GC50

EPOXY COMPATIBLE POLYESTER GEL COAT

Key Features

- Quick Curing
- Excellent Clarity
- Excellent Bond To Epoxy
- Spray or Brush Application
- UV Stable

Product Description

Easy Composites' GC50 Epoxy Compatible Polyester Gelcoat is a very special type of polyester gelcoat designed specifically for use with epoxy based wet-lay or resin infused laminates in place of an epoxy gelcoat or post-production paint/lacquer.

As a polyester-based gelcoat it brings the advantages over epoxy gel coat of being highly polishable and offering excellent UV stability. What distinguishes GC50 from a conventional polyester gelcoat is its exceptional bond to epoxy laminates.

This fast curing gelcoat is ready for the application of the epoxy laminate, either by wet-lay or resin infusion, within 2-3hrs (@20°C) but also remains bondable for up to 24hrs making it easy to achieve optimum bond strength.

The gelcoat offers extremely good inter-laminate strength to a wide range of epoxies and has been tested and found fully compatible with the entire range of Easy Composites epoxy resin systems.

Recommended Uses

GC50 is ideal for us as an in-mould surface coat for epoxy-based laminates. The gelcoat can be left clear for 'bare' carbon fibre appearance parts or pigmented using polyester dispersion pigment pastes to any colour required.

When applied at the recommended 0.3mm - 0.4mm thickness GC50 exhibits excellent clarity making it ideally suited for use on carbon fibre parts where the clear gelcoat will provide an excellent gloss finish to the natural carbon fibre appearance.

Our GC50 Epoxy Compatible Polyester Gelcoat has been developed to offer extremely good UV resistance with 12-month sun exposure testing showing very low colour change and excellent gloss retention.

This UV protection is especially useful for epoxy based laminates which are otherwise vulnerable to UV damage. When using pigment pastes, its excellent UV resistance will ensure colours stay glossy and do not fade.

If composite parts are subsequently to be painted then the use of a gelcoat makes wet-lay, vacuum bagged or resin infused laminates easier to paint by eliminating surface pin-holes.

GC50 can also be used for tooling applications requiring moderate heat resistance (up to 76°C) and a very polishable surface finish however care should be taken to ensure release compatibility of a polyester-based gelcoat with the resin system used for part production.

Properties

The table below shows the typical uncured properties:

Property	Units/ Test Method	Result
Colour	-	Mauvish, Cloudy
Viscosity @25 °C	-	Thixotropic
Density @25 °C	g/cm^3	1.11
Volatile Content	%	43
Barcol Hardness	model GYZJ 934-1	42
Pot Life @15 °C	mins	25
Pot Life @ 20 °C	mins	15
Pot Life @ 25 °C	mins	10
Cure Time (200g @ 25°C)	Hours	8 - 14
Water Absorption 24hrs	mg	18
Elongation at Break	%	2.2
Tensile Strength	MPa	67
Tensile Modulus	MPa	3960
Heat Distortion Temperature	°C	76

How to Use

Our GC50 is a chemical product for professional use. It is essential to read and understand the safety and technical information before use.

Follow the guidelines for safe use outlined in the SDS which include the use ofappropriate hand and eye protection during mixing and use.

Mix Ratio

Mix Ratio 2% MEKP by Weight

GC50 should be mixed with a maximum of 2% MEKP by weight. GC50 should be allowed to attain workshop temperature (18°C - 20°C) and mixed before use.

The exact MEKP Ratio can be varied depending on ambient temperature and pot-life required. For very warm conditions or where a longer pot life is needed, reducing the MEKP to 1% is usually about right. For extremely cool conditions a maximum of 3% MEKP can be used - although we do not recommend working in cold conditions.

Mixing Instructions

Only weigh out and mix as much resin as you can use within the pot life.

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Weigh or measure the exact correct ratio of resin and MEKP into a straight sided container. Using a suitable mixing stick begin to mix the resin and MEKP together to combine them completely.

Spend at least one minute mixing the resin and MEKP together, paying particular attention to the sides and base of the container. Remember: Any resin that has not been thoroughly combined with Catalyst will not cure.

Once you have finished mixing in one container, it is good practice to transfer the mixed resin into a second container and undertake further mixing of the resin using a new mixing stick. Doing so will eliminate the risk of accidentally using unmixed resin from the bottom or sides of the container.

Application

ONLY EVER APPLY GC50 IN A SINGLE, FULL APPLICATION. DO NOT ATTEMPT TO 'DOUBLE GEL' BECAUSE GC50 WILL NOT STICK TO ITSELF AND WILL DELAMINATE IF USED IN THIS WAY.

GC50 is a low viscosity gelcoat designed for spray application however it can also be applied by brush. Spray at the minimum pressure to achieve and acceptable spray pattern. Apply the gelcoat in thin even passes, building up the film thickness to 0.5 – 0.6 mm wet. Ensure adequate mould ventilation.

Do not exceed a wet film thickness of 0.8 mm or drainage may occur. Avoid allowing vapour to be retained in deep mould sections as this will slow the cure. Don't apply excessive gelcoat in corners of moulds as this can cause pre-release.

Unsaturated polyester products release heat when they cure in bulk. If adding catalyst to the product prior to spraying, do not prepare more material than is required to complete the job and spray within 3 minutes. Care should be taken to avoid air entrapment and make certain that material at bottom and sides of container is stirred into the centre.

Ensure that all equipment is thoroughly cleaned after use.

Pot-Life / Working Time / Cure Time

Transfer the resin from the mixing pot onto the part as soon as possible to extend the working time and avoid the risk of uncontrollable rapid cure in the mixing pot.

As with all polyesters, the pot-life/working time will vary significantly depending on the ambient temperature, the starting temperature of the resin and hardener and the amount of resin mixed.

Our GC50 can be used in ambient temperatures between 15°C (59°F) and 30°C (86°F). For best results, an ambient temperature of at least 20°C (68°F) is recommended. Ensure that both resin and MEKP containers are within this temperature range before use.

After 2-3hrs the gelcoat is ready to be 'backed-up' with the epoxy resin based laminate which can be by wetlay or resin infusion. For resin infusion the slight tack of the gel coat can be very helpful in the positioning of carbon fibre or other reinforcements into the mould.

Once the laminate is cured the part can be de-moulded and is ready for use; no further treatment is needed and the part will have a highly polishable, glossy, UV stable gelcoat with an incredible, proven bond to the epoxy part.

The table below gives an indication of pot-life times:

Pot Life @15 °C	Pot Life @ 20 °C	Pot Life @ 25 °C
25 minutes	15 minutes	10 minutes

Transport and Storage

GC50 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. KEEP THE PACKING TIGHTLY SEALED WHEN NOT IN USE. When stored correctly, the resin and hardener will have a shelf-life of 5 months. Although it may be possible to use the resin after a longer period, a deterioration in the performance of the resin will occur, especially in relation to clarity and cure profile.

Disclaimer

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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