EG60 EPOXY TOOLING GEL COAT

Key Features

- Easy to apply
- Smooth Consistency
- Excellent Polished Finish
- Tough Cured Finish
- Excellent Solvent Resistance

Product Description

EG60 Epoxy Tooling Gelcoat for use as a surface coat to either traditional epoxy resin and glass reinforcement moulds or moulds made using our EMP60 Epoxy Moulding Paste to achieve a strong, durable epoxy based mould.

The tooling gelcoat is pigmented bright green making it easy to see scratches or blemishes in the surface at the same time as making gelcoat application on the cured mould easy to see.

This EG60 epoxy mould making tooling gelcoat is designed to be used in combination with our EMP60 Epoxy Moulding Paste to provide a very quick, clean method of making problem free moulds for the laminating of carbon fibre and fibreglass parts.s.

Recommended Uses

Being an epoxy based mould making system, this tooling gelcoat is the ideal tool surface when making epoxy based end products (like carbon fibre parts or epoxy matrix GRP/FRP).Properties

The table below shows the typical uncured properties:

Property	Units	Resin	Hardener	Combined
Material	-	Epoxy Resin	Formulated Amine	Epoxy
Appearance	-	Green Thixo-Tropic Paste	Amber Liquid	Green Thixo-tropic Paste
Viscosity 25 °C	mPas	Paste	300 - 400	Paste
Density 25 °C	g/cm^3	1.60 - 1.70	1.00 - 1.05	1.50 - 1.60

How to Use

The EG60 Epoxy Tooling Gel Coat 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 100:10 by Weight

EG60 Epoxy Tooling Gel Coat should be mixed with its Hardener at a ratio of 100 parts of Gel Coat to 10 parts of hardener, by weight.

You must maintain the correct overall ratio of Gel Coat to hardener to ensure a proper cure.

When working with any epoxy based resin or gelcoat, it is essential to mix the resin and hardener exactly at the correct mix ratio. Failure to do so will result in a poor or only partial cure of the resin, greatly reduced mechanical properties and possibly other adverse effects. Under no circumstances add 'extra hardener' in an attempt to speed up the cure time; epoxies do not work in this way.

Mixing Instructions

Protect your hands with Nitrile (vinyl) gloves. Weigh or measure the exact correct ratio of gelcoat and hardener into a mixing cup. Mix thoroughly until the hardener is dispersed completely and evenly through the gelcoat.

You should spend a good few minutes mixing the two parts, particularly as at colder room temperatures they may be quite thick. Ensure you mix all the resin and hardener from the edges of the pot as unmixed parts will not cure and will ruin your mould.

Ideally bring the gelcoat up to room temperature before trying to use as the cooler the gelcoat the thicker it becomes which can make it hard to pour and mix. Sometimes it may be necessary to put the gelcoat pot in a warm place to warm the gelcoat slightly to thin it and help with pouring and mixing. If you have warmed the gel to aid pouring and mixing be aware the pot life will be reduced accordingly. Be sure to use your resin before this time.

Application Instructions

Still wearing the nitrile gloves and using a 1" laminating brush, apply a thick and even coat of the mixed resin to the surface of the part. Ensure that you get the resin into any awkward corners of the part but be careful that you don't end up with thick pools of resin in these areas. You want to resin to be as thick as possible without falling or running off the part, this will give you a good thickness of tooling resin to flat and polish in subsequent stages.

Once you have applied this coat, set the mould on one side and leave for between 2 and 3 hours depending on the temperature of the room you're working in. The resin will cure quicker in a warmer room and slower in a colder room. Keep checking until the resin on the part is firm and but still tacky. If your glove sticks slightly to the resin without any of it coming off on the glove then the level of tack is about right. Don't allow the tooling resin to cure beyond this point otherwise the putty will not bond to it correctly when applied.

Although not always necessary, you can use two or more layers to achieve a thick coating, This can be useful for steep sided or complicated patterns where one thick coating may run off or pool. In these cases the mixed material should be evenly applied to the mould by brush, in 0.5mm thick layers. Apply the layers to a maximum combined thickness of less than 2.5mm. To ensure that each coat adheres, wait until the first coat has gelled to a tack free state before applying successive coats.

Pot-Life / Working Time / Cure Time

Once the gelcoat has been mixed with the hardener, the reaction will start to progress and begin to give off heat (exotherm) which will further accelerate the cure of the gelcoat, especially when the gelcoat is in a large volume or in a tub.

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

As with all epoxy based resins/ gelcoats, the pot-life/working time will vary significantly depending on the ambient temperature, the starting temperature of the putty and hardener and the amount of putty mixed.

EG60 Epoxy Tooling Gel Coat 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 gelcoat and hardener containers are within this temperature range before use.

The table below gives an indication of pot-life and cure properties:

Pot-Life @ 25 °C	Gelation @ 25 °C	Demould Time @ 25 °C
43 - 53mins	2-3hrs	12 - 16hrs

Full Cure / Post-Cure

As with most epoxy systems, where parts cure in normal ambient temperatures, full cure is not reached for several days. Although parts will be handleable after the listed demould time (at 25°C), full mechanical properties will take at least 14 days to develop in (at 25°C).

As with many post-cure cycles, the post-cure cycle for moulds made with our EG60 Epoxy Tooling Gel Coat is not too sensitive and a range of different post-cure cycles will produce good results, specifically improved mechanical performance and elevated HDT/operating temperature.

Post-curing moulds that will be used at or exposed to elevated operating temperatures is strongly recommended to prevent distortion of the mould when they are put into service and experience these higher temperatures. Failure to properly post cure a mould can lead to mould distortion and blistering causing the part to be deformed. Also where the gelcoat softens, it can reduce the effectivenss of mould release agents meaning the part can stick to the mould.

A good all round post cure cycle for the EG60 Epoxy Tooling Gel Coat is as follows:

- 24 hours at 25°C
- 2 hours at 40°C
- 2 hours at 50°C
- 2 hours at 60°C

Always allow the mould to fully cool to room temperature following a post-cure cycle. Once the post-cure is complete, the mould is ready for any final preparation before its first use.

Mechanical Properties

Cured Gel Coat Properties:

	Units	Result
Hardness	Shore D	86 - 90
Compressive Strength	MPa	110 - 120
Flexural Strength	MPa	35 - 45
Flexural Modulus	MPa	4500 - 5500
H.D.T	°C	50 - 60

Transport and Storage

EG60 Epoxy Tooling Gel Coat and hardener should be kept in tightly sealed containers during transport and storage. Both the gelcoat and hardener should be stored in ambient conditions of between 10°C (50°F) and 25°C (77°F).

When stored correctly, the resin and hardener will have a shelf-life of 12 months. Although it may be possible to use the putty after a longer period, a deterioration in the performance of the putty will occur.

Pay particular attention to ensuring that containers are kept tightly sealed. Epoxy hardeners especially will deteriorate quickly when exposed to air.

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