

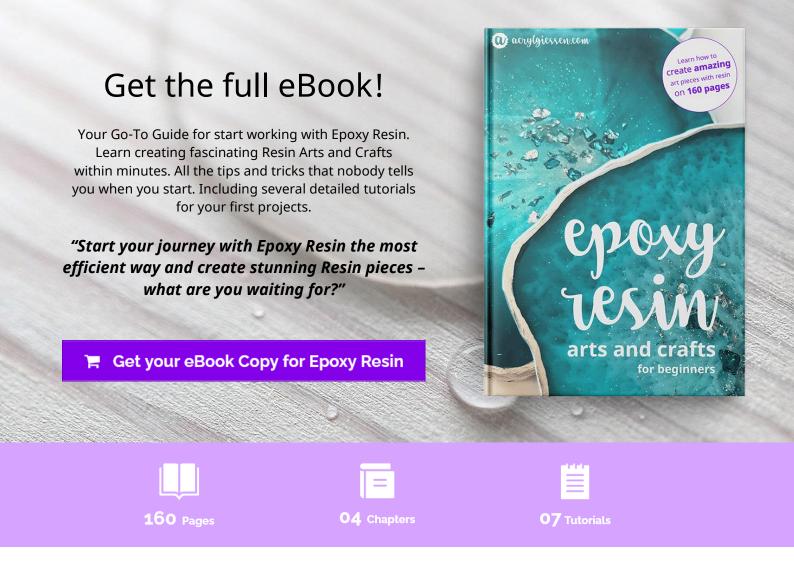
reading sample

Learn how to create amazing art pieces with resin ON 160 pages

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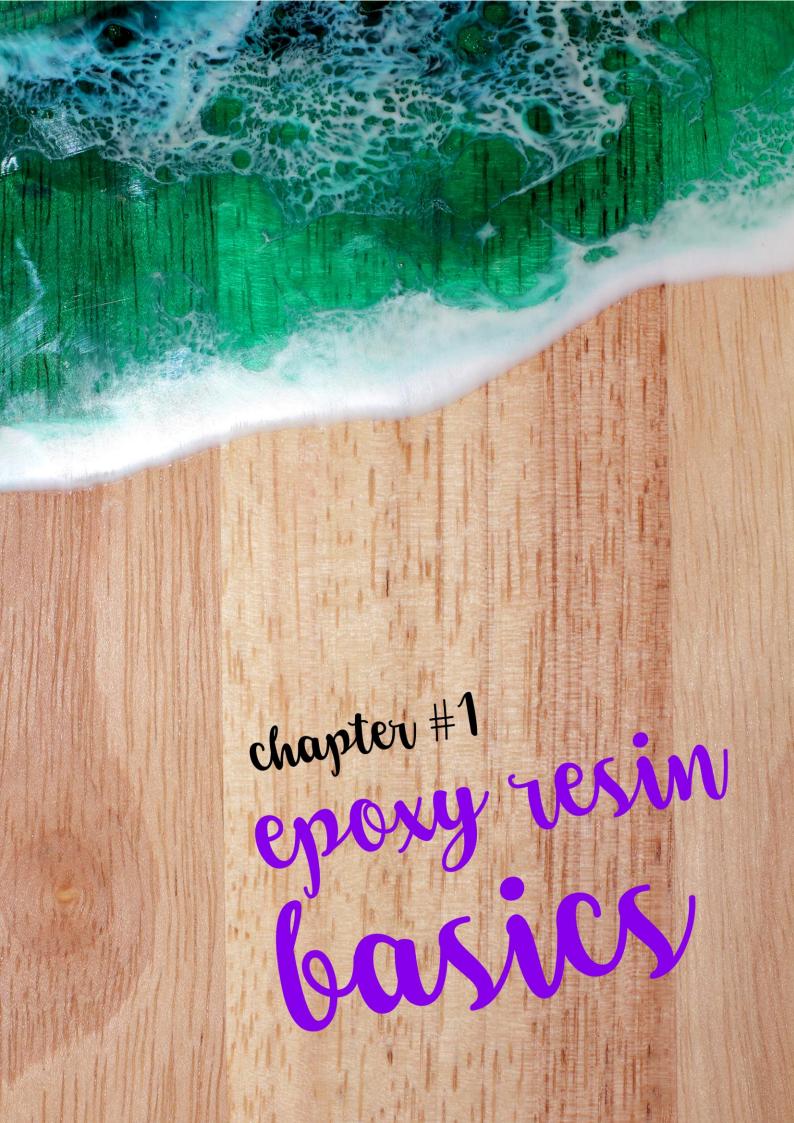
for beginners



