HOW TO MAKE A

Resin Plank Table

THE COMPLETE GUIDE

GlassCast®

How to make a Resin Plank Table

Contents

Introduction

The aim of this guide

The aim of this guide is to provide detailed step-by-step instructions that can be easily followed to help you create your own statement Resin Plank Table using GlassCast® 3 clear epoxy coating resin.

A Neon Resin Plank Table will be the envy of anyone who sees it and will be the hot topic in any room! It can transform a room, by adding a POP of day-glo colour. If you think your room is crying out for an explosion of colour it can be achieved by anyone from professionals to keen DIY'ers and requires no specialist additional equipment and no experience of furniture making. This encapsulation process can be used to create side tables, coffee and dining tables or to create bespoke bar tops or headboards and the colour is up to you. Other objects could be encapsulated in the same way as the planks, such as records, crushed glass and bottle tops using the same process and techniques, and the amazing finish will give a hi-gloss, glass like finish to any surface - whilst making the encapsulated objects look like they are suspended in the resin.

This guide includes all the expert advice you will need to avoid making common mistakes and make a success of your neon resin plank table project; so if you're serious about creating a striking piece like this it is advisable to read this guide and the technical and safety information in full before you start!

GlassCast® 3 has been specially developed to be the perfect resin for applications like neon resin plank tables and is self-levelling, has special additives to expel trapped air from mixing, and cures to leave a stunning smooth, glossy surface which requires no flatting, polishing or further finishing - with it's two part mixture it is very easy to use!

Before You Begin

Choosing and Sizing your Wood

The first step in creating your own neon resin plank table is to choose the wooden planks you wish to use - this will depend on the size of the piece you wish to create and the look you wish to achieve. You may need to cut down some of the planks to give a balanced mix of long and short planks.

Tools, Materials & Conditions

This project requires very little equipment and the guide assumes the planks are prepared in advance and the following materials, tools and accessories will be required to complete the project:

Materials

- GlassCast® 3 clear epoxy coating resin
- Tinting Pigments
- Wooden planks & your choice of table legs
- Polypropylene Sheet or similar (to act as a base barrier)
- Flash/Release Tape
- Batons (or similar to act as side barriers)
- Polishing Compound (such as Pai Cristal NW1)

Tools

- PPE equipment - safety glasses, dust mask, nitrile gloves (as a minimum)
- Spirit level, planer, screwdriver and a blow torch
- Digital scales, tape measure, ruler

Accessories

- Wood Stain
- Buckets, stirrer, spreader, microfibre cloth, brushes
- Tile Spacers
- Abrasive Paper (assorted) and a block

Conditions

A dry, heated environment of ideally 20°Cis should be maintained when using GlassCast® 3 epoxy coating resin. It is also essential to ensure you work in a well ventilated clean space.

The GlassCast® 3 also needs to be at (or around) 20°C - if the resin is too cold it will not mix correctly and may result in a cloudy finish. If the resin is cold it is very simple to bring it back up to the correct temperature by submerging the containers in a bath of hot water. Do not attempt this project in cold or damp conditions as this will certainly spoil the performance and appearance of the resin.

Epoxy Resin for your Neon Plank Project

Epoxy is epoxy, right?

GlassCast® 3 is a remarkable clear epoxy resin developed specifically to provide beautiful, hard-wearing, clear gloss surfaces for tabletops, bar-tops, decorative floor effects, furniture and creative projects. GlassCast can be poured at thicknesses from just 1mm to thicker 5mm sections opening up a world of possibilities for embedments and encapsulations and can be layered to achieve the neon resin plank table! If you are looking for an epoxy resin suitable for deeper pours see the GlassCast® 10 and GlassCast® 50 clear epoxy casting resins available online.

This amazing resin is self-levelling and cures to leave a stunning smooth, glossy surface which requires no flatting, polishing or further finishing - it's a true 'pour and leave' product. If you do however need to polish the resin, to remove scratches or add a soft radiused edge to a cast surface for example, GlassCast is very easy to polish using simple abrasive paper and polishing compounds to restore a full gloss.

Special additives in the resin help to expel trapped air after mixing meaning that in most circumstances there is no need to pop bubbles with a torch or heat-gun. The advanced 'UV' formulation of GlassCast means that it has non-yellowing properties far superior to those conventional epoxies meaning that it will start beautiful and stay beautiful for years to come.

How much resin will I need?

