

ebacryl Tooling System

ebacryl tooling is environmentally compatible, a unique tooling system that provides light weight, accurate laminates in a very short working time.

The system consists of an aqueous acrylic-emulsion which is mixed with a specially formulated ceramic combination. Mixing ratio is 50 parts emulsion to 100 parts powder (1:2).

The working techniques and characteristics are very similar to normal epoxy or polyester resin applications and consist of a thixotrope mix for a surface coat and a low viscosity mix for laminating. The laminating mix wets a 300 g/m² needled glass mat very well. Potlife is 30 min.

The resulting laminates are demouldable in 2 - 3 hours and cured within 2 hours of demoulding. We recommend curing over night.

The **ebacryl** surface O/SP-1 is a plastic type surface which does not require sealing when laminating an epoxy faced laminate from it. When laminating a Polyester laminate the ebacryl surface should be sealed with a quick drying sealer or two component paint.

For larger series we recommend an epoxy surface.

Tooling produced is available well within a working day.

Main Advantages

- * Very short working times
- * Very short lead times
- * Accuracy
- * Good surface finish
- * Elevated temperature applications (PREPREG) possible
- * Low coefficient of expansion
- * No Health and safety problems
- * Economical
- * Tools can be cleaned with water

Form of Supply

ebacryl O/ SP-1	A-pack = 5,000 kg	(10 x 0,357 kg ebacryl O-1 in a plastic bottle, 10 x 0,143 kg Emulsion SP-1 in a plastic bottle, 1 Mixing cup, 1 brush 30 mm wide)
ebacryl L Emulsion EM	25 kg bucket 12,5 kg plastic can 25 kg can	
Glass mat 300 g/m²	1 m wide rolls 10 m ² or approx. ca. 100 m ²	
ebacryl -Multipack (for 0,8 - 1 m²)	1 carton	(2 x 0,357 kg ebacryl O-1, 2 x 0,143 kg Emulsion SP-1 1 x 5,0 kg ebacryl L, 1 x 2,5 kg Emulsion EM, 2 x 1 m ² glass mat 300 g, 1 brush 30 mm, 3 mixing pots 860 ml, 2 pairs of latex gloves)

Consumption

approx. 4 – 5 kg/m² 300 g – fibre

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Working procedures

Surface coat

Before commencing apply a release agent to the model. For hard models use T1-1 or T 2 for hard styling clay **ebacryl** Styling Release Agent MK II.

Pour the 143 g Emulsion SP-1 into a suitable mixing container, then slowly add and mix the 357 g **ebacryl** O-1 into it.

Larger quantities should not be mixed at one time.

Mixing ratio O-1 to SP-1 is 2,5 to 1.

500 g mix covers approx. ½ m².

The thixotropic mix is applied with a soft hair brush about 0,5 mm thick.

After 15 - 20 minutes the gelcoat starts to thicken up. At that stage it is wet out with the **ebacryl** L/EM mixture.

Laminate

ebacryl Emulsion EM and **ebacryl** L are mixed by adding the powder to the liquid. The total mix should not exceed 7500 g (5000 g **ebacryl** L / 2500 g **ebacryl** EM).

Mechanical mixing is recommended.

12 - 15 kg mix is enough for a laminate 1 m² using 3 layers of 300 g/m² mat.

The result is a low viscosity mix which will wet out needed 300 g/m² glass mat. Normally the mixture is applied with a paint roller.

Depending on the application 2 or 3 layers should be laminated.

A typical laminate of 2 layers of 300 g lass mat weights 8 - 9 kg per m².

The resulting laminate is demouldable in approx. 2 to 3 hours and cured after a further 2 hours at room temperature. We recommend curing over night.

Mixing Proportions

ebacryl O-1 / Emulsion SP 100 :40 p.b.w. (2,5 : 1)

ebacryl L / Emulsion EM 100: 50 p.b.w. (2 : 1)

Pot life

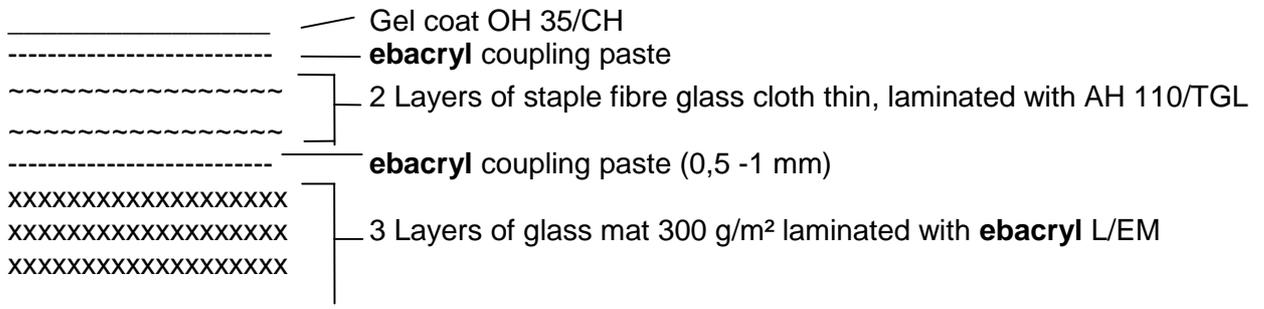
ebacryl O-1 / Emulsion SP-1 15 min.

ebacryl L / Emulsion EM 30 min.

ebacryl-Tooling

1. Laminate for production tools

Lay-up



This lay-up is in fact a thin epoxy laminate reinforced with a **ebacryl** laminate.