Welcome to the addictive hobby of creating pieces of art with epoxy resin. We, the team at acrylgiessen.com are so delighted you had a look in our exclusive reading sample! You could be brand new, yet to make your first piece, or maybe you have created a few and are looking for more information to expand your skills. Either way, we have created this eBook for you.

We tried to gather all the necessary information about starting to work with epoxy resin to make sure you have an easy entry into this new addiction. Also, you will find tutorials for different Resin Art projects. Of course, it's not intended to be a 'teach you everything complete guide', providing everything you will ever want to know about working with epoxy resin. Much of that has to come from your own practice, experiments and experience. But if you are looking to create your first art pieces, we're sure that we have you covered.







# Epoxy Resin Beginners Guide

Epoxy Resin is becoming more and more popular. But what exactly is resin and what is the difference between laminating and casting resin? We explain the differences between the resins, what they are used for, and which are the best products on the market for your specific projects.

# What is Resin?

**Epoxy resin or resin is a material that can be used for many different purposes and is created by mixing two components that are matched together**. If the liquid resin is mixed with a suitable hardener, a chemical reaction is set in motion that usually lasts several hours.

After the components have been mixed, not only is heat radiated, but the material is also converted from a liquid to a solid / cured state. Usually, the mixing ratio of resin to hardener is 1 to 1 or even 1 to 2, so that the material can cure perfectly. If you look up this exciting topic on the Internet, you will usually come across the terms epoxy resin, synthetic resin, casting resin, laminating resin, or just resin again and again.

**Different epoxy resins or casting resins, each with individually different properties, can be used for a variety of different applications according to the manufacturer's specifications.** There is a wide range of different resins, which differ considerably in terms of the duration of the curing process and the hardness and durability of the finished transformed surfaces. Further parameters for the selection of specific epoxy resin can be factors such as the maximum layer thickness that can be formed with the material or its heat resistance.

The different properties of epoxy resin in different product variations:

- **viscosity** (flowability)
- The maximum thickness of the layer that can be applied per casting process
- **Duration of the curing process**
- Adhesion properties on surfaces of different materials
- **Degree of hardness after thorough completion of the transformation**

# We would like to show you which aspects you should pay attention to when buying epoxy resin to have exactly the right material at hand for your intended project.





Exclusive for our readers: 10% off the entire epoxy resin range

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# What is Epoxy Resin Used for?

Essentially, epoxy resin is very versatile and can be used for different types of art and craft projects. The following examples are only a small sample from the multitude of possible applications:

- **Soil sealing in living spaces**
- > Fixing of stone carpets indoors and outdoors
- Out-resistant sealing of worktops in the kitchen
- Pieces of epoxy resin and wood such as cutting boards
- Modern renovation ideas for old buildings
- > Jewelry made of epoxy resin
- **O** Quick repairs with special UV resin
- Epoxy resin art objects such as resin art pictures
- The casting of molds and figures of all kinds
- Decorative objects such as Resin Geodes and Resin Petri Dishes
- Timeless resin furniture such as tables made of epoxy resin
- Resin floors for shower trays
- Waterproof sealants for garage floors
- The casting of artifacts and materials in resin
- Self-construction of aquariums and terrariums
- Repairing and gluing small parts together
- Resin as Topcoat or Gelcoat for boat building
- Self-made kiteboards
- Model building projects

# What to Consider When Buying Resin?

Epoxy resins are now available at many specialist dealers and in most DIY stores. The choice is usually even greater when you order via the Internet, where you can often get these materials at the best price. Online you will probably find by far the largest selection of high-quality product variants for all possible areas of application at many dealers.