Working out how much resin you will need for a project like this can be a bit complicated because you need to allow for the resin layer underneath the planks, in between and around the planks andfor the layer on top of the planks. The GlassCast website can help you accuratley calculate the amount of resin you need. The table we have created measures 1.28 square metres so will require approximately 10kg of GlassCast per square metre of table - so for our example table we will require just under 13kg. A simple sum to calculate the area should be measured approximately in length, width and depth to find the cuboid volume, as follows:

Length(in metres) x Width(in metres) x Depth(in millimetres)

The resulting number will be the volume of this shape in litres: For example:

1·6m(length) x 0·8m(width) x 10mm(depth) = 12·8litres

In simple terms, 13 litres of resin can be approximated as 13 kilograms of resin. We would always suggest slightly overestimating the amount of resin you think you will need as it's always better to have mixed too much rather than too little to cover the surface area. In this project we will split the quantity into layers as we go along.

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.

Step-by-Step Guide

The most important advice...

When preparing for and undertaking the resin pours, the key to success is to follow the 5 points below. By following these simple steps you will avoid many common problems associated with working with resin.

- Don't start with cold materials
  The working environment and unmixed resin containers should all be at 20°C before you start (if your resin is delivered cold it can take several hours for the resin to reach room temperature), resin can easily be brought back up to an ambient temperature by placing the containers in a bath of hot water until warmed through.

- Maintain temperature during cure
  The temperature of 20°C must be maintained throughout the curing time of the resin (at least 48 hours). You should not allow the room to become cold overnight.

- Work in a dust free environment
  Your working environment should be clean, level and as dust free as possible.

- Measure accurately and mix thoroughly
  When measuring out the resin and hardener make sure you understand the mix ratio, in the case of GlassCast 3 the ratio is parts-by-weight - in this case 2 parts resin to 1 part hardener. Measure the two parts as accurately as possible, and never for example 'add extra hardener'. Mix the resin thoroughly and always use the 'double potting' method.

- Mix and pour the resin in batches
  Measure, mix and pour manageable batches of GlassCast® 3 onto the floor starting with the furthest point from the door and working back towards the point of exit.

1. Prepare the Wood

First decide upon the size of the resin plank table you want to create, allowing for the gaps and borders. Our plank table has 8mm gaps inbetween and a 12mm border around the outside and we will be pouring the base and the top surfaces 3mm deep each.

For this project we are using a basic redwood smooth planed timber which is inexpensive and readily available at your local DIY store or timber merchants. It is helpful if the planks are smooth, flat and dry before you begin. You could utilise recycled wood like old pallets, but we wanted clean, crisp lines so opted for new redwood planks already available in different widths for added interest.

Arranging the planks

Decide on the layout and design of your table - randomly mix shorter and longer planks and differing widths if you have them. This may require some cutting down to size so you can achieve a staggered pattern. Also remember that you need to allow for the gap between the planks and the resin border.

Layout

Lay out all the planks and draw a plan so you know how the puzzle fits back together. To add interest you can simply create lighter and darker planks using the techniques below.

Mark up the planks for lightening and darkening using maksing tape labels.

Lightening the planks

To lighten some of the planks use a water based wood stain and brush on all surfaces of the planks. Allow it to dry thoroughly before moving on to the resin stage.

If you want to add more variation to the planks apply a second coat wood stain.

Darkening the planks

You could use a dark wood stain as above to achieve the darker planks. But we found that using a blow torch moving over the wood steadily really brings out the natural grain in the wood. Make sure you practise this technique first on off-cuts. If you do find you darken any of the planks you can sand them using abrasive paper to lighten them up again.

Contrast

Lay the planks out according to the plan and check you are happy with the overall effect. You can now move on to setting up the baseboard and barriers ready for the first pour.

2. Set up the Baseboard and Barriers

This is one of the most important parts of the project and if done correctly will leave you with very little in the way of trimming and finishing to do at the end.

Setting up the base barrier

Once you have accuratley calculated the total table area including the border and gaps between the planks you need to prepare the baseboard. Use a sheet of chipboard larger than the project size to stick the baseboard to. Make sure it's completely flat and level then stick the baseboard to the chipboard using double-sided tape.

Polypropylene sheet

It's very important that you use a suitable material for the baseboard that epoxy resin will not stick to. In this project we used polypropylene sheet which is totally non-stick, can be reused and will give an adequate finish for the underside of the table.

