ipox®
Customized Epoxy

clearpox epoxy systems from ipox®

processing instructions and practical tip for working with Epoxy Resin

Please read carefully before starting your project!

Because of their excellent properties, epoxy resins take more and more room to cover a wide range of applications. Epoxy Resins are usually industrial products and mostly only available for professional users.

ipox has, as a responsible European Epoxy Resin producer developed substances for casting applications, which have been registered at the ECHA (European Chemical Agency)

Therefore, you play it safe, if you work with ipox products on your project!

As we are a responsible Epoxy Resin Producer, your safety when dealing with Epoxy Resins is very important for us. You always have to consider, that you are working with reactive chemicals. The hardening reacting between the 2 components always takes place under an "exothermic chemical reaction", which means that **heat will be released!**

However, if you do not work safely with Epoxy Resins, serious health problems can arise!

We would like to ask you carefully read the following information below on the safe handling of epoxy resins – **we take your health very seriously!**

Please read the attached Material Safety Data Sheet and follow the instructions.

Health and safety

You should always wear gloves and protective goggles; we also recommend wearing a protective suit for larger projects to avoid skin contamination. Epoxy Resins can cause allergies.

During Processing Epoxy Resins

Processing should only take place **in well-ventilated rooms**. When processing epoxy resins, the information in the safety data sheet must also be observed!
Attention, if your eyes are contaminated, flush immediately and consult a doctor!
Please always clean your hands thoroughly with a suitable cleaning paste or soap after working.
All epoxy resins can cause allergies!


Working with Epoxy Resins

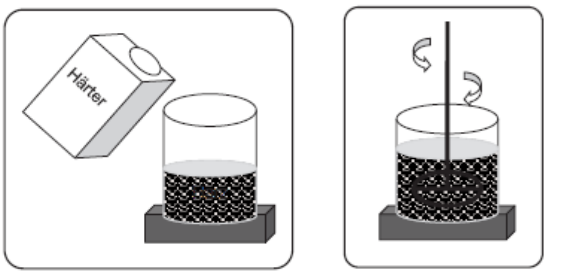
The processing temperature for epoxy resins should be between 20 – 30°C, not below 10°C. The curing reaction is strongly dependent on the temperature (high temperature = faster curing, low temperatures can greatly slow down the curing reaction.
The success of your project depends on the optimal reaction temperature and it is even the best to work at a temperature of around 25°C. We developed the product on this basis and all specified product features have been optimized for this temperature (gloss, strength, aeration, etc.)

The mixing ratio between resin and hardener must be strictly adhered to, please refer to the respective technical data sheet with the exact mixing ration and processing time.

Sequence when processing Epoxy Resin

Measure the resin and the hardener exactly with a scale. The two components must then be homogenized until no more streaks can be seen and a homogeneous mixture is ready for use (usually 3 – 5 min, depending on the volume).
To do this, move the stirrer around at the edge and bottom of the mixing container, as the material can settle there. This is the only way to ensure that the resin and hardener will be mixed completely and no unmixed material will settle at the bottom.
Unmixed material will not cure.

For larger projects (> 2 kg) an agitator, a drill or a mixing propeller should be used for mixing. The bottom and edge areas should be wiped off and stirred thoroughly. Please make sure to stir slowly and to stir in as little air as possible. It is always required to wear protective googles during the mixing process.



Harz vorlegen, Härter zugeben… *… intensiv durchmischen…*

The surface of the object to be casted must always be dry, clean and greaseless. We therefore recommend to grind the surface and to clean with acetone to remove grease. Always allow parts treated with acetone to flash off 2-3 hours. Please observe safety instructions!

If the surface to be worked on is contaminated with silicone, it should be cleaned beforehand with a silicone remover.
Caution: Please always test the adhesion to plastic parts first!

Storage

Close already opened container tightly with the original lid. Keep cool and dry.
If stored correctly, the Epoxy Resin has a shelf life of min. 1 year.
As the hardener is reacting with humidity and carbon dioxide, containers should not be left open. Please close the container always as soon as possible. The hardener can discolour over time.

Cleaning of the equipment

Already cured resins can only be cleaned mechanically, for example by grinding. Uncured resin residues can be removed from the tools with acetone***; these must then sufficiently aerate to avoid the detergent being carried over into new containers.

****Aceton: When using acetone, please observe safety instructions and the safety data sheet. Acetone is a highly volatile solvent and very easily flammable. Acetone can attach surfaces.*

Q & A´s for working with Epoxy

Which containers are suitable to work with Epoxy?

Simple plastic container are very suitable for mixing epoxy resin system.

Why should I strictly adhere to the mixing ratio?