If you are just beginning to work with epoxy resins, you may be put off by the fact that many epoxy components are not exactly cheap. But that should not be a reason for you to always look for the cheapest offers. After all, product variants that are offered at particularly low prices can sometimes be of such inferior quality that they cost satisfaction points and can demotivate you, not to mention it could completely ruin your work.

**Some products may also contain solvents that are hazardous to health that evaporate during the curing process**. It can happen that your material does not cure completely or is difficult to mix before the curing process. Some cheap resins do not impress with their crystal-clear transparency but appear slightly yellowish during processing. This unpleasant yellowish tinge can be intensified later when exposed to sunlight.



Despite a reasonable price comparison, you should buy epoxy resin components of the highest possible quality in order to work well with them and achieve beautiful results.

# Which Resin is Perfect for your Project?

First of all, this question is about the material properties that characterize a particular epoxy resin mixture. You should, therefore, be able to estimate how the epoxy resin can be processed and worked within the liquid and cured state based on the instructions.

#### Low-viscosity Epoxy Resins / Casting Resins

Caution is required when dealing with viscosity: This term describes the flowability of liquids. Accordingly, we speak of low viscosity when a liquid is particularly thin and flowable. So, if you need a particularly fluid resin, you should buy a low viscosity resin. The property of a nearly watery consistency can be very important for some applications, e.g. if you want to cast molds or for the production of river tables.

However, the low viscosity of these resin variants means that they cure very slowly. You should, therefore, plan for longer time intervals for the next processing steps. But you also have much more time and no stress during processing. After all, low-viscosity epoxy resin usually only hardens after 12 to 24 hours. Since the exothermic chemical process of transformation is so slow, relatively little heat is released. Thus,

in contrast to high-viscosity or medium-viscosity epoxy resins, thicker layers and larger quantities of the material can be processed in one operation without any problems.

Fields of Application for Casting Resin

- The casting of all kinds of molds
- **D** Production of epoxy resin jewelry
- Molded parts in the field of model making
- Furniture such as epoxy resin tables and resin river tables
- Filling cracks and holes in wood
- Epoxy resin floors in living areas or garage floors



#### High-viscosity Epoxy Resins / Laminating Resins

Many thicker and therefore highly viscous or medium viscous epoxy resins are reminiscent of honey with their tough consistency. Product variants in this category are often explicitly referred to in the trade as laminating resin or epoxy resin and are particularly suitable for coating surfaces. However, they can also be used to undertake projects in the field of resin art and resin geodes. With highly viscous resins you should take the manufacturer's instructions regarding the maximum layer thickness of a work step seriously. In many cases, a layer thickness of 1 to 2 cm should not be exceeded for problem-free processing.

For applications which require a high or medium viscosity resin, we recommend the following products: Incredible Solutions Tabletop Epoxy or FGCI Super Clear Epoxy TableTop Resin

#### **Application Areas for Laminating Resin**

- Resin art, i.e. the casting of pictures with resin
- Deco objects like Resin Geodes and Resin Petri Dishes
- Finishing of paintings and works of art of all kinds
- Ocertain variations of resin jewelry
- Sealing of surfaces such as worktops or tables

