



BIORESIN

CR10030 - 250ml

- High-quality, clear, polyester resin.
- Suitability for inlaying natural products.
- U/V stable.
- Contains an additive that allows it to penetrate into even the finest detail.

Casting Resin

XOR casting resin is a high quality, brilliantly translucent, colourless, light transmitting polyester resin, pre-activated with cobalt, and must only be mixed with liquid crystal hardener to create bubble free, crystal clear moulds.

XOR-casting-resin is excellently suited to make so-called bio-plastics. These are mould in which you can lay prepared, natural objects such as fish, lizards, beetles, butterflies, fresh flowers, grasses, leaves and organic materials. The advantage is that these objects do not shrink or change colour so they can be viewed in their natural state through a solid cast resin block during classes in schools and universities. Eternal souvenirs!

XOR-casting-resin contains the additive XOR=xerophile-operations-recipient. It is because of this additive that high-quality objects, which have been pretreated with resin compatible chemicals, can be inlayed. The preparation additives have been modified in such a manner as to become compatible with the XOR-casting resin, eg so they bond. Therefore a now extinct aquarium fish can be prepared and conserved expertly and then look natural when it is inlayed in the resin.

The polyester resin has a slightly bluish tint because of the XOR additive, which has no negative effect when you pour and work with the resin. Rather than that, it has several advantages in comparison with standard polyester resins. It is more liquid and thus penetrates into a bumble bee's fine hairy back and it enables one to inlay a blooming dandelion.

It is also important to mention the brilliance. The resin will remain crystal clear, transparent for many years and will hardly yellow.

Casting technique

Cover your work area with a plastic sheet so you can remove any spills later. Choose a casting form, which is suited for your inlay object and place it on your work area. An object is usually cast in a three-layer procedure. First, cast a thin - approx 4-6mm thick - base coat. Place your inlay object on this layer and pour the resin over it. You will now fill the form with resin. When this layer is hard, add another layer so it nearly flows to the brim. This is important because you will place a precisely fitting cover (51 126) over it later. Now weigh down the cover with a flat object. You will thus save great deal of grinding work later.

Polyester resins tend to harden sticky and slightly wavy if they are air dried. If you place the cover foil over the form the top layer of resin will dry mirror smooth and non adhesive. Simply pull the cover off after the resin dries.

Casting with polyester resin

You must have a form large enough for the object you intend to inlay for this casting technique. A casting form specifies the volumetric content. If you intend to use other objects as forms you must gauge the capacity by litres first eg fill the form with water and then pour the water into a measuring cup. You can then see the required amount on the measuring cup's scale.

If the inlay object is water resistant you should place it in the form immediately because the required amount of material is reduced accordingly. For objects which you cannot use in this manner, you must reduce the required material somewhat (deduct inlay object's volume required amount of resin).

Casting resin has a slightly higher specific weight than water. Therefore, you must multiply the required quantity of material

Form Separating Agent (6.2407.445) sparingly and evenly. The Separating Agent is pink so you can see the areas you have already painted. It dries in approx. 10 minutes and you can begin casting the 1st resin layer.

Due to the fact that the moulds are usually made in a 3 layer process your requirement is approx. 60g to cast the bottom layer. This quantity relates to the previous example of casting a form with 247g. The bottom layer should be approx 4-6mm thick.

Mix the respective quantity of resin with the hardener and let the mixture rest for approx. 1-2 minutes for any air bubbles which have been mixed in, can escape. Now pour the resin onto the form.

If the inlay-object is light eg will rise to the top, you can place it on the layer of resin immediately. It will float on this layer and will adhere when the resin hardens. If your object is heavier and would sink into the resin, do not place it on the resin layer until it hardens.

The resin and hardener will turn a yellowish green colour after they are mixed. You can determine whether the resin is properly mixed by means of this colour. After the resin gels, eg hardens, it will turn crystal clear again. Now you can place your object on top e.g. pour the next layer of resin - use approx. 120g resin in this step.

How to inlay an object

When you place the inlay-object on the resin make sure that the attractive side e.g. the side you want to see, faces toward the smooth form bottom plate. The advantage here is that you can apply a colour protective coating to the mould (heart block) later instead of the previously mentioned colourless final coat.

When the 2nd layer of resin is dry mix the remaining 67g resin - better add 75g of hardener - and pour the resin into the form. Fill it to the brim so you can place the protective foil on top.

Now let the mould harden properly for at least one day. It will shrink slightly. The advantage here is that it will be easier to remove from the casting form.

Fir loosen the mould in the form by pulling the sides slightly away from the form. To loosen the bottom from the form place the mould on a soft cloth - the bottom of the form facing upwards. Now press against the form bottom with your fingers to separate the mould from the form.

Wash any separating agent from the mould with flowing water. Dry the mould and round off edges with emery paper. Carefully rub the mould in circular motions with a piece of crude emery paper (coarseness 120). Repeat this procedure with a finer emery paper (coarseness 220). This is the basic work - now wet the mould with emery paper, coarseness 400, with water and polish the mould. Use a very fine, wet emery paper, coarseness 600 (6.2136.0) to give your mould a final touch.

