



Key Features

- Designed for glossy surfaces up to 3mm
- Self-levelling - no need to flat polish
- Natural air bubble release
- Clear and UV resistant
- Tough and hard-wearing

IMPORTANT: Risk of Resin Overheating/Exotherm

In common with all epoxies, GlassCast generates heat during its cure and can easily overheat if not used correctly.

Before use, it is essential for users to read and follow the information on 'Avoiding Overheating / Exotherm' in this datasheet. Failure to do so could result in damaged resin, or in extreme cases, resin smoking or igniting.

Product Description

GlassCast® 3 is a self-levelling epoxy coating resin that can be used to create hard-wearing, glossy surfaces on furniture, floors, countertops and artwork. It is designed to be poured at around 3mm in thickness, and will cure with a smooth, shiny surface without the need for flattening or polishing.

GlassCast 3 can be used clear, such as over coins or bottle tops, or can be pigmented using a range of pigments and effects to create a myriad of creative effects such as marble-effect countertops or decorative floors.

Recommended Uses

- Tabletops, Worktops, Counters**
Embedments like bottle tops, corks, pebbles, mosaic, coins.
- Furniture**
Resin plank tables, reclaimed wood, driftwood.
- Floors**
Penny floors, solid colour floors, decorative floors using pigments and metallic powders.
- Art**
Coating Photographs, Artwork, Decoupage, Resin Art.

Specification

Pot Life, Cure Time & Maximum Pour Depth

Resin/Room Temperature	15°C (minimum)	20°C (recommended)	25°C (maximum)
Maximum (Pot-Life)*	45mins	30mins	22mins
Maximum Pour Depth	9mm	6mm	3mm
Gel Time*	3:30hrs	2hrs	1:20hrs
Initial Cure Time*	36hrs	24hrs	18hrs

*all values will vary according to the dimensions of the resin mixing pot, amount of resin mixed, the depth of the resin pour, and the insulating properties of the substrate.

General Properties

Mix Ratio (Parts by Weight)	100 : 50 (eg. 100g resin + 50g hardener)
Mix Ratio (Parts by Volume)	100 : 57 (eg. 100ml resin + 57ml hardener)
Temperature Resistance (Tg)	58°C (max, after post-cure)
Hardness	87 Shore D

How to Use

GlassCast 3 has been developed to be as easy to use and reliable as possible, making it possible for users with little or no experience of working with resins to achieve professional quality results.

Avoiding Overheating / Exotherm

The GlassCast range of resins, in common with all epoxies, generate heat as part of the curing process. In order to ensure that the resin does not overheat during mixing and curing, it is essential to make sure you stay within strict limits of ambient temperature, time-in-pot and pour depth, as well as avoiding localised overheating from direct sunlight, nearby radiators or heat guns/hair dryers. Failure to do so could result in damaged resin, or in extreme cases, resin smoking or igniting.

The recommended working temperature for GlassCast is 18-20°C. When working in higher ambient temperatures, pay attention to the reduced pot-life and maximum pour depth, as shown below.

Ambient Temperature	15°C (minimum)	20°C (recommended)	25°C (maximum)
Maximum Time in Pot (Pot-Life)	45mins	30mins	22mins
Maximum Pour Depth	9mm	6mm	3mm
Initial Cure Time	36hrs	24hrs	18hrs

Ambient Temperature

Epoxy resins are highly sensitive to ambient temperature (room temperature) throughout their cure. For best results, we recommend working in a consistent room temperature of 18-20°C. GlassCast can be used in temperatures from 15 to 25°C but higher temperatures will reduce the pot-life and the maximum pour-depth of the resin significantly. Never work in ambient temperatures exceeding 25°C, or exceed the maximum pour depth for a given ambient temperature (as shown in the table above) otherwise the resin could dangerously overheat, especially on larger pours.