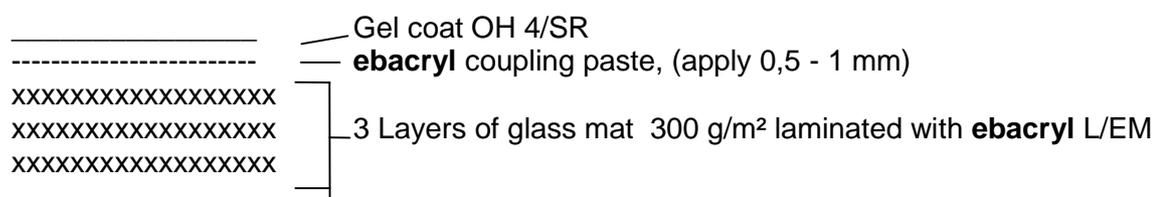
The same lay-up is possible using a thin Polyester laminate instead of Epoxy. The Polyester laminate must be fully cured before applying the **ebacryl** coupling paste. In addition the rear surface must be sanded to roughen it or better still use a peel ply. The wet fibre glass mats have to be placed immediately into the applied coupling paste.

Examples of Application:

- Large RTM tool 12 meters long
- Truck cab roof 16 m²
- Various tools for Polyester shops

2. Laminate for reverse patterns or tools for small production runs

Lay-up

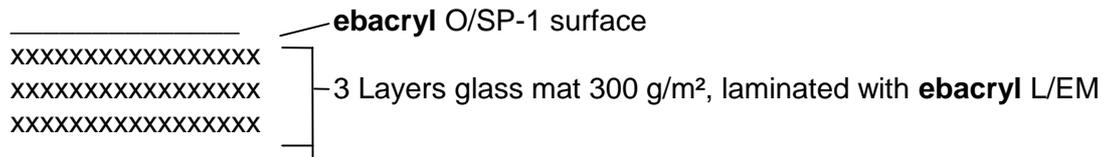


Examples of Application

- Set of negative laminates from a large vehicle 40 m² surface area
- Laminating tools for various applications

3. Laminate for Design Studios etc.

Lay-up

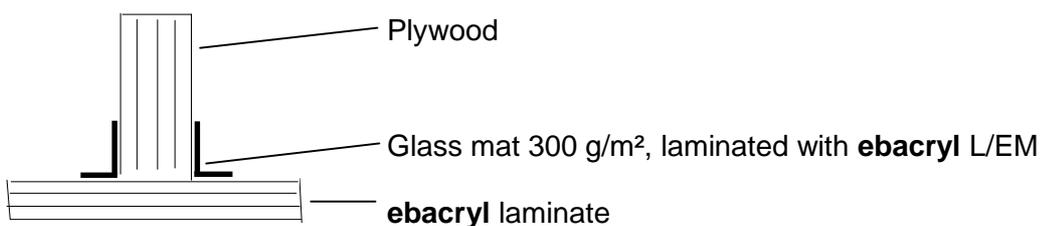


Examples of Application:

- Many negative laminates from Clay models in various design studios.
- Two full size truck cab clay models, a set of negatives in **ebacryl**
- Fireproof objects for film and theatre

Further experience with ebacryl:

- The 300 g/m² glass mat should be pre wet out on a table using a paint roller.
A piece 0,5 m² can be wet out in this manner
- The mat has a rough side (with loops) and a smooth side
- Wet out the rough side first then the smooth side
- When laminating the first layer place the smooth side on the model
- The last layer should be laminated with the smooth side upover
- A colouring pigment can be added to the laminating mix. This helps to identify how many layers of mat have been laminated if each layer is a different colour.
- Flat laminates made in **ebacryl** should be reinforced for example:



These reinforcements should be applied to the cured part the next day.

The glass matt laminated with **ebacryl** bonds very well to plywood (careful don't use chipboard because of the moisture).

We recommend that a laminate should consist of 3 layers of glass mat 300 g/m².

In the case of laminate with a lot of shape which leads to increased strength two layers may be enough.

Small cavities can be filled with **ebacryl** Paste P (100 : 23 with Emulsion EM)

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