



# Eco Epoxy Resin

## General Information and Usage

This clear epoxy resin is produced using a new, more environmentally-friendly production process that reduces its carbon footprint and makes use of bio-based renewable materials in place of some of the petroleum-based components. It is a modern high-performance resin system that cures water-clear and contains UV inhibitors to reduce yellowing. It contains no solvents.

Three different activators are available as part of this resin system, with different cure times to suit a wide range of uses.

	<b>With Slow Activator</b>	<b>With Fast Activator</b>	<b>With Extra Fast Activator</b>
Mix ratio by volume	2:1 (Resin:Activator)	2:1 (Resin:Activator)	2:1 (Resin:Activator)
Mix ratio by weight	100:47 (Resin:Activator)	100:47 (Resin:Activator)	100:48 (Resin:Activator)
Pot life of 0.5 kg mass at 25°C	40 min. approx.	25 min. approx.	15 min. approx.
Tack free cure time at 25°C	8 hours	4 hours	2 hours
Recommended full cure	7 days at 25°C, Post cure recommended	7 days at 25°C	7 days at 25°C
Shelf life	12 months	12 months	12 months
Viscosity (resin) at 25°C	1.85 Pa·s (1850 cP)	1.85 Pa·s (1850 cP)	1.85 Pa·s (1850 cP)
Viscosity (activator) at 25°C	0.5 Pa·s (500 cP)	0.265 Pa·s (265 cP)	0.1 Pa·s (100 cP)
Viscosity (mixed) at 25°C	1.3 Pa·s (1300 cP)	0.725 Pa·s (725 cP)	0.58 Pa·s (580 cP)
Optimal working temperature	20 – 30 °C	20 – 30 °C	20 – 30 °C
Extended working temperature	15 – 35 °C	15 – 35 °C	15 – 35 °C
Working humidity	< 85%	< 95%	< 75%
Coverage (non-porous surface)	5.4 m <sup>2</sup> /litre approx.	5.4 m <sup>2</sup> /litre approx.	5.4 m <sup>2</sup> /litre approx.

This epoxy must be applied at a temperature greater than 15° C to ensure a proper cure. Cure time may be accelerated by mild heat up to 82° C. Pre-heating the epoxy to 28° C can also improve the penetration into porous substrates such as wood.

## Mechanical Properties of Fully-Cured Epoxy

	<b>With Slow Activator</b>	<b>With Fast Activator</b>	<b>With Extra Fast Activator</b>
Tensile strength	9800 psi	9500 psi	8510 psi
Tensile modulus	468000 psi	440000 psi	445880 psi
Tensile elongation	5%	5%	4.1%
Flexural strength	14580 psi	13500 psi	12830 psi
Flexural modulus	430000 psi	440000 psi	423720 psi
Compressive strength	12520 psi	11330 psi	12460 psi
Hardness (Shore D)	70-80	70-80	70-80
Onset Tg by DSC	44 °C	40 °C	44 °C
Ultimate Tg by DSC	73 °C	65 °C	56 °C
Heat distortion temperature	56 °C	48 °C	-
Bio-based carbon content	21%	17%	17%

## Use of Solvents and Cleaning Brushes

**Do not use any solvents** to thin the epoxy. Do not use solvents to clean brushes, pots or trays or to prepare a surface for coating with epoxy. Traces of acetone, white spirit or any solvent will prevent the epoxy curing and produce a mottled surface to the coating.

We recommend using disposable brushes and pots. It is safe to use cleaned-out yoghurt pots or similar for this epoxy. Mixing pots can be cleaned with warm water and a little washing up liquid, then rinsed in water.

## Mixing Epoxy

Always wear disposable gloves and eye protection when working with epoxy since the parts contain potentially dangerous chemicals. Any spills of this epoxy can be cleaned using soap and water or vinegar or, better still, an abrasive hand cleaner.

If you are using measuring pumps with your epoxy, make sure they are fitted correctly and primed so that they dispense the correct amount of resin and activator. Follow the instructions that accompany the pumps.

Measure the resin and activator into a mixing pot in the correct ratio (two parts resin to one part activator). Use one depression of each pump if you are using our 2:1 measuring pumps, or you can use a marked dip stick in a straight-sided pot.

Mix the two parts together thoroughly with a stick for 1 minute. Proper mixing is essential: most of the problems associated with using epoxy are the result of not mixing well enough. When you need thickened epoxy, mix in your fillers only after the resin and activator are thoroughly mixed.

## Use of Epoxy in a Cold Climate

Do not store resin and activator on cold concrete floors – keep them warm. As the resin and activator cool they thicken and become difficult to mix. If cold enough they will go solid. They can be brought back to a usable liquid state by warming the bottles in hot water, but it can take some time; it is easier to keep them warm in the first place. **Never use a naked flame to warm epoxy.**

The mixed epoxy will set at very low temperatures but it may take several days. During this period, glued parts must not be moved nor the coating touched.

Epoxy works best at a temperature between 15° C and 30° C. At temperatures lower than this it will eventually cure but will be very viscous and thus difficult to apply. Your workshop doesn't need to be heated, you just need to keep the resin and activator bottles warm. Keep them near a source of flame-free heat. Alternatively, keep the bottles in a heated or insulated box. Keep them in an airing cupboard or on a radiator when not in use.

It is possible to warm the epoxy once it has been mixed but it is difficult to judge the temperature and often results in a cure before it can be applied.

To avoid the oily bloom that may appear on epoxy that has cured in a cold, damp climate apply the second coat 8 hours after the first coat. If a bloom does develop after curing it must be washed off with soap and water, rinsed to remove the soap, dried and the surface will also have to be sanded before applying the second coat. A bloom is an oily surface to the coating that can be felt even if, by digging a finger nail into the epoxy, it can be established that the epoxy has cured. It must be removed since neither paint, epoxy nor varnish will adhere to it.

For further advice on using epoxy visit our website at [www.pecepoxy.co.uk](http://www.pecepoxy.co.uk)