Maximum Time in Pot (Pot-Life)

As soon as the resin and hardener are mixed together, the curing reaction begins. Due to the volume of resin all in one place, mixed resin in the pot will begin to gradually warm up. The amount of time that mixed resin can stay in the mixing pot before it overheats is known as its pot-life. Once you've mixed your resin, make sure you use it within the pot-life stated for your ambient temperature (see table above). Once you're done, if you have more than the maximum pour depth of leftover resin in the pot, place the pot outside - just in case it starts to overheat.

Maximum Pour Depth

The thicker the pour, the more the heat builds up as the resin cures and so it is important to stay within the maximum pour depth for the ambient temperature you're working in. Care needs to be taken when pouring into or around insulating materials such as wood or foams as they will retain heat and will reduce the maximum depth that can be safely poured at a given temperature. Never exceed the maximum pour depth listed for the temperature you're working in; doing so will almost certainly result in potentially dangerous overheating of the resin.

Localised Heat Sources

Whilst close attention should be paid to the ambient (room) temperature, it is also important to avoid any localised heat sources which can also cause an exotherm. Examples of localised heat sources include:

▮ A hot radiator at one end of a cooler room – If the resin project is positioned above or near the radiator it could start to exotherm, even though the room temperature is within the recommended limits.

▮ Direct sunlight from a window – Sun shining through a window onto your resin project or surrounding area can cause significant hot-spots which can easily cause the resin to exotherm, even in a relatively cool room.

▮ Heat-guns or hair dryers – If using a heat-gun or hair-dryer as part of your resin project, do so sparingly to avoid warming up the resin significantly. Excessive use of a heat-gun or hair dryer can easily accelerate the cure and cause the resin to exotherm.

Before You Begin...

It is important for users to familiarise themselves with the following information and ensure that instructions are followed correctly, particularly those points relating to working temperatures, weighing and mixing.

Unsatisfactory results are almost always caused by unsuitable ambient temperatures or improper weighing or mixing. It is very important to read the Safety and Technical Datasheets before starting a project with GlassCast.

Humidity

Whilst GlassCast 3 is curing it can absorb moisture from the air. In higher humidity environments this moisture absorption can affect the surface finish and therefore,

for best results, avoid pouring GlassCast 3 in humid environments (relative humidity of 70% or more). This becomes particularly important in lower ambient temperatures where a slower cure leaves the uncured resin exposed to a humid environment for longer.

Surface Preparation

In much the same way that GlassCast 3 can be adversely affected whilst curing by moisture in the air, it will also be affected by any moisture in the surface onto which it is poured. Whatever surface you are pouring onto, it is important to ensure that the surface is as dry and stable as possible. This is particularly relevant when working with natural materials like wood and cork or concrete where moisture levels within the substrate can be high.

When working with wood that is either freshly sawn or reclaimed/salvaged from a damp environment it will be necessary to dry the wood thoroughly - which could take days or weeks indoors before it can be used. Failure to ensure that the wood is properly dried and stabilised can result in a surface reaction with the resin as well as 'bowing' or distortion if the wood starts to dry after the resin layer has been cast.

Sealing Coat - Required for All Porous Surfaces

When working with porous substrates such as wood, chipboard, concrete or ceramics it is highly recommended to first seal the substrate with a thin application of GlassCast 3. Doing so will seal and stabilise the surface, greatly improving the flatness of the final pour. The sealing coat must be allowed to fully cure and then 'keyed' before proceeding. The sealing coat can be applied with a disposable brush.

Embedments

Just as with the surface preparation, it is important to ensure that any materials that are going to be embedded within the resin, such as pennies, crushed glass, bottle tops, corks, leaves etc. are thoroughly dry. Any embedments may also require being glued or fastened down to stop them floating in the resin once it is poured.

Curing Time

GlassCast 3 will take several days to reach full hardness. Before starting your project, ensure your new surface can be kept traffic/use free for a number of days.

Depending on the ambient temperature, your GlassCast 3 surface will take around 24hrs to become touch-dry. During this initial 24hrs it is essential to keep all dust and dirt away from the uncured resin. For smaller projects, simply covering the surface with a clean container or board is easy to do but for larger projects, including bar-tops or even floors, you should plan to limit airborne dust as much as possible.