Setting up the side barriers

Again using a material that epoxy resin will not stick to create the barrier and secure to the baseboard. In the project we used this special release tape which the resin doesn't stick to, to completely cover the timber batons.

Folding the tape

Positioning the tape to leave an overhang then folding it to create a hinge effect is really useful for sealing the side barrier to the baseboard. The release tape is available in a 25mm and 50mm widths so is great for covering the batons and sticking down to the base.

Seal the corners

Make sure that you seal the corners of the barriers and the baseboard to make the box watertight to prevent any leaks and to stop the resin from sticking to the wooden batons.

3. Measuring and Pigmenting the Resin

Having previously worked out the total amount of resin needed to complete the project we need to pigment the resin in one batch to ensure a consistent colour throughout. This means measuring out the total amount of the resin (Part A) and adding the total amount of pigment required which will be required throughout the layered pours in the project.

First you will need to measure out the total amount of resin (Part A) in to a clean bucket using digital scales. The GlassCast 3 resin has an easy to use 2:1 mix ratio by weight - this means you will need 2 parts resin (Part A) and 1 part hardener (Part B). Do not measure out any hardener (Part B) at this stage, this will be added at each layer stage of the project.

Using the calculation on page 5 we know that we will need 12.8kg GlassCast® 3 in this project so 2 parts resin = 8.54kg.

Weigh out 8.54kg Part A into a clean bucket using digital scales and add the pigment - try and experiment before so you can calcuate the ratio of pigment to get the colour you wish to achieve.

To achieve the eye popping colour in the project which is vivid but still translucent we used the ratio of 50g pigment to 15kg GlassCast, this worked out at just under 2 bottles of the neon yellow pigment. Thoroughly mix the pigment into the resin using a stirrer, making sure that you scrape the sides of the bucket and the mixing stick as the pigment does tend to cling to them. Keep stirring steadily and folding in any unmixed pigment until the colour is consistent throughout the mix.

4. Resin Process for each Layer

Measuring and mixing the resin

For each layer weigh out the Glasscast® 3 pigmented resin and the correct amount of hardener for that layer. Be as accurate as possible - using digital scales and sticking to the mix ratio by weight:

By Weight: 2 (parts resin) and 1 (part hardener)

Best practise for mixing resin and hardener together is to always mix for a minimum of 3 minutes, making sure that you scrape the side and bottom of the container to ensure a thorough mix before transfering to a second container to mix again (see double potting method on page 11). Mix in multiple, smaller batches

Resin and hardener

The success of your GlassCast® 3 project will come down to the correct measuring, mixing and pouring procedure.

Weigh out 2 parts of the pigmented resin and 1 part of the hardener using digital scales into a bucket and mix together.

Remember: only mix up the amount required for the layer you are working on.

Mixing

Mix the resin and hardener together for a minimum of 3 minutes making sure that you scrape the sides and bottom of the bucket and mixing stick.

Slow, steady mixing is very important to minimise air entrapment.

Multiple Pours

As well as making thorough mixing more practical, mixing in multiple smaller batches has some other advantages too. Such as being able to attend to each batch individually, avoiding mixing up unwanted quantities of resin and ensuring thorough mixes throughout the project.

Double-potting

After mixing the resin in the first mixing bucket for three minutes, transfer the mixture into a second bucket and mix again slowly and steadily for 3 minutes to ensure a complete mix. This is known as 'double potting'. It's a good idea to label the buckets '1' and '2' to avoid confusion.

IMPORTANT:
Double potting!

To get the best results from the GlassCast® 3 epoxy resin it is advisable to 'double-pot' each mixture. This means mixing the resin and hardener together steadily and thoroughly in the first bucket, making sure that you scrape the sides and bottom of the bucket then after approximately 3 minutes transfer the mixture into a second bucket without scraping the bucket and mix again for a further 3 minutes. This will ensure no unmixed resin finds it's way on to the surface being coated.

5. Stage 1 - Pour the Base Layer

Calculate the amount of resin and hardener required for the base layer pour. The base layer (which will be the underside of the table) needs to be poured to a depth of 3mm. This will form a layer that the planks will sit upon in stage 2.

How much resin?

Table area 1.28sqm x 3mm depth = 3.84kg

So, at the 2:1 ratio we will need

3.84 x 0.666 = 2.56kg resin

3.84 x 0.333 = 1.28kg hardener

Accurately measure out the resin and hardener and mix according to the directions on pages 10-11.

