Content	-	16%
Geltime 20°C 1.5% Butanox M50 (or Equivalent Catalyst)	5.25	9.5 - 20 Minutes

Physical Data - Cured

The following are typical mechanical properties obtained from the casts of Crystic Ecogel S1PA following a post cure of 24 hours at 23 °C followed by 16 hours at 40 °C:

Mechanical properties	Method	Value
Barcol Hardness (Model 934-1)	EN59	48
Heat Deflection Temperature [†]	BS EN ISO 75-2 (1996)	95°C
Water Absorption 24 hours at 23°C	BS EN ISO 62 part 6.2	18 mg
Tensile Modulus	BS EN ISO 527- 2	4 GPa
Elongation at Break	BS EN ISO 527- 2	2.4%

† Post cure 24 hours at 23°C, 5 hours at 80°C, 3 hours at 120°C

Laminating

Mouldings manufactured using Crystic Ecogel S1PA can be backed-up with any standard polyester laminating system. The gelcoat film will be ready for laminating from approximately 1 hour after spray application (depending on temperature conditions and catalyst loading). The first layer of laminate should always be applied on the same day as the gelcoat.

Post-Curing

Satisfactory laminates for many applications can be made with Crystic Ecogel S1PA 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 post-cured for 3 hours at 80°C.

Storage

Crystic Ecogel S1PA 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 Ecogel S1PA is supplied in 25Kg and 225Kg containers.

Health and Safety

Please see separate Material Safety Data Sheet.

Version 2 : February 2013

All information on this data sheet is based on laboratory testing and is not intended for design purposes. Scott Bader makes no representations or warranties of any kind concerning this data. Due to variance of storage, handling and application of these materials, Scott Bader cannot accept liability for results obtained. The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication.

SCOTT BADER COMPANY LIMITED

Wollaston, Wellingborough, Northamptonshire, NN29 7RL

Telephone: +44 (0) 1933 663100

Facsimile: +44 (0) 1933 666623

www.scottbader.com