



## Calculating Equivalent Weight of Epoxy Mixtures

Most formulated products include mixtures of epoxy resins, diluents (reactive and unreactive), fillers, additives,.... It is essential to determine the Epoxy Equivalent Weight (E.E.W.) of the mixture to determine proper stoichiometric ratios with the curing agent. This is accomplished with the following equation:

$$\text{Equation 1: } \text{E.E.W. of Mixture} = \frac{\text{Total Weight of Mixture}}{\frac{\text{Wt. 1}}{\text{E.E.W. 1}} + \frac{\text{Wt. 2}}{\text{E.E.W. 2}}}$$

### Example 1:

A mixture of 80% Liquid Epoxy Resin (E.E.W. = 189), 10% Erisys GE 10 (CGE, E.E.W.= 183) and 10% filler E.E.W. is determined below:

$$\text{E.E.W. of mixture} = \frac{100}{\frac{80}{189} + \frac{10}{183}}$$

$$\text{E.E.W. of mixture} = 209$$

## Calculating proper Stoichiometric Ratio for Epoxy Resins and ECI Polyamines

The phr (parts by weight per 100 parts of epoxy resin mixture) of the ECI Polyamine can be determined with the following equation:

$$\text{Equation 2: } \text{phr} = \frac{\text{A.E.W.} \times 100}{\text{Resin E.E.W.}}$$

### Example 2:

Determine the stoichiometric mix ratio in phr of the epoxy resin mixture (E.E.W. 209) in Example 1 with **APR Polyamine** (A.E.W.=43):

$$\text{phr} = \frac{43 \times 100}{209}$$

$$\text{phr} = 20.6$$