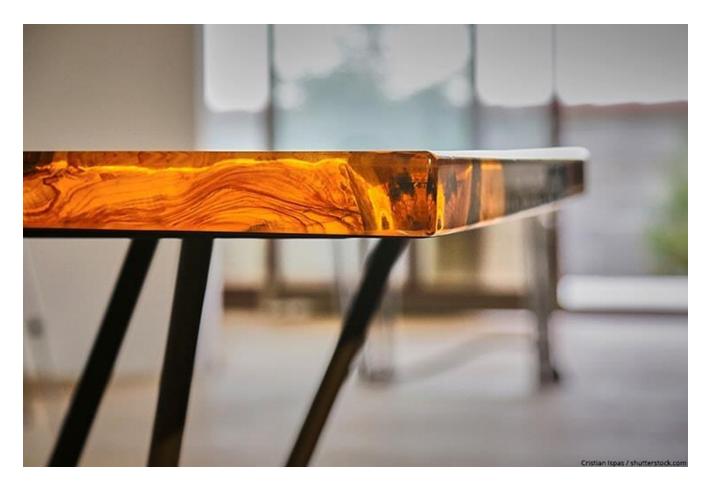


# Information about Different Viscosities

#### Layer Thickness

Thicker layers can easily be cast with particularly low-viscosity resin variants. Since this resin does not heat up as much during curing, thicker layers can also be cast. You can remove air bubbles from the still liquid epoxy resin layer by gently blowing with a hot air dryer or a suitable heat gun.

A more viscous resin such as laminating resin should not be poured thicker than about 1 cm. Air bubbles rising in the material are very difficult to bring to the surface because of the high viscous consistency.



You can usually find the most important information clearly stated in the manufacturer's information on the product packaging. As a rule, this information should also tell you what total amount of material can be used in one operation without problems.

#### **Processing Time**

A very important factor when working with epoxy resins is the so-called processing time. It is also called pot-life or open time by some people. These terms are used to describe the time within which the resin can be processed after mixing the two components (resin and hardener).

At a certain point, a phase finally sets in during which the resin becomes thicker and more viscous. At this point, it should not be processed any further (except perhaps in special cases), as it does not level out by itself and cannot be colored uniformly.

#### **Short Processing Time**

Pros	Cons
<ul> <li>Certain effects can be achieved when dyeing these resin variants.</li> <li>Faster layer build-up: several layers can be poured on top of each other at shorter intervals.</li> </ul>	<ul> <li>Increased bubble formation in difficult venting situations.</li> <li>Under UV radiation a certain yellowing can often occur.</li> </ul>

#### Long Processing Time

# ProsConsIn case of longer processing times, there is<br/>enough time to mix several different colors and<br/>to work them in peace.More individual materials such as mixing bowls<br/>and spatulas are required for casting several<br/>layers.The transition from one layer to the other is<br/>hardly visible when several transparent layers<br/>are stacked on top of each other.Image: Cons

#### **Curing Time**

The curing time of epoxy resin is defined as the period after which a state of absolute hardness and durability is reached after mixing the components. Usually, the curing time is also related to the processing time: If it has a short processing time, the resin is usually completely cured and hard even after a comparatively short time.

#### How much do different products differ in terms of processing time?

- Products with a rather short working time of about 20 minutes to 1 hour should be completely cured after about 24 hours
- Products with a working time of up to 12 hours allow for more complicated processing and effects, but also need up to 1 week for complete curing



# The Properties of Epoxy Resin at a Glance

In recent years, the production and sales volumes of epoxy resins have increased in leaps and bounds. This is not least because more and more people know about the incomparable properties of this special material.

#### The Extraordinary Advantages of Epoxy Resin

Many people who hear or read about it for the first time ask themselves this question: What is resin? This question can best be answered by listing its special properties. The properties listed below refer to the firmly cured state after mixing and curing. Depending on the manufacturer and product, this state may not be reached until after about a week. You will generally find more detailed information on this in the manufacturer's instructions directly on the packaging of your components. Sometimes, it appears much earlier as if the casting resin has already completely cured. In many cases, however, the chemical transformation takes much longer than expected. **However, once the curing process is complete, the following positive properties apply to almost all products:** 

- **•** Extremely high abrasion resistance
- Generally high material strength
- Insensitive to impact (does not shatter or splinter)
- Usually a low shrinkage during the conversion from liquid to solid
- **Density values of around 1.2 grams (per cubic centimeter)**
- **O** Good UV-resistance with correspondingly high-quality products
- Adheres well to almost all materials (for example also to wood)
- High heat resistance
- Acts as an electrical insulator
- High acid resistance
- With careful substrate preparation: hardly any cracking of the epoxy resin
- **O** Good weathering resistance in outdoor areas

#### High-quality epoxy resin is also only slightly or non-flammable in a liquid state.

#### **Almost Absolute Durability**

A fully cured surface of high-quality epoxy resin is extremely durable and abrasion resistant. The material is mechanically strong without deformation. It is also acid-resistant and not susceptible to corrosion. Therefore, the high-quality resin is also used as a cut-resistant coating for kitchen worktops.

