

# Processing Epoxy Resin KL1201/2–O with Hardener KL1201/2–H

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## Application:

For laminating orthoses (especially matched to our materials and tested).

## Usage instructions:

Mixture ratio 190g hardener for 1000g resin

Make sure that the mixture ratio is exact (see table 1). If you do not respect the ratio, the optimal strength is not achieved and unbound hardener and resin components leak out, thus potentially causing damage to your health when coming into skin contact.

Make sure to mingle the hardener and the resin well. Only add colours which are compatible with epoxy resins. Use them with a maximum proportion of 2-5%. Any addition of foreign matters causes impurity of the resin and can change its properties.

Resin [g]	Hardener [g]
100	19
150	29
200	38
250	48
300	57
350	67
400	76
450	86
500	95

Table 1

At room temperature, the processing time of the resin-hardener mixture is 2-3 hours. At higher temperatures, the viscosity is lower and the processing time is significantly shorter. The processing time also decreases when the resin-hardener mixture is left standing, e.g. in a pot or a funnel tube, due to the exothermic reaction and at the same time reduced surface.

You need a continuously operating vacuum pump as the laminate has to stay on the positive cast under vacuum for 8-10 hours at room temperature. After a total of 10-12 hours, you can cut the orthosis components off from the positive cast.

The final strength of the orthosis components is achieved through the tempering process. For the tempering you need a convection oven which gives off heat steadily. The orthosis should be tempered assembled to prevent deformation of the orthosis components. But you have to remove all components which do not tolerate the heat (e.g. height adjustments made of rigid foam, retainer

for controller, controller, sensor, etc.) as well as films and all resin and wax residues. Put the orthosis components into the cold oven and heat it up (see table 2 for temperature). While heating, the surfaces become softer; you can avoid any damage by putting the orthosis components onto their edges.

The orthosis components remain in the oven for a certain time (see table 2) and are only removed when the oven temperature has dropped to room temperature after switching it off.

The thermal treatment of the laminate is indispensable to make full use of the material properties. However, never heat the orthosis components over 140°C!

Temperature*	Minimum duration
120 °C	1 hour
100°C	2 hours
80°C	3 hours

\* Use a thermometer to make sure that the temperature is right, because the real oven temperature can differ from the set one.

Table 2

#### Further information:

Epoxy resin is a thermoset. Therefore, at the point of choosing your production technique, you have to take into account that it is not recommended to repeat the lamination process. Already hardened surfaces cannot be dissolved by the epoxy resin, making a compound impossible. It is not possible to reshape it later by heating the laminate.