For curing Epoxy Resin, amines are used as a hardener component. The number of molecules between resin and hardener is predefined due to the chemical structures of the resin and the hardener. A deviation of more than +/- 5% changes the molecular composition and thus also the curing reaction. As a consequence, your project will not cure properly, if the mixing ratio is not adhered to. We always recommend to use a scale to ensure that the mixing ratio is adhered exactly. There is a risk that the casting will remain soft and the surface sticky.

Can I still intervene, if my project does not cure properly?

No, it is impossible to correct the mixing ratio afterwards.

How can I use Epoxy Resin at an ambient temperature > 25°C?

The curing reaction is accelerated due to an increased ambient temperature. This can be counteracted by cooling the mixed Epoxy Resin in a water bath. Water absorbs the reaction heat and thus delays premature curing. If you have stored the resin at too low temperatures, we recommend that you warm up the resin and the hardener in a warm water bath to at least 10°C before you start processing.

What is an exothermic chemical reaction?

When Epoxy Resin is curing, a chemical reaction with heat generation (exothermic) occurs between the Epoxy Resin and the amine Hardener. The thicker the casted layer, the faster the resin reacts and the temperature increases. This leads to stress cracks and boiling bubbles. For thicker casting projects, resins are used that react more slowly and thus develop less heat, but also cure more slowly than thin layers.

What should I watch for, when storing Epoxy Resin?

Epoxy Resin should be stored in closed, moisture-protected containers at temperatures between 10°C and 30°C. If the storage conditions are favourable, storage for more than 6 months do not lead to a reduction of any properties. The hardener changes colour over time, as amines react with humidity and the carbon dioxide in the air. For this reason, please do not leave any containers open! The resin component has a tendency to crystallize in unfavourable, cool conditions (Sedimentation or cloudiness) and should then not be used as it is. After heating up to 50°C, this crystallization is reversible and the resin ready for use after cooling down to ambient temperature.

How can I remove air bubbles, that occur during the casting process?

Remove air bubbles with a hot air blower or Bunsen burner. The formation of bubbles depends on the humidity of the (wooden) work piece. Please always use well-stored, dry wood.

How long can my already mixed Epoxy Resin be processed?

After mixing the two components (Resin and Hardener), you have a defined time to process the material. After that period, the epoxy resin becomes more and more difficult to work with due to the proceeding curing process. This period of time is well known as “pot life”. The pot life is available in the technical information of all our products. As soon as you notice that your mixture is heating up, you should stop your casting process, otherwise you will no longer get a homogeneous surface of your objects. This significant increase in temperature indicates the end of your processing time.

What can I use to clean up my Epoxy Resin tools?

In principle, you can use common thinners to clean your tools from Epoxy Resin that is still liquid. However, tools that had contact with Epoxy Resin are always difficult to clean. Therefore, always weight up costs and benefits of cleaning. It is not worth cleaning brushes, rollers, mixing cups etc., if the costs of the cleaning agents is higher than purchasing new tools. In the case of inexpensive tools, we always recommend using new tools. Tools, which have been in contact with cured epoxy resin cannot be cleaned or only be cleaned mechanically.

What surfaces can I work on with Epoxy Resins?

Epoxy Resin adheres to all structurally stable materials, like concrete, wood, plastic, hard foam, natural stone and GRP. It does not adhere to surfaces, coated with silicone or greasy substrates. Surfaces that are to be coated with Epoxy Resin, must always be absolutely free of dust and grease. *Note for working with wood:* if you also work with a particular fatty type of wood such as pine, larch or acacia, you must also clean the surface thoroughly with acetone. A simple wipe is sufficient for closed surfaces. Holes and crack on the other hand, must be washed and dried. We recommend a test in an inconspicuous place.

Can I coat already cured Epoxy Resin with new, uncured Epoxy Resin?

Yes, Epoxy Resin bonds very well with itself. It should be noted, that the cured Epoxy Resin is not contaminated with fats or oil.

How heat resistant is Epoxy Resin?

ipox Epoxy Resin is at least as heat-resistant as any other epoxy resin on the market. No Epoxy Resin is heat or fireproof. This means, that the Epoxy Resin can withstand high temperatures, but contact with hot temperatures should be avoided, e.g. you should not place hot pans on coated worktops or table surfaces.

Is it suitable to use Epoxy Resins for outdoor applications?

Yes, ipox Epoxy Resin can be used in outdoor applications. However, we recommend coloured Epoxy Resin for usage in areas exposed to direct UV radiation, as very Epoxy has a tendency to yellow. A large part of UV radiation is filtered out through the windows indoor. For this reason, the Epoxy Resin in the interior is significant less impacted.

How many square meters can be coated with one kilo of Epoxy Resin (component A + B mixed)?

One square meter can be coated with a layer thickness of one millimeter per kilo of the already mixed epoxy resin. Please note that the size of the surface varies due to material abrasion or due to a different layer thickness.

Good luck with your project!

Your ipox Team.

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