#### Possible Disadvantages of using Resin Epoxy

Although the positive properties of epoxy resins outweigh their disadvantages, there are of course certain negative aspects of this material:

- With highly concentrated acid, the resin is not completely acid resistant
- The liquid raw material may cause allergies and/or rashes in some people after skin contact

- Some products are not lightfast under UV light and may yellow
- Already cured resin is not easy to remove

# Are Epoxy Resins Toxic or Dangerous?

The liquid resin and the corresponding hardener contain substances that should not be applied directly to the skin. Direct skin contact through the components in their raw state could (as with many other substances in everyday life) to a certain extent, cause irritations of the skin or even allergic reactions. In general, we recommend you always approach projects with epoxy resin in very well-ventilated rooms only. In addition, you should always protect your eyes with suitable protective goggles and ideally also wear a breathing mask with filter. Relevant safety instructions from the manufacturer on the packaging should be observed.

The following protective steps must be taken every time you work with epoxy resin:

- Wear protective goggles (which completely enclose the eyes)
- Wear old clothes with long sleeves and legs (or a protective suit)
- Only work in a well-ventilated room
- O Use undamaged nitrile gloves
- Wear a respiratory mask with integrated filter
- Do not fill the vessel to the brim when mixing the components, otherwise, the mixture can easily spill over the brim when mixing

As long as you follow these basic rules, there should be no major problems when working with epoxy resin. You can find further information in our separate blog post on the subject of epoxy resin processing.

# How can Epoxy Resin be Colored?

Epoxy resins are usually colorless and transparent. This is why they are so often used for applications where objects or collectibles are cast in resin. But transparent resin is also very often used for the manufacturing of self-built aquariums or terrariums. There are, however, many other conceivable applications for which you might want to color the resin.

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#### Which Colors are Suitable for Coloring Epoxy Resin?

The following different types of colors are suitable for coloring resin:

- Powdered color pigments
- Alcohol Inks
- Color concentrates in liquid form
- Airbrush colors

Do not use paints that contain water. The water contained in the paints could prevent the epoxy resin from curing completely or cause other undesirable effects on the resin.

**It is always worth buying high-quality products when coloring epoxy resin**. Only if they are of the right quality can the colors be impressive in the long term due to their lightfastness. Hardly anything is more annoying than to notice the fading of a small work of art made of epoxy resin just a few weeks after production.

As an alternative to coloring the epoxy resin mixture, workpieces made of resin can also be painted afterwards with a high-quality car paint based on 2 components. However, this effort is usually only carried out under the special requirements for the construction of aquariums and terrariums.



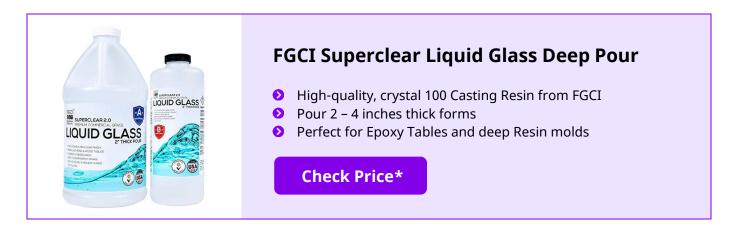
# **Recommended Epoxy Resins**

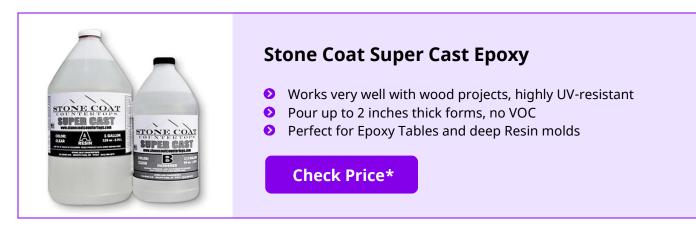
To make beautiful epoxy jewelry out of resin you should, first, choose the most suitable material. There are primarily four different types of resin that you can buy in the craft shop, hardware store, or, of course, online. The difference between the different types of resin lies in their composition. This affects the processing method, curing time, and last but not least, the appearance of your unique project. Next, we present to you the resins which are suitable for resin jewelry:

