

INTRODUCTION

LEO[®] Fireguard[®] GC 78PA is a pre-accelerated fire retardant gelcoat designed for applications requiring the highest levels of fire & smoke performance. This is a halogen-free, intumescent flame retardant gelcoat based on an unsaturated polyester resin formulated for spray application. Due to its unique combination of special flame retarding additives, this gelcoat gives outstanding fire protection properties. When subjected to heat, LEO[®] Fireguard[®] GC 78PA forms a protective layer, preventing the access of oxygen to the substrate. This also prevents further polymer combustion and flame propagation. LEO[®] Fireguard[®] GC 78PA is available in standard white colour and is designed to be post-painted.

FORMULATION

LEO[®] Fireguard[®] GC 78PA should be allowed to attain a working temperature between 23°C-25°C before use for best spraying application. Stir well by hand or with a low shear stirrer to avoid aeration and then allow to stand to regain thixotropy. LEO[®] Fireguard[®] GC 78PA requires only the addition of catalyst to start the curing reaction. The recommended catalyst is MEKP (50%) which should be added at 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.

GELTIMES AND BACK-UP TIMES

Temperature	Geltime (2% MEKP 50%)**	Back-Up Time (2% MEKP 50%)**
15°C	29 minutes	65 minutes
20°C	19 minutes	55 minutes
25°C	12 minutes	40 minutes

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

SPRAY APPLICATION

Do	Don't
Stir the gelcoat by hand or low shear stirrer before use. In the event of any filler sedimentation occurred during storage, make sure this is completely redispersed again in the gelcoat before use.	Allow vapour to be retained in deep mould sections as this can cause slow curing.
Ensure the gelcoat has attained a workshop temperature of 23°C - 25°C before use.	Apply excessive thickness in corner areas as this can cause pre-release.
Add 2% MEKP (50%) or equivalent catalyst. Stir the gelcoat by hand or low shear stirrer.	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 until the recommended wet film thickness of 0.9-1mm (900 – 1000 micron) is reached.	Stir the gelcoat with high shear mixers as this will temporarily break down the thixotropy leading to drainage.
Apply the first layer of laminate within 24 hours of the gelcoat.	Apply less than 900 micron or more than 1000 micron at any place.

Note: The spray application of LEO[®] Fireguard[®] GC 78PA depends on many variables such as; the pump ratio, air input pressure, nozzle tip size and angle, tube hose size diameter and length. As a general rule, we recommend the use of an airless spray machine with a minimum pump ratio of 20:1 and a nozzle size/ angle of 623/ 50°. Alternatively, if using a standard gravity pot gun, use an air pressure between 4 – 5.5 bar (70 – 80 PSI) and a size 8 nozzle tip.

Note: To maximise the fire properties, the gelcoat wet film should be applied at a thickness of 900 – 1000 micron. The laminating process can be carried out approximately 1 hour after gelcoat application thereby ensuring excellent bonding properties between the gelcoat and the backing resin. To ensure adequate adhesion between the gelcoat and the backing resin, lamination must occur within 24h from gelcoat application.

For components that will be exposed to outdoor weather conditions we recommend a suitable protective paint and/ or varnish. The thickness of the final laminate and its entire construction, including any coatings, applications, sandwich components, etc., also has a decisive influence on fire behaviour. Please note that individual component tests are mandatory for most applications (for more details on laminate constructions and compatible paints/ varnishes please seek assistance from our Technical Services Department).

PHYSICAL DATA - UNCURED

The following tables give typical properties of LEO® Fireguard® GC 78PA when tested in accordance with SB, BS EN or BS EN ISO test methods.

Property	Typical Value
Viscosity Rotovisco 1, 25°C, 60mm C&P, 6.0 s ⁻¹	50
Viscosity Rotovisco 1, 25°C, 60mm C&P, 0.6 s ⁻¹	150
Viscosity ICI Cone and Plate	8.0
Specific Gravity at 25°C	1.59
Stability from date of manufacture when stored in accordance with storage recommendations	3 months
Volatile Content	22%

PHYSICAL DATA - CURED

Property	Test Method	Typical Value
Barcol Hardness (Model GYZJ 934-1)	EN59	45
Water Absorption 24 hrs at 23°C	BS EN ISO 62 part 6.2	51 mg
Heat Deflection Temperature* (1.8MPa)	BS EN ISO 75-2 (1996)	60°C
Elongation at Break*	BS EN ISO 527-2	0.75%
Tensile Strength*	BS EN ISO 527-2	27 MPa

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

POST-CURING

For many applications, LEO® Fireguard® GC 78PA will perform adequately when cured at workshop temperature (20°C - 25°C). However, for optimum properties, and in order to achieve the highest fire performance, the components should be allowed to cure for 24 hours at 20°C, and then be oven-cured for 16 hours at 40°C or 3 hours at 80°C.

ADDITIVES

The addition of fillers or pigments to LEO® Fireguard® GC 78PA will adversely affect the fire properties and cure of this material and is not recommended.

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.

STORAGE

LEO® Fireguard® GC 78PA should be stored between 5°C and 25°C in the original, unopened container in a dry, well ventilated place. Protect from freezing and direct sunlight. Avoid contact with oxidising agents. If stored outside of these recommendations, shelf life will be significantly reduced.

PACKAGING

LEO® Fireguard® GC 78PA is supplied in 25kg and 225kg containers.

HEALTH & SAFETY

Please see separate Material Safety Data Sheet.



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