

Technical Data Sheet

EMbed 812

#14120 #14900

Determination of Proportion of Epoxy Resin by using its WPE Number

EMbed 812 (EMS Catalog #14120) replaces Epon 812, which is no longer available. The proportions of DDSA, NMA, and DMP-30 in EMbed 812 are the same as in Epon 812.

Since W.P.E. (Weight per Epoxide Equivalent) values of the epoxies vary from lot to lot, the only reliable way to ensure reproducible hardness of the blocks is by using the W.P.E. supplied with each bottle. According to Luft's formula, the following equation is used, with the ratio of anhydride equivalent to epoxy being 0.7:1.

$$\text{Anhydride req (DDSA and NMA)} = \left(\frac{100\text{g of Embed 812}}{\text{W.P.E.}} \right) \times \left(\frac{\text{Anhydride M.W.}}{\text{Ratio of anhydride (to epoxy resin equivalent)}} \right)$$

An Example

Using 100g of EMbed 812 and Anhydride M.W. of 266 for DDSA, 178 for NMA, and the ratio of anhydride to epoxy resin Equivalent is 0.7.

With the Above equation and 100g EMbed 812 being used, with a W.P.E. of 149:

$$\text{MIXTURE A: Weight of DDSA} = \frac{100\text{g} \times 266 \times .7}{149} = 124.96\text{g}$$

Mixture A: 100g EMbed 812 + 125g DDSA

$$\text{MIXTURE B: Weight of NMA} = \frac{100\text{g} \times 178 \times .7}{149} = 83.26\text{g}$$

Mixture B: 100g EMbed 812 = 84 g NMA

Final Mixture

Immediately before use, the two mixtures A and B are blended, and the accelerator DMP-30 is added in the proportion of 1.5% - 2%. Increasing the amount of DMP-30 will increase the cure rate.

When using the EMbed 812 Resin Embedding Media Kit, please refer to our kit instructions, EMS Catalog #14120.