# **Casting Resin**

**Casting resin has become very popular in the DIY scene and among DIY enthusiasts.** Casting Resin is a two-component resin and is ideal for the production of resin jewelry, among other things. Although it is somewhat more expensive than other resins, it is odorless, crystal clear, and 100% non-toxic after curing. Casting resin is a low-viscosity (very fluid) resin which, therefore, has a relatively long curing time. On the other hand, relatively thick layers of up to 10 cm can be cast with this resin. Therefore, it is also suitable for larger objects and is often used to make furniture such as epoxy tables.

#### Our recommendations:

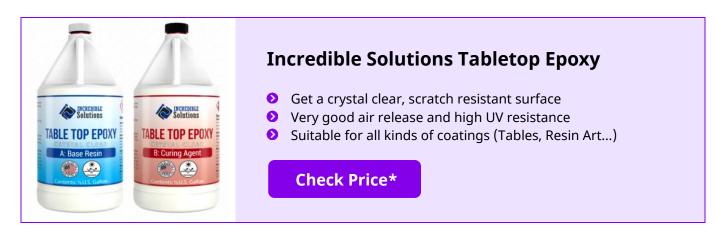




# Countertop Resin / Laminating Resin

Laminating resin is the classic and most widely used epoxy resin on the art scene. Laminating resin is somewhat similar to casting resin and also consists of two components. The difference to casting resin is mainly in the viscosity: Laminating resin is more viscous (medium to high viscosity) and is only suitable for thin thickness layers and for sealing surfaces. The reason for this is that, due to its chemical composition, i.e. the fast-drying time during curing, this resin can become very hot and, therefore, cloudy and brittle if the layers are too thick. Therefore, several layers must usually be poured (except in small objects).

#### **Our recommendations:**





#### FGCI Super Clear Epoxy TableTop Resin

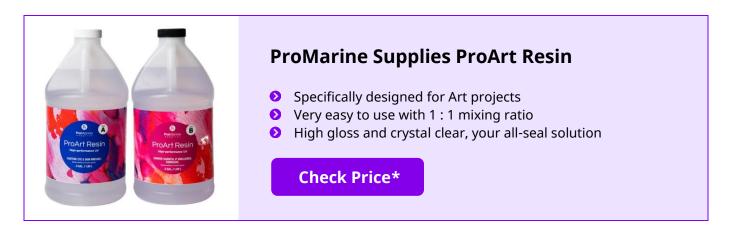
- Super clear Epoxy Resin for coating and Resin Art
- Formulated for hard and durable surfaces
- UV-resistant, low VOC's and solvent-free, made in the U.S.

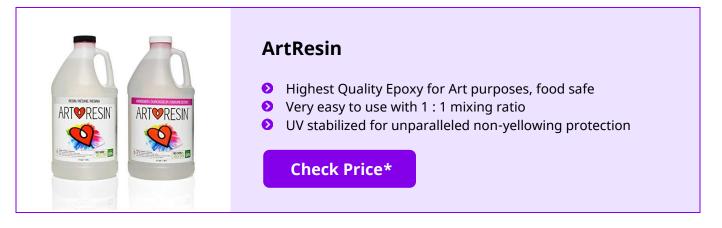
#### **Check Price\***

# Art Resin

**Epoxy resin for artistic purposes is mainly used for Resin Art** (i.e. paintings) but can also be used for resin casting to a limited extent. However, it can only be used for small-format castings. In contrast to casting resin, it is somewhat better suited for embedding objects, as the higher viscosity of the resin means that objects cannot sink so easily. When casting light objects, such as flowers or glitter, this advantage can, therefore, be put to good use. Laminating resin is also very often used for the production of Resin Petri Dishes to achieve the typical effect in combination with alcohol inks.