Once the surface is 'touch-dry' it is much less susceptible to contamination from dust but it will still be quite soft and easy to mark and so you should avoid touching or using the surface for as long as possible.

The time it takes for the surface to harden fully will depend very much on the ambient temperature; at 20°C you should allow at least 24hrs before using the surface although the hardness of the resin will continue to develop for several days.

Where practical, it is recommended to increase the ambient temperature as much as possible to fully cure (or post-cure) the resin before subjecting the surface to normal use.

Trapped Air - Heat Gun or Blow Torch Required?

GlassCast 3 includes advanced technology to help it to expel air that has been entrapped by the mixing and pouring process and so in many cases the resin will fully release any trapped air to leave a beautiful bubble-free finish. After pouring, it usually takes the resin around 5-10 minutes to expel trapped air.

Factors such as ambient temperature, mixing action, pouring thickness and the substrate you're pouring onto can all influence the appearance of trapped air (bubbles) within the resin. After around 10 mins, if you find that you can still see trapped air bubbles with this resin then lightly passing over the surface of the resin with a heat gun or blow torch on a low setting will help to dispel any bubbles. In both cases only ever use a light pass and wait for any heat in the surface to dissipate before repeating.

Safety Precautions

Work in a well ventilated area.

Whenever weighing, mixing, pouring or checking the state of the cure of the resin, you should be wearing suitable protective gloves and eye protection as a minimum precaution.

Always wear gloves when you are 'testing' to see if the surface has cured. Do not touch or handle the surface without gloves until you are sure that it is fully cured.

Please download the safety datasheet from the GlassCast 3 product page on www.glasscastresin.com and ensure you understand and follow the detailed safety information it contains.

How Much Resin?

For solid surfaces, it's easy to calculate the amount of resin you'll need to cover a given area. For uneven surfaces or those including embedments like pennies, crushed glass or bottle tops; some compensation will be required. Typically for the resin to self level to a smooth finish, such as on a grouted penny floor or a table top, a 2mm layer is needed which is 2kg of resin per square meter.

1kg = 1mm over 1sqm

You will require 1 kilo of resin per millimetre of thickness required over a 1 sqm area. Therefore, to calculate how much resin to mix, simply multiply the thickness you require (in millimetres) by the area of your surface (in square metres). Don't forget that porous (absorbent) materials like wood should be sealed before the main pour.

	Area of Surface to be Covered				
	25cm x 25cm (0.0625sqm)	50cm x 50cm (0.25sqm)	50cm x 100cm (0.5sqm)	100cm x 100cm (1sqm)	200cm x 100cm (2sqm)
1mm	62.5g	250g	500g	1kg	2kg
2mm	125g	500g	1kg	2kg	4kg
3mm	375g	750g	1.5kg	3kg	6kg
4mm	500g	1kg	2kg	4kg	8kg
5mm	625g	1.25kg	2.5kg	5kg	10kg

Mix Ratio Examples		
Total	Resin	Hardener
50g	33g	17g
100g	67g	33g
150g	100g	50g
200g	133g	67g
300g	200g	100g
400g	267g	133g
500g	333g	167g

Mix Ratio Examples		
Total	Resin	Hardener
750g	500	250g
1kg	667g	333g
1.5kg	1kg	0.5kg
2kg	1.333kg	0.667kg
3kg	2kg	1kg
4kg	2.667kg	1.333kg
5kg	3.333kg	1.667kg

How to Measure and Mix

What You'll Need

- Set of digital scales OR Calibrated Mixing Cups
- Accurate spirit level
- Two clean mixing containers

Mix Ratio Examples		
Total	Resin	Hardener
50ml	31.8ml	18.2ml
100ml	63.7ml	36.3ml
150ml	95.5ml	54.5ml
200ml	127.4ml	72.6ml
300ml	191.1ml	108.9ml
400ml	254.7ml	145.3ml
500ml	318.5ml	181.5ml

