

Key Features

- Rapid Curing
- Excellent Mechanical Properties
- Repair Paste
- Neaten Edges of Composite Sheet

Product Description

Fast curing, black*, two-part filled epoxy repair filler with excellent flexural strength and excellent bond strength.

Much less thick than a conventional filler (like body filler) this epoxy filler is more of a very thixotropic resin allowing it to easily be teased into cracks on a repair where its excellent bond strength and black pigmentation make it the perfect choice for repairs to light damage on carbon fibre parts. With the repair filler applied, some strength will be restored to damaged parts and worsening of the damage is much less likely to occur. Repaired areas can be sanded smooth and polished or lacquered over the top meaning the parts can be visually restored amazingly well.

The filler is supplied complete with the necessary fast epoxy hardener which will cure the filler in around 2hrs.

* Colour Matching

Please note that although we describe the filler as 'black' there are, of course, a range of blacks. To be more accurate the filler is a very dark grey, designed to be a match for the colour of carbon fibre which although also described as 'black' is also a very dark grey. If you need an exact match for a specific true black we would suggest a clear resin and black pigment.

Recommended Uses

Our ER1 Black Epoxy Repair Filler is suitable for repairing cracks or gaps in carbon fibre parts to improve the appearance of a damaged area, add strength and discourage deterioration of the damaged area. Once cured the filler can be polished to a full gloss.

Our ER1 Black Epoxy Repair Filler can also be used to seal the edges on sandwich core panels (route a few mm of the core material away and then smooth filler into the cavity). Edges filled in this way not only perfectly seal the panel from water ingress they also provide an attractive edge which can be polished up to a full gloss black finish.

Properties

The table below shows the typical uncured properties:

Property	Units	Resin	Hardener	Combined
Material	-	Epoxy Resin	Formulated Amine	Epoxy
Appearance	-	Dark Grey/Black	Straw Liquid	Dark Grey/Black
Viscosity @25 °C	mPa.s.	Paste	120 - 160	Paste

How to Use

Our ER1 Black Epoxy Repair Filler 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 of appropriate hand and eye protection during mixing and use.

Mix Ratio

Mix Ratio 100:30 by Weight

ER1 Black Epoxy Repair Filler should be mixed with its Hardener at a ratio of 100 parts of resin to 30 parts of hardener, by weight.

You must maintain the correct overall ratio of filler to hardener to ensure a proper cure. Failure to do so will result in a poor or only partial cure of the filler, 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

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

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

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

Pot-Life / Working Time / Cure Time

Transfer the filler 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 epoxies, 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 ER1 Black Epoxy Repair Filler 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 filler and hardener containers are within this temperature range before use.

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

Pot-Life @ 25 °C	Demould @ 25 °C	Demould @ 50 °C	Demould @ 65 °C
10 - 13 minutes	1 - 2 Hours	1 Hour	1 Hour

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). Where possible, avoid exposing the cured resin to full service rigours for at least this time. To achieve improved Heat Distortion Temperatures up to 85°C, you will need to conduct a post-cure of the finished part.

Where possible, parts should be post-cured still inside the mould to reduce distortion and improve surface finish (i.e. reduce 'print-through'). When post-curing parts in the mould, it is important to post-cure them without demoulding at all (i.e. don't demould and then put them back into the mould) otherwise you can get some strange patterns on the surface where some areas are post cured in direct contact with the mould surface and others are not.

To achieve full high temperature properties, post cure treatment is recommended. After curing / demoulding the part should be heated to 80°C for 3 hours and then allowed to slowly return to room temperature. The product can be used without post cure or with partial post cure, but will not achieve full physical properties.

Mechanical Properties

Cured Filler Properties

These properties describe the filler only. The mechanical properties of a reinforced composite would be considerably different.

	Units	Result
Tensile strength	MPa	50 - 60
Flexural strength	MPa	80 - 90
Compressive Strength	MPa	72 - 75
Heat Distortion Temperature	°C	80 - 85

Transport and Storage

Filler and hardener should be kept in tightly seal containers during transport and storage. Both the filler and hardener should be stored in ambient conditions of between 10°C (50°F) and 25°C (77°F).

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

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

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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