

4.7 In order to compute composition, in atom percent, of a 92.5 wt% Ag-7.5 wt% Cu alloy, we employ Equation 4.6 as

$$\begin{aligned}
 C'_{\text{Ag}} &= \frac{C_{\text{Ag}} A_{\text{Cu}}}{C_{\text{Ag}} A_{\text{Cu}} + C_{\text{Cu}} A_{\text{Ag}}} \times 100 \\
 &= \frac{(92.5)(63.55 \text{ g/mol})}{(92.5)(63.55 \text{ g/mol}) + (7.5)(107.87 \text{ g/mol})} \times 100 \\
 &= 87.9 \text{ at\%}
 \end{aligned}$$

$$\begin{aligned}
 C'_{\text{Cu}} &= \frac{C_{\text{Cu}} A_{\text{Ag}}}{C_{\text{Ag}} A_{\text{Cu}} + C_{\text{Cu}} A_{\text{Ag}}} \times 100 \\
 &= \frac{(7.5)(107.87 \text{ g/mol})}{(92.5)(63.55 \text{ g/mol}) + (7.5)(107.87 \text{ g/mol})} \times 100 \\
 &= 12.1 \text{ at\%}
 \end{aligned}$$