Mix Ratio Examples		
Total	Resin	Hardener
750ml	477.7ml	272.3ml
1l	636.9ml	363.1ml
1.5l	0.955l	0.545l
2l	1.27l	0.73l
3l	1.91l	1.09l
4l	2.55l	1.45l
5l	3.18l	1.82l

- Two clean mixing sticks
- Nitrile gloves/safety glasses
- Material or tape to create barriers like Resin Release Tape / Polypropylene
- Optional: Heat gun or blow torch

Mix Ratio

GlassCast 3 is a two-part epoxy resin system. As soon as the two parts are mixed together they will begin to cure.

When working with any epoxy resin, 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. Under no circumstances add 'extra hardener' in an attempt to speed up the cure time; epoxies do not work in this way.

Mixing by Weight

100:50 (2:1)

The easiest way to measure the correct ratio of resin to hardener is by weight. Epoxy Resin should be mixed with GlassCast 3 Epoxy Hardener at a ratio of 2 parts resin to 1 part hardener.

Use digital scales to accurately weigh the correct amount of resin into a cup, re-zero the scales and then weigh in the correct amount of hardener. Try to be accurate to within 1-2 grams, particularly on smaller mixes. The tables below can be used to look up some common mix sizes.

Mixing by Volume

100:57

If you prefer to measure out the resin by volume (instead of weight) then the mix ratio that must be used is 100 parts resin to 57 parts hardener. Use calibrated mixing cups or measuring jugs to accurately measure the volume. The tables below can be used to look up some common mix sizes.

Mixing Instructions

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

Spend 3 minutes mixing the resin and hardener together, paying particular attention to the sides and base of the container. Remember: Any resin that has not been thoroughly combined with hardener will not cure.

Once you have finished mixing in one container, it is good practice to transfer the mixed resin into a second, clean mixing container and undertake further mixing for another 3 minutes using a new mixing stick. Doing so will eliminate the risk of unmixed resin from the bottom or sides of the original container being accidentally poured out.

Step by Step Guide

Depending on your requirements (and artistic ideas) there are many different ways in which you can work with GlassCast 3 to achieve some really stunning effects. The following step-by-step guide describes the most standard way to work with GlassCast which is a sealing coat (for porous surfaces) followed by a single main pour. For other ways to work with GlassCast 3, including undertaking multiple pours or working with pigments or embedments, please see the 'Advanced Techniques' section towards the end of this guide.

[GlassCast Complete Guide to Creating Your Own Penny Floor](#)

This complete guide includes step-by-step information on how to make your own penny floor including essential advice on how to:

- Calculate the amount of resin needed
- Tint/colour the resin
- Set up barriers to contain the resin
- Prepare and seal the wood to prevent air bubbles
- Mix and pour the resin in stages to prevent exotherm or air bubbles

This extensive guide can be downloaded, free of charge, from the GlassCast 3 product page on the Easy Composites website.

Step 1 - Sealing Coat

If the material you are pouring GlassCast 3 onto is not porous, for example plastic, metal, marble or granite then you do not need to seal the surface and you can skip to Step 3.

If the material you will be pouring GlassCast 3 over is porous such as wood, chipboard, MDF or ceramic then it is highly recommended to apply a sealing coat before the main pour. Doing so will improve the flatness of the final surface and help to eliminate warping of the substrate after cure. This will also minimise air entrapment.

Mix around 500g of GlassCast 3 per square metre of surface you need to seal. Don't worry if most of the resin seems to be absorbed by the substrate; this is normal for the sealing coat. Allow the 'sealing coat' to cure before proceeding to Step 2. Depending on the ambient temperature, this is likely to take around 24 - 48hrs.

Step 2 - Prepare the Sealing Coat for the Next Pour

In order to ensure that the next layer of GlassCast 3 bonds well to the sealing coat it is necessary to 'key' the surface of the sealing coat using some coarse abrasive paper. This will also help to flatten off any slight raised texture where the substrate has absorbed some of the sealing coat.

