



Technical Data

Epoxy Casting Resin System CRYSTAL-CLEAR

2-component, clear and colourless epoxy resin system.

Description

- Highly transparent
- Low viscosity
- Self-venting
- Good UV stability

Application

Due to the crack-free hardening, this embedding resin is preferably used unreinforced as casting resin. It hardens largely without shrinkage and with a tack-free, glossy surface.

For artistic and decorative applications, e.g. embeddings, sprues and river tables. Suitable for embeddings are metals (coins, electronic components), inorganic (shells, stones) and organic preparations (plants, insects). The preparations should be dry.

Processing

Room temperature is the most important parameter for successful processing of the Resin CRYSTAL-CLEAR. There is a relationship between room temperature (RT), the volume of resin poured and curing speed. Rapid curing caused by high room temperature results in a high exothermic reaction. The cured resin can then form cracks and shrink, especially in the corners.

Thoroughly mix the two components by hand or using a mixing propeller/drill. Care must be taken not to stir in too much air.

After the first mixing, pour the material into a second container and mix again. Allow the mixture to stand for at least 15-30 minutes for self-deaeration before pouring.

Due to the long pot life and low viscosity, the casting frame must be completely tight. Use a release agent as Partall® Hi-Temp Wax or PE packing tape.

After pouring and short resting time of the material, remaining bubbles can be easily removed with a hot air blow dryer.

For a shiny and smooth surface, light sanding and polishing or painting of the surface is usually necessary.

- **Gel time** (at 20 °C): approx. 10 hours
- **Mixing ratio:** 100 : 45 parts by weight resin : hardener
- **Curing time:** approx. 48-62 hours

Cold curing

The following influences affect the curing time:

Temperature - of the resin as well as of the mold and environment. The air temperature is not the only decisive factor, because the surfaces in contact with the medium are often much colder..

Casting thickness - the system is designed for greater layer thicknesses. The exotherm (heat development) is very low, which is desirable and necessary in this case. However, lower layer thicknesses therefore also lead to a longer curing time.

Pigments may have a somewhat accelerating or retarding effect on curing. This can only be determined by tests.

Epoxy resins continue to cure for about one week if they are not annealed. **Only then is full hardness and heat resistance achieved.**



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Physical properties of Resin and Hardener CRYSTAL-CLEAR:

	Resin (A)	Hardener (B)
Viscosity (25 °C) in mPa.s	600	100
Mixing ratio / parts by weight in %	100	45
Mixing ratio/ parts by volume in %	100	50
Colour	bluish transparent*	transparent

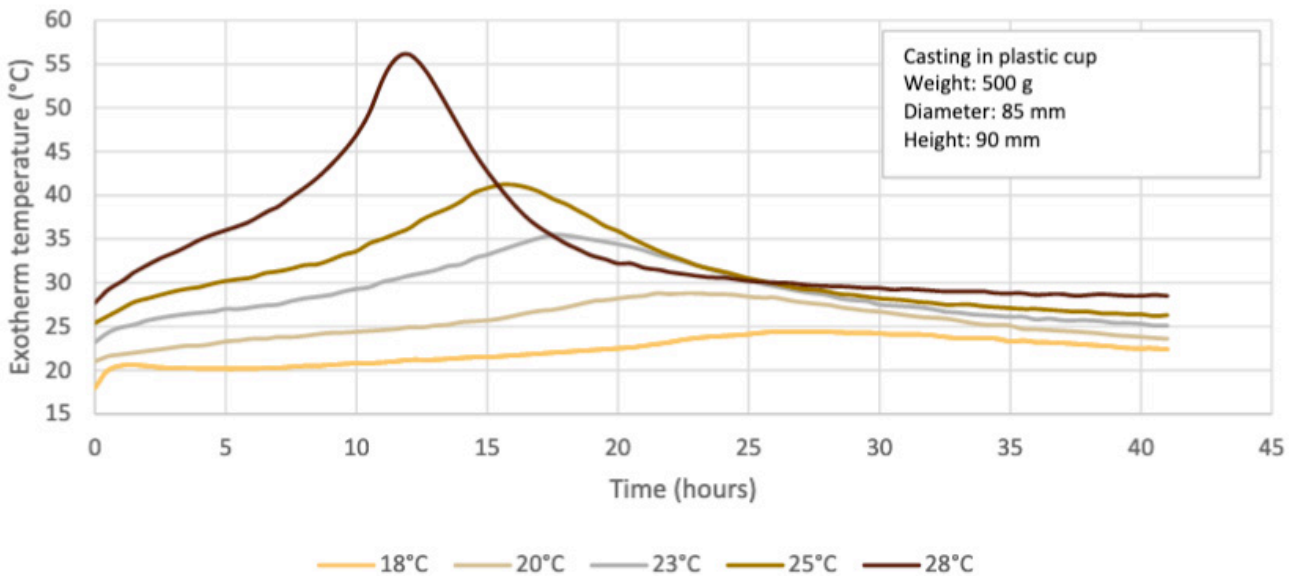
* no longer visible in potting

Physical properties of the mixture of Resin and Hardener CRYSTAL-CLEAR:

	Resin (A) + Hardener (B)
Viscosity (25 °C) in mPa.s	300
Reactivity (500 g / 23 °C*) in hours	17
Max. exothermic temperature in °C	35
Colour	transparent

* Refers to the graph "Reactivity in relation to time and temperature (RT)" to the exothermic reaction and curing time at 500 g with layer thickness 90 mm (poured in a plastic cup).

Reactivity in relation to time and temperature

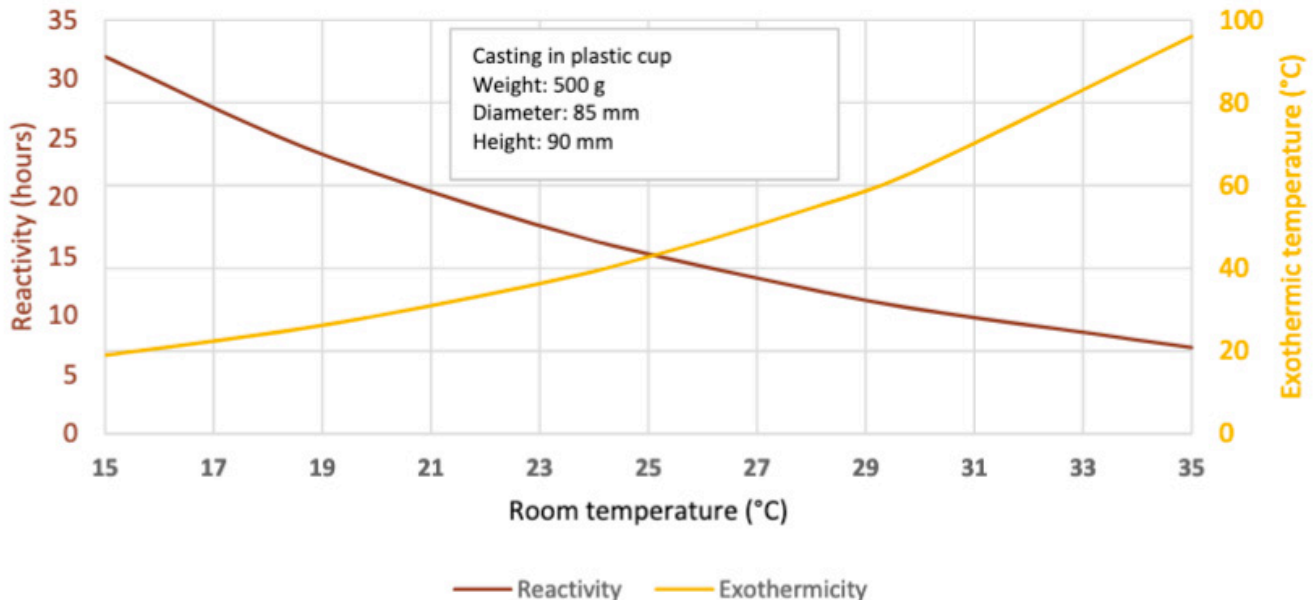


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Reactivity and exothermicity in relation to room temperature



Mechanical and thermal properties:

approx. values for test specimen with standard size / after curing for 7 days at room temperature

	ISO	Unit	Value
Shore Hardness	868	Shore D1	D 80
Elongation at break	527	%	4,5
Flexural modulus	178	MPa	2.100
Glass transition temperature (TG)	11359-2	°C	39
Glass transition temperature (TG) after 16 h at 50 °C	11359-2	°C	47

Specific properties:

Maximum casting thickness on a 350 x 300 mm plate

Room temperature (°C)	Casting thickness (mm)	Weight (g)	Reaction temperature (°C)
< 18	100	11.550	> 45
18	70	8.085	45
20	50	5.575	30
23	25	2.890	27
25	15	1.730	27
28	10	1.155	30

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Storage

Minimum shelf life: 12 months at 15 - 25 °C

Crystallization:

- After prolonged storage at low temperatures, crystallization of the A component (resin) may occur.
- The crystallized A-component can be decrystallized by carefully heating to a maximum of 70 °C for as short a time as possible.
- The material must be cooled down again to the desired processing temperature for processing.

Opened containers:

Opened containers must always be resealed immediately in a moisture-proof manner.
The remaining material must be used up as quickly as possible.