

## Epoxy-System E400GB

- Casting Resin, transparent -

The Epoxy-System E400GB is an unfilled, low-viscous 2-components combination of resin and hardener with a very long working time.

Usable for epoxy castings of medium thickness (up to approx. 100mm\*) *depending on surface, temperature geometries and casting quantity (volume).*

### Properties and field of application:

- transparent, low shrink-casting with tacky-free surfaces
- very good flow properties (low-viscosity)
- cold-hardening, demouldable at room-temperature, applicable at slightly increased temperatures
- highly fillable casting resin
- **Optimized UV-Protection**

#### Industrial modelling / hobby modelling:

- ideal for "River Table" making
- creation of transparent, water-clear castings
- foundry patterns, die plates, reproduction patterns, building of medium moulds and castings
- encapsulation of decorative elements

During the hardening process, energy can be released in the form of heat, hence a cooling/heat exchanging should be provided in order to prevent hot spots.

### Processing data:

Colouring	colourless/transparent		
Mixing ratios	100 parts resin : 30 parts hardener (by weight)		
Mixed viscosity	low-viscous	(details below)	
Working time (pot life)	> 300 minutes	(at 20°C)	
Demouldable after*	> 48 h	(at 20°C)	
Full cure	> 7 days	(at 20°C)	
Working temperature	15 - 20 °C	(> 1kg)	
	20 - 25 °C	(< 1kg)	

### Raw material data:

Viscosity Resin (at 25°C)	1000 - 2000	mPa * s	25 °C
Viscosity Hardener (at 25°C)	5 - 25	mPa * s	25° C

### Data of unreinforced resin:

Density	1.1	g/cm <sup>3</sup>	25° C
Hardness (Shore D)	80		
Colour (mixed)	transparent / colourless		

*Specifications after curing 7d at 20°C*

*\* Depends on geometry and total amount of casting.*

### Safety instructions:

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The safety instructions are to be taken from the respective containers or the safety data sheets. Do not allow children to handle. Prevent inhalation of the fumes and contact with the bare skin. Wear suitable protective gloves and safety goggles. Do not eat, drink or smoke when using. Only mix the components in the recommended proportions in accordance with the instructions.

### Application Instructions:

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We recommend tests be performed for trials and suitability for the particular type of application. The system should only be used in the optimum temperature conditions. The relative air humidity should not be above 70%.

In respect of the safety instructions the epoxy and hardener should be mixed in a suitable mixing vessel in accordance with characteristics given in the data sheet. Depending on the material of the mould, a release agent may be necessary to ensure an easy demoulding.

Ensure that the edges are well mixed using a stirring stick or a propeller type mixer. Streaks indicate insufficient stirring and mixing of the components. Deviating from the mixing recommendations can lead to incomplete hardening and through that to a loss of performance.

After complete homogenization of the mixture, additives, dry fillers or colour pigments can optionally be stirred in. By degassing under vacuum at 30-50 mbar, the system can be vented.

Attention: Under vacuum a volume increase is to be expected!

Larger amounts (> 100g) and higher temperatures (> 20 ° C) shorten the processing time. Mixtures which rise above 40°C in the mixing vessel should not be used any further since processing is likewise associated with property losses. Temperature increases are delayed by pouring the mixture into flat paint trays.

### Cleaning work tools:

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Unhardened product remains can be removed from tools by means of acetone or Thinner XB. Tools should be given a good airing after being cleaned with these solvents, in order to prevent the solvent from being retained until the tool is used again. Hardened remains can only be removed by mechanical means, e.g. by sanding.

### Storage:

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Threaded container tops should be kept free of material remains. Do not exchange tops/lids. Close opened containers tightly. Store in a cool and dry place. With optimal storage conditions, shelf-life should be beyond 12 months. Due to unfavourable shipping or storage conditions, the resin can develop a haziness or even crystalize. This can be dispersed and the resin can be restored to its original condition by brief heating ( $\leq 50^{\circ}\text{C}$ ) without loss of properties.

### Deliverable quantities:

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Plastic containers with safety fastening in different quantities.

Larger containers (barrels, IBCs) can be obtained upon request.

### Disposal:

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Do not allow to enter drains, waterways or soil. Uncured product residues are hazardous waste. The cured system is construction site waste / household waste.

### Further Information:

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Further application information can be obtained from our internet site, by selecting product info on the homepage. Please do not hesitate to contact us by telephone if you have further queries.

Information presented herein has been compiled from sources considered to be dependable and is accurate and reliable to the best of our knowledge and belief but is not guaranteed to be so. It is the user's responsibility to determine for himself the suitability of any material for a specific purpose and to adopt such safety precautions as may be necessary. We make no warranty as to the results to be obtained in using any material and, since conditions of use are not under our control, we must necessarily disclaim all liability with respect to the use of any material supplied by us. We recommend tests be performed for trials and suitability for the particular type of application.

With the newest printing of this data sheet the previous version loose validity!

### Processing of cast resin systems in high-volume castings

2K epoxy resin systems consist of a resin component and a hardener. The chemical crosslinking takes place with the release of reaction energy.

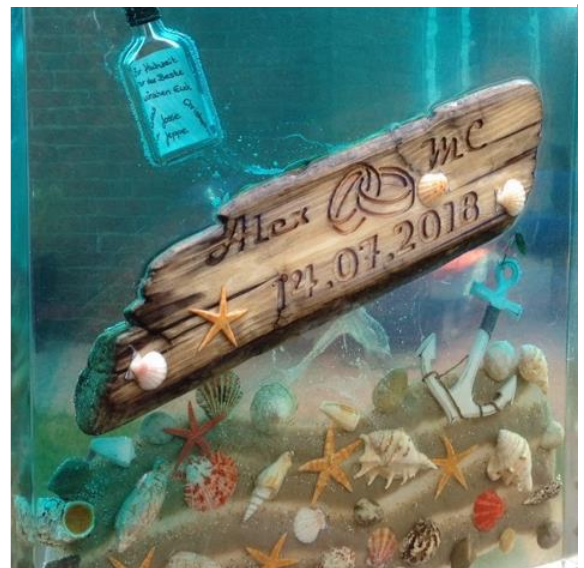
## Resin + hardener -> polymer + energy (heat)

This energy is released into the environment in the form of heat. If more heat is released at the beginning of the reaction than can be absorbed by the environment, there is a risk of heat build-up. The energy must therefore be removed on a controlled way. Otherwise, the mixture heats up, especially in the core region of the object, which is critical for the further course of the reaction. By this form of self-acceleration temperatures of up to 160° C can occur. It is possible that color change, boiling bubbles and cracks develop, in this case the project would be failed.

**Stress cracks + boiling bubbles**



**Target state**



Therefore, the maximum pourable layer height is strongly dependent on the individual influencing factors and therefore cannot be accurately predicted by us to the cm. The possible 10cm casting height of the E400GB system determined in the laboratory refers to quantities of totally less than 2 litres with optimum setting of the environmental parameters.

We strongly recommend to consider following influences:

### **Layer height and geometry of the casting**

- The higher the total mass, the lower the layer height to choose
- Divide the casting quantity into several layers with a waiting period of 36 hours in between (Dividing layers are only visible laterally from the front side)

### **Heat dissipation of the mould and the substrate**

- Use thin-walled moulds
- Use metal or earthenware as a substrate for the mould

### **Heat dissipation to the environment**

- Provide air circulation in the room
- Do not cover castings

### **Start with low energy**

- Store material in a cool place before use
- Cool the room

### **Distribute heat in the casting from the core to the outside**

- In the early stage of the casting, spreading of the casting resin is still possible with a spatula