#### Our recommendations:





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# Mixing Epoxy Resin

The correct procedure for mixing resin determines success or failure in processing the resin. To help you get the best results, we have compiled the 12 best tips on mixing epoxy resin for you in this article.

# The correct Mixing Ratio

First of all, when mixing epoxy resin, you should be aware that the resin can have different mixing ratios depending on the manufacturer. In addition to the usual specifications of resin and hardener in a ratio of 1:1 or even 2:1, the manufacturer's specifications sometimes also include much more complicated variants such as 100:45. For this reason, you should read the manufacturer's instructions on the packaging carefully before you start mixing. If you do not follow these instructions, the resin may not work as desired or may not cure completely. Our epoxy resin calculator will help you determine the optimum mixing ratio.

# Mixing by volume instead of by Weight

Depending on the manufacturer, the resin and hardener may differ in density. This means that they do not necessarily have the same weight. If the two components are now measured by weight using a scale and

mixed in a ratio of 1:1, the mixing ratio may be incorrect because they have different weights. This problem increases the more volume you mix.

# *Tip:* Use a measuring cup to measure the resin and hardener by volume when mixing the components. In this case, the density of the corresponding material is irrelevant.

The scale of the measuring cup used should have the smallest usable increments possible to enable accurate measurement. First, put the resin into the measuring cup and wait a short moment. This allows the surface of the material to level out. Then you can add the same amount of hardener.



### **Observe ambient Temperature**

Casting resin is a very heat-sensitive material. Therefore, you should also keep an eye on the ambient temperature when mixing the resin.

- At ambient temperatures below 20° C., the resin cures much slower. Also, a waxy layer, the so-called amine reddening, can form on the surface. This must first be removed before the epoxy resin can be further processed. However, this removal can be extremely laborious. If the temperature drops significantly below 20° C, it is also possible that the resin will begin to crystallize
- At ambient temperatures above 20 ° C., the reaction time of the resin increases significantly. This applies not only to the time of curing but also to the time in which the material is to be further processed. At very high temperatures it is, therefore, advisable to opt for a product with a longer processing time

If you use epoxy resin outdoors, you should keep in mind that the curing time can also be considerably longer if the temperature drops during the night. Besides, the dew caused by the temperature differences can negatively influence the quality of the surface of the material.

# The Role of Humidity in Processing

Just as sensitive as the resin is to temperatures, the hardener also reacts to contact with air. Therefore, if the humidity in the air is above 65%, you should leave the bottle containing the hardener closed. If you do not use the material immediately, the quality will suffer.

This effect also occurs when the bottle is opened and closed again and again, as oxygen enters the bottle each time and reacts with the hardener. For the same reason, the two components, resin and hardener, should only be handled with clean tools. In this way, a reaction within the container can be prevented.

# *Tip: As undesirable side effects can occur at a humidity above 70 %, the epoxy resin should not be used in this case.*

If the application is to be carried out on a substrate with a moisture content of more than 6 % (e.g. concrete floor), this substrate should be primed in advance. To ensure that epoxy resin can be processed optimally, it should first be stored for approx. 12 hours at an ambient temperature of 20° C to a maximum of 25° C. If this long storage period is not possible, the material can also be brought to the correct temperature using a water bath. This step is extremely important for a satisfactory result, as unsightly milky streaks or bubbles can form when cold casting resin is processed. These are difficult to remove later.

The flow properties are significantly improved by heating the material. As mentioned above, however, higher temperatures also influence the processing time. You should keep in mind that the processing and curing time is halved for each 10° C increase in mixture temperature.

Tip: Not only the temperature of the synthetic resin must be taken into account, but also that of the surface on which the mixture is to be poured. If this is significantly lower than the temperature of the resin, which is tempered to a point, the curing can be negatively influenced. Temperature and humidity should be kept constant if possible, to achieve optimum results.



# Careful Mixing of the Components

The thorough mixing of the resin and hardener is essential to obtain attractive and useful results. If you do not work carefully enough, there is a risk that incompletely cured, sticky spots may appear in the resin or that the hardness levels within a workpiece may vary.