Having checked that the sealing coat is well cured (it should feel hard and not at all tacky), use a sheet of coarse abrasive paper (such as P120) to 'key' or scratch the entire surface. Don't worry that the surface then looks scratched and light in colour - this will disappear as soon as the next layer of resin is poured.

Step 3 - Adding Barriers

For shallow pours of around 1mm, it is possible to do the pour without the need for any 'barriers' around the edge of the surface. In this case, surface tension is usually enough to prevent excessive resin run-off and so you can proceed to Step 4.

For pours of 2mm or more it will be necessary to contain the resin at the edges of the surface to prevent excessive run-off. For smaller surfaces, simple barriers can be made using a tape, such as resin release tape. For larger surfaces, you will need to make your barriers using strips of plastic. Before proceeding, ensure the barriers are tightly sealed to your surface and secured well in place. Then clean and dry the surface before the next step.

Step 4 - Make Sure the Surface is Perfectly Level

GlassCast 3 is self-leveling which makes it very important to ensure that your surface is perfectly flat before you do the main pour. It is essential to use a spirit level to ensure that your surface is perfectly flat - use very thin wedges or packers underneath your surface to adjust it until it is exactly level.

Step 5 - The Main Pour

- Ensure your work area is as free of airborne dust as possible.
- Ensure the ambient temperature is between 20°C- 25°C.



Calculate how much resin you will need for the main pour using the information in the 'How much resin?' section earlier in this guide. Remember that for the resin to self level, a minimum of 2mm thickness is required. You can go thicker but for many simple surface coating projects this is not necessary and will just use more resin.

Follow the instructions for measuring and mixing the resin making sure that your mix ratio is very accurate and that your mixing is very thorough.

Pour the mixed GlassCast 3 over the whole surface to be covered. Use a spreader to distribute the resin as evenly as possible.

After around 10 minutes, take a careful look over your resin surface. If any trapped air bubbles still persists, you can use a heat-gun or gas blow torch on a low setting lightly over the surface of the resin to lift any remaining air bubbles out of the resin.

Once you are happy with the surface, cover it as soon as possible to prevent any airborne dust or contamination from landing on the surface.

Leave the surface to cure fully before handling; this is likely to be around 48hrs, depending on the ambient temperature. Please see the Curing Time section earlier in this guide for full information.

Now the pouring is complete, we must allow the resin to fully cure to give us the hard finish desired. The resin will achieve an initial cure in approximately 24 hours - temperature dependent. You must not touch or attempt to use the poured surface during this period and avoid opening doors and windows to reduce the chance of dust and debris falling on the surface.

The resin will continue to harden to full strength over a period of 7 days.

You will now have a stunning surface that with care will last many years, amazing family and guests alike. If over time the surface picks up minor scuffs and scratches these can be polished out to restore the surface to a high gloss finish.

Advanced Techniques

Multiple Pours

There are a number of situations where you might choose to cast your GlassCast 3 using a number of pours. Examples of multiple pour projects:

- You may want to pour a layer of GlassCast 3 over GlassCast 10 or GlassCast 50 to achieve a super flat glossy finish.
- In order to 'suspend' embeddings so that they appear to float above a layer of clear resin.
- When using pigments to create layered colour effects.

Whatever your reason for undertaking a multiple pour, there are two options for ensuring a good bond between separately poured layers.

OPTION 1: B-Stage

In most cases, a second layer can be poured onto a previous layer if the original layer is at its 'B-stage'. This means that the resin has gone firm but still has tackiness left in the surface. At this stage, it is possible to pour the new layer over the top of the original layer without the need for any surface preparation because during this B-stage, the two layers will still form a chemical bond.

If the original layer has cured past its B-stage, i.e. once there is no longer any tack left in the surface of the original pour, it becomes necessary to allow the first pour to cure fully and then 'key' the surface using a coarse abrasive paper; see OPTION 2.

