



Casting Eco Epoxy Resin

General Information and Usage

This clear casting 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.

This epoxy system is specifically formulated for crystal clear casting and embedding and contains UV inhibitors to reduce yellowing. Two different activators are available as part of this system, with different cure times to suit a wide range of uses.

	With Slow Activator	With Fast Activator
Mix ratio by volume	2:1 (Resin:Activator)	2:1 (Resin:Activator)
Mix ratio by weight	100:43 (Resin:Activator)	100:43 (Resin:Activator)
Pot life of 0.5 kg mass at 25°C	6 hours approx.	90 min. approx.
Tack free cure time at 25°C	72 hours approx.	24 hours approx.
Recommended full cure	7 days at 25°C, Post cure recommended	7 days at 25°C, Post cure recommended
Shelf life	12 months	12 months
Viscosity (resin) at 25°C	1.85 Pa·s (1850 cP)	1.85 Pa·s (1850 cP)
Viscosity (activator) at 25°C	0.025 Pa·s (25 cP)	0.035 Pa·s (35 cP)
Viscosity (mixed) at 25°C	0.195 Pa·s (195 cP)	0.280 Pa·s (280 cP)
Optimal working temperature	15 – 27 °C	15 – 27 °C
Extended working temperature	10 – 32 °C	10 – 32 °C
Maximum casting thickness at 25°C	-	25 mm

The Fast activator should only be used for low build casting applications with thicknesses below 25 mm, otherwise it can result in exothermic cures and yellowing of the cast layer. For greater thicknesses, the Slow activator should be used. When casting volumes larger than about 2 litres (2 kg), the curing epoxy may become extremely hot, so please be careful and consider casting in smaller layers.

Post-curing the casted epoxy at 40 – 82 °C after it has cured to a tack-free point is recommended in order to reach optimal mechanical properties.

Mechanical Properties of Fully-Cured Epoxy

	With Slow Activator	With Fast Activator
Tensile strength	7910 psi	8140 psi
Tensile modulus	440850 psi	448000 psi
Tensile elongation	6.5%	6%
Flexural strength	11100 psi	11850 psi
Flexural modulus	409670 psi	390000 psi
Compressive strength	10860 psi	12380 psi
Hardness (Shore D)	70-80	70-80
Onset Tg by DSC	35 °C	32 °C
Ultimate Tg by DSC	53 °C	48 °C
Bio-based carbon content	18%	18%

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 using additives, mix them in 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. 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. **Never use a naked flame to warm epoxy.**

The mixed epoxy will set at very low temperatures but it may take several days longer than expected.

For further advice on using epoxy visit our website at www.pecepoxy.co.uk