When mixing the components, note that often a lot of material sticks to the edge of the mixing container. Since this can affect the mixing ratio, you should not mix too small amounts of resin and hardener in order to have enough material available.

# Perfect Tools for mixing Components

The optimal tool for mixing resin and hardener must have straight sides. This will enable you to thoroughly mix the material that sticks to the bottom and sides of the mixing container. For small quantities of epoxy resin, a flat spatula has proved to be a good choice.

This works similar to a stirring rod. For small quantities you can use a cheap wooden spatula. Special epoxy resin mixing sticks have the advantage that they can be used several times. They are also designed to prevent too much air from being stirred in. However, these mixing sticks are only advisable for mixing medium quantities of resin.

*Tip: If you want to mix a large amount of epoxy resin, you should use a bucket with a spout. In this bucket, the two components can be easily mixed with a drill with a mixer attached.* 

# Only use high-quality Epoxy Resins

When purchasing epoxy resin, it is always worth investing in a high-quality product, even if you are tempted to fall back on a cheap product. In retrospect, you will regret this purchase, as cheap products are often discolored yellowish or do not cure before processing. So, when buying epoxy resin, the following principle applies: If you buy cheap, you buy twice.



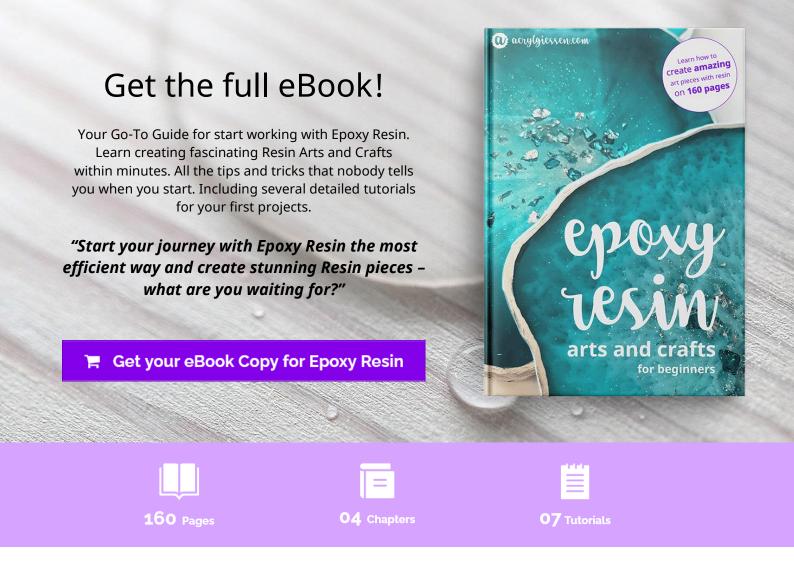
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# Use only compatible Resins

Resin and hardener from the same manufacturer are usually optimally matched to each other. When mixing different products – both from one and from different manufacturers – unexpected chemical reactions such as extreme heat development can occur. Therefore, when working with synthetic resin, you should only use the products from one manufacturer or brand that are intended for each other.

# Use only compatible Colorants

Not all colorants are compatible with epoxy or other resins. When coloring epoxy resin, it is extremely important to use only suitable color pastes, coloring agents, and pigments. You can find detailed information about this in our extra article on Epoxy resin color.



Welcome to the addictive hobby of creating pieces of art with epoxy resin. We, the team at acrylgiessen.com are so delighted you had a look in our exclusive reading sample! You could be brand new, yet to make your first piece, or maybe you have created a few and are looking for more information to expand your skills. Either way, we have created this eBook for you.

We tried to gather all the necessary information about starting to work with epoxy resin to make sure you have an easy entry into this new addiction. Also, you will find tutorials for different Resin Art projects. Of course, it's not intended to be a 'teach you everything complete guide', providing everything you will ever want to know about working with epoxy resin. Much of that has to come from your own practice, experiments and experience. But if you are looking to create your first art pieces, we're sure that we have you covered.



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