OPTION 2: Cure then Key

If the original layer has cured past its B-stage (see OPTION 2) then a second pour of resin will no longer be able to chemically bond to the first layer. Instead, we must ensure a good mechanical bond between the two layers. In order to achieve this it is necessary to 'key' the surface of the original layer using a coarse abrasive paper such as P120 wet-and-dry paper.

Before keying the surface, it's important to ensure that the first layer of resin is fully cured (not tacky on the surface). Use a sheet of coarse abrasive paper (such as P120) to 'key' or scratch the entire surface. Don't worry that the surface then looks scratched and light in colour - this will disappear as soon as the next layer of resin is poured.

Inclusions / Encapsulation

One of the stunning applications of GlassCast 3 is the inclusion of other materials within the resin. Such materials could be coins, bottle-tops, beer mats, playing cards, photographs, pebbles, crushed glass; in fact, just about anything.

With so many different types of material that could potentially be encapsulated within your GlassCast pour it's essential to experiment first to ensure that you understand how your chosen material will behave when encapsulated in the GlassCast. All materials will need to be thoroughly dry before you encapsulate them but others may require 'sealing', gluing down (to prevent floating) or some other preparation to get the best results.

As a general rule, the inclusion of any materials within your GlassCast 3 surface will result in some slight effect on the surface caused by absorption of the resin into the material being included or simply by variations in the thickness of the resin where these inclusions occur.

For this reason, when working with inclusions, it is generally best to do two pours; the first is your main pour and will encapsulate the inclusions completely, the second pour is a thinner pour intended simply to leave a perfectly flat surface. See the 'Multiple Pours' advanced technique for further information.

Shaping and Polishing

Once fully cured, GlassCast 3 can be shaped, flattened and polished back up to a full gloss finish. This can be particularly effective in creating soft, radiused edges on cast surfaces or when flattening the cast surface to be perfectly flush with surrounding material, such as a flat table surface when filling surfaces of reclaimed wood.

To flat and finish GlassCast, follow standard flattening and polishing techniques of working up through the grits of abrasive paper until you reach around P1000 grit before changing to a polishing compound and power polisher for the final gloss finish.

This process can also be followed to restore surface scratches and dulling from continual use or high traffic.

Pigments and Tints

GlassCast 3 can be pigmented with our range of GlassCast and epoxy compatible pigments including the GlassCast Translucent Tinting Pigments, Solid Colour Epoxy Pigment Paste and SHIMR™ Metallic Powder Pigments. This range have all been tested and are fully compatible with the GlassCast Resin range.

To achieve a subtle 'tint' remember that you will need proportionally more tinting pigment for thin sections that you will for thicker sections.

A transition from one colour to another can be achieved using two pours of differently tinted resin, sloping the surface slightly for the first pour to create a thickness gradient for each pour.

Other products may be compatible with the GlassCast range, however it is recommended that a test is carried out to ensure compatibility.

Technical Specification

Uncured System Properties

	Units	Resin	Hardener	Combined
Material		Epoxy Resin	Formulated Amine	Epoxy
Appearance		Clear Liquid	Pale Yellow Liquid	Clear Liquid
Viscosity @25 °C	mPa.s	1200	1200	1200
Density @25 °C	g/cm ³	1.15	1.00	1.10

Mix Ratio

By Weight	By Volume
100:50	100:57

Pot Life and Cure Time

Pot-life (@20°C)	Gelation time (@20°C)	Demould time (@20°C)
30mins	10hrs	24hrs

Cured Mechanical Properties



Units	Units	Result Cured @ 23 °C
Impact Resistance	Joules	18
TG	°C	45

Other GlassCast Versions

GlassCast 3 is the original GlassCast product which has now been renamed to GlassCast 3 having been joined by two new versions; GlassCast 10 and GlassCast 50. The number in the name represents the suggested thickness that each product should be poured (in a single pour); GlassCast 3 is recommended for coatings up to 3mm deep, the GlassCast 10 and GlassCast 50 are recommended for castings up to 10mm and 50mm respectively.

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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