Pouring the resin

Pour the resin directly onto the base board in one go. We know that the amount calculated is correct for a 3mm depth.

You may need to help the resin to spread around the surface area of the barriers.

Spread out the resin

Using a resin spreader move the resin around the baseboard until full coverage is achieved. The GlassCast 3 is a specialist coating resin and has special additives which will help it to settle completely flat. It also cures to a hi-gloss finish which in the surface pour will mean we do'nt need to flat or polish the surface.

Air bubbles

GlassCast has excellent properties for expelling air bubbles trapped in the resin from the mixing and pouring stage. When the resin has been poured you may notice some tiny air bubbles, but after a few minutes you should start to see them begin to rise to the surface and pop by themselves. If any bubbles do persist you can remove them using a heat gun on a low setting. Using a heat gun to gently warm the surface will help to break the surface tension and expel trapped air.

Leave to cure to the B-Stage

Now leave the resin to cure to it's B-stage. This means that the resin is firm enough to sit the planks on in stage two but still has a tackiness left in it to help the next layer of resin bond properly to it. In an ambient temperature of 20°C the B-stage will be achieved in approximately 12 hours, but do check with a gloved finger so you can prepare and pour the 2nd layer while at the B-stage. If you do miss this stage you can key the surface with abrasive paper and pour on to that.

6. Stage 2 - The Sealing Layer

At each resin stage of the project we will use the same process for measuring, mixing and pouring as described on pages 10-11.

Sealing layer calculation

To seat and seal the planks we will need the equivalent depth of 1.5mm resin.

Table area 1.28sqm x 1.5mm depth = 1.92kg

So, at the 2:1 ratio we will need

1.92 x 0.666 = 1.28kg resin

1.92 x 0.333 = 0.64kg hardener

Measure, mix, pour & seal

Once measured and mixed pour the resin straight onto the base layer and using the spreader move the resin around to cover the base if necessary.

You are now ready to place the planks onto the bed of resin.

Using the poured out resin and a brush, paint the resin onto the underside of the planks.

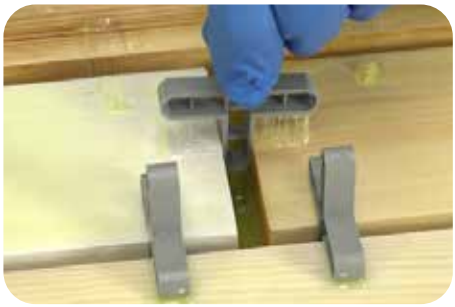
As you lower the planks tilt them on the long edge and lower slowly with a slight rocking motion until the plank is sitting on the resin. This will help to prevent air pockets being trapped on the underside of the planks.

Keep going until all the planks are roughly in position, then using the brush and the resin around the planks brush over all surfaces of the planks until all the wood is sealed.

This sealing stage is very important as it will stop air bubbles escaping from the wood.

Once all the planks are coated in resin spend some time positioning the planks and securing in place using the tile spacers to keep the 8mm gap while the resin is curing and if required use some spacers to secure the gap around the outside. This will stop the planks from floating around on the surface of the resin. Once you are happy with the spacing and are certain all of the surfaces of the planks are

covered leave the resin to partially cure. Ideally you want to remove the tile spacers when the resin has started to gel whilst it is still easy to remove them. It can then be left to reach the B-stage again before moving on to stage 3 - the fill layer.



Removing the tile spacers

When you remove the tile spacers the resin should be very tacky, but this will be much easier than trying to remove them at the B-stage. Reaching this stage should take around 3 hours and any marks visiblein the resin at the B-stage will be covered at the next stage.

7. Stage 3 - Pour the Fill Layer

In this third stage we want to fill all the gaps between and around the planks until the resin is flush with the tops of the planks. If you have chosen a different depth plank, size gap or border you will need to adjust your calculation.

Fill layer calculation

To fill the gaps between the planks and fill the border we will need the equivalent depth of 2.5mm resin.

Table area 1.28sqm x 2.5mm depth = 3.2kg

So, at the 2:1 ratio we will need

3.2 x 0.666 = 2.13kg resin

3.2 x 0.333 = 1.07kg hardener

Fill the gaps

Remember to follow the resin process on pages 10-11 and it is helpful on stage 3 to prepare the resin for the pour then pour half of the mixture in the gaps before pausing to use the heat gun to help to get rid of any air bubbles that may be clinging on to the sides of the planks. Take care with this stage as it is the deepest pour. By pouring in two halves it means any air bubbles dont have as far to rise up.

