

## AGAR 100 Resin

## AGR1031

Agar 100 resin is an exact equivalent of Epon 812, except that it has a rather tighter specification which results in more reproducible epoxide equivalents.

The specification of our resin is as follows:

Resin content	99% minimum
Epoxide equivalent	145 - 160
Viscosity at 25°C	150 - 170 cps
Density at 20°C	1.22 g/ml

Embedding media based on Agar 100 resin contain the anhydride hardeners dodecenylsuccinic anhydride (DDSA) and methyl nadic anhydride (MNA), and the accelerator benzyldimethylamine (BDMA).

The following formulations will give soft, medium or hard blocks:

	<u>Soft</u>	<u>Medium</u>	<u>Hard</u>
Agar 100 epoxy resin	20ml (24g)	20ml (24g)	20ml (24g)
Hardener, DDSA (EM grade)	22ml (22g)	16ml (16g)	9ml ( 9g)
Hardener, MNA (EM grade)	5ml ( 6g)	8ml (10g)	12ml (15g)
Accelerator, BDMA (c. 3%)	1.4ml (1.5g)	1.3ml (1.5g)	1.2ml (1.4g)

The anhydride/epoxide ratio of all these three mixes varies between 0.7 and 0.8 as the epoxide equivalent of the Agar 100 resin varies from 145 to 160. This variation has little effect on the cutting properties of the final blocks and so the same formulations can be used with all batches of Agar 100 resin.

Complete mixing of the components of epoxy resin embedding media is very important and is facilitated if the Agar 100 resin and the DDSA and MNA hardeners, and a graduated cylinder and a conical flask, are warmed to 60°C before mixing.

Measure the required amounts (by volume) of the warm resin and hardeners (from their separate containers) into a warm graduated cylinder and pour them immediately into the warm conical flask. Shake the mixture gently by hand with rotation. Mixing will be complete within a few minutes if the components and the mixing vessel have been pre-warmed. Then add the accelerator BDMA (2.5 - 3% by volume to the mixture of Agar 100, DDSA and MNA) and continue shaking by hand for a further minute or two. The amount of BDMA added should be measured accurately, but the amounts of the resin and of the hardeners need only be approximate.

These embedding media harden overnight at 60°C, but longer times of 24 to 48 hours may slightly improve the sectioning properties of the final block. The curing temperature should not be higher than 60°C.

For detailed advice on the use of epoxy resins for embedding consult Audrey M. Glauert (1991) Epoxy resins: an update on their selection and use.

Microscopy and Analysis, September 1991, pp. 15-20.