The casting resin block is nearly finished. It still looks milky because of the sanding down. It will attain its transparent, crystal clear high gloss if you polish it with Polishing Cream (51 116). You need a soft woolen cloth to apply the cream. Apply the cream to your mould in a circular movement until it is really smooth, glowing and thus finished.

How to mix resin:

Weigh the components on a pair of scales to calculate the correct mixture of resin and hardener. If you add too little hardener it will delay the hardening time and the surface can remain sticky for a long time. If you use too much hardener the mould will harden too quickly and cause it to brittle or tear.

Stir the hardener slowly and precisely into the resin. Avoid creating air bubbles and then let the finished resin mixture rest for 2-3 minutes so stirring in air bubbles can escape.

Hardener additive: min 0.6%-max 3%. Weigh the required quantity of hardener or measure it out of the tube.

Important: Never mix the entire tin of resin with hardener!

Mixing chart: All data pertain to a resin temperature of approx 20°C. It is therefore important to store the resin in a warm room. Since resin is a poor heat conductor it does not warm up for several days at room temperature (particularly in winter months). Resin can be warmed up more quickly.

Open the tin (very important) and place it in a pot of hot water for approx 10 minutes. The water temperature should be about 60-80°C. Now remove the tin from the water and stir the resin with a stirrer to attain a consistent temperature. Let the resin cool for at least 60 minutes to room temperature, at which it can be handled.

XOR casting resin	100ml		
Height of Layer	3-4mm	5-6mm	7-8mm
Hardener Additive	2.5%	2.0%	1.5%
Casting Time	40 minutes	30 minutes	25 minutes
Hardening Time	90 minutes	60 minutes	30 minutes
Cast Layer	basic layer	2nd layer	3rd layer

Of course, the stacking height can vary. As a rule, a thickness of 4-4mm suffices the basic layer.

Important: Thicker casting resin layers harden faster. Therefore the quantity of hardener should be reduced to approx. 1.5% so the resin does not heat up excessively during the hardening reaction. So do not forget to reduce the quantity of hardener in the 2nd or 3rd layer. Otherwise the previously cast layer of resin will cause the resin to heat up and the next layer of resin will harden too quickly.

If, for example, you wish to create an extremely high block mould you can also pour up to 10-12mm resin at once as of the 2nd layer. You must reduce the hardener additive to 1.0 to 1.25% because otherwise the resin will heat excessively. It is also particularly important to let the form cool afterwards. Place the form in a bowl of cold water so it can reduce the resin's reaction heat.

If the resin gets too hot when it hardens it can cause stress cracking. Resin is a poor heat conductor. If, for example, the temperature increases excessively in this area after the 3rd layer of resin is poured on it, it can continue to heat downward. However, this takes place erratically and uncontrolled so some areas can become very hot and other areas remain cold. This causes stress in the casting resin block in the form of microfine cracks, which are an unattractive sight. Therefore large moulds should be made with less hardener and cooled constantly. A hardener additive of 0.8 - 0.6% suffices as of the 4th layer casting resin.

Additional layers should only be made with 0.5% hardener.

How to add colour to resin

Polyester glass casting resin can be toned with Resin Toners which are available transparent and opaque.

The colours can be mixed with each other.

Opaque colours: .053 red .055 blue .054 green .052 yellow 0.50 white .051 black

The toners are quite colour intensive so one should only use small amounts to tone the resin.

Important: As a rule, opaque colours are used to tone down the last resin layer, which serves as a base for the object to be inlaid. Only the last layer is toned with transparent colour if you use forms such as semispherical globes. The mould will appear completely coloured if you look at it from above, whereas only the last basic layer was toned.

If you look at the mould from the side it becomes obvious.

Cleaning: Polyester glass casting resin can be removed from tools & hands with Resin Cleaner (remover) if it has not yet hardened.

Special note: Proper airing is a must if you work with the materials indoors.

Caution: The hardener is inflammable. Harmful by inhalation.

Keep out of reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Wear suitable gloves. If swallowed, seek medical advice immediately and show this container or label.

Technical data: Hardened resin is hard wearing, contains chemicals, is water and weather resistant and an excellent isolation. Each 1mm layer is puncture proof up to approx 10,000 volts.

Density (spec. weight)	1.126	
Flash point	approx 34°C	
Tensile strength	55MPa	DIN 53444
Flexional strength	90MPa	DIN 53 452
Elasticity module flexion test	3500 MPa	DIN 53 457
Impact strength	8 kp/cm ²	DIN 53 453
Compression strength	1600 kg/cm ²	L-P406b method 1021
Indentation hardness	1900 kp/cm ² HC60	DIN 53 456
Thermal endurance	up to -30°C and +130°C	
Refractive index at 20°C	1.46	DIN 53 491
Handling temperature	as of 18°C	
Ideal handling temperature	approx 20°C	
Volume shrinkage	6.8%	

Square moulds: 90x90x30mm (6.9791.5) 150x60x30mm (6.9790.8); 135x90x45mm (6.9791.4) Semispherical and ornamental form (6.9793.9)

Please refer to our book 'Casting Resin - Basic Techniques' (Art 6.9811.10) for further information on casting resins.

Recommendations made herein are non-binding because the manufacturer cannot influence or control proper handling of the material due to the fact that such proper handling depends on respectively prevailing circumstances.