Next pour the second part of the mixture to fill the resin flush to the top of the planks. Use the resin spreader to push any excess into the gaps and border and using a paint brush to break the surface tension paint over the tops of the planks to evenly distribute the resin.

Air bubbles

Use the heatgun again to expel trapped air and leave the resin to cure to the B-stage.

Once the resin has reached the B-stage -test again with a gloved finger and you are now ready to go ahead with the 4th and final pour.

This 4th layer will form the shiny surface of our table so it is worth taking extra time to ensure that everything in this stage is done perfectly - from the measuring, mixing and pouring.

8. Stage 4 - Pour the Surface Layer

Make sure that the resin process from pages 10-11 is followed exactly for this critical final pour.

Calculation

For the 4th and final pour you need to measure and mix the same amount of resin and hardener as Stage 1 - both the base and surface will be 3mm in depth so that the planks appear to be suspended in the middle of the resin.

Resin = 2.56kg

Hardener = 1.28kg

Measure and mix the resin and hardener before pouring out the mixture in one go and if required using a spreader to ensure full coverage.

Then prepare a cover for the barrier box to make sure that no tiny particles of dirt or dust that may be in the air can get into the curing resin.

Then leave the resin to fully cure. This will take at least 24 hours, but if you can leave it for longer it is advisable. This table was left for 48 hours before being checked and then demoulded.

9. Removing the Barriers

Before removing the barriers make sure that you check that the resin has fully cured. Be patient at this stage and make sure the resin is fully hardened. You can check this by pressing your gloved thumbnail into the resin - if it is fully cured you will not be able to make a mark no matter how hard you try. You can then remove the barriers and baseboard.

Removing the baseboard

Turn the table top upside down and you will see that the base will peel away really easily if you have used a non-stick material like the polypro-pylene sheet.

Removing the barriers & tape

Then turn the table top back over and prise off the barriers - these will also easily pull away if you have used the non-stick release tape.

You will notice that the sides of the table look quite good already but there will probably be a meniscus of resin around the edge of the piece that needs to be removed.

Removing the barriers & tape

Then turn the table top back over and prise off the barriers - these will also easily pull away if you have used the non-stick release tape.

You will notice that the sides of the table look quite good already but there will probably be a meniscus or raised lip of resin all around the edge of the piece that needs to be removed.

10. Finishing

To remove the sharp meniscus of resin and leave the edges as smooth as possible we used an electric planer and then used abrasive papers to wet sand the edges and a polishing compound to bring the edges up to the same hi-gloss as the table top.

Planing the edges

If you don't own an electric planer it may be a good investment for this project, you could do the same job by hand although it will take alot more time and effort. The finish the planer leaves is pretty good and will not take much further work to bring up to a full shine.

Wet Sanding

Good technique is called for when flatting the edges. You will need to gradually work your way up through the grits of paper starting with 240, 400, 800 and 1200 making sure that you use a block and making sure that you change the water between each grit paper. Using the block will avoid accidentally radiusing the edges and make sure that you only move on to the next grit when you've removed all scratches from the previous grit.

Polishing

Then wipe the table down before polishing the edges. We use the Pai Cristal NW1 polishing compound which is a fast cutting compound ideal for tough plastics like epoxy.

The full shine on the table edges can be reached by hand polishing or by using a power polisher and can be achieved quite quickly if done by hand.

Fitting the legs

At this point the table top is completed and all that remains is to fit the legs of your choice. We chose some industrial style legs in black from the Hairpin Leg Co - the legs you choose depends completely on the style you like. Follow the manufacturers instructions to fit the legs - which will be a relatively

easy process because the legs can be fastened staright into the planks on the underside of the table.

Fitting the legs

Mark up and then drill through the the resin into the planks using a spacer so you don't drill too far and then using chunky self tapping screws secure the legs to the table.

You could make legs in the same way the table was made if you wanted to create continuous sides rather than have different legs.

Finished Table

The table is now complete and for the quality and uniqueness of the end result it really was relatively fast on actual labour time and the difficulty level was relatively low.

The table really does look amazing and if you want to create something as 'statement' as this piece and you use the GlassCast® 3 resin - you should be able to achieve results just as amazing as this!