$$= \frac{\dfrac{0.703}{8.94\ \text{g/cm}^3}}{\dfrac{0.703}{8.94\ \text{g/cm}^3} + \dfrac{0.297}{8.25\ \text{g/cm}^3}}$$

$$= 0.686$$

$$V_\varepsilon = \frac{\dfrac{W_\varepsilon}{\rho'_\varepsilon}}{\dfrac{W_\alpha}{\rho'_\alpha} + \dfrac{W_\varepsilon}{\rho'_\varepsilon}}$$

$$= \frac{\dfrac{0.297}{8.25\ \text{g/cm}^3}}{\dfrac{0.703}{8.94\ \text{g/cm}^3} + \dfrac{0.297}{8.25\ \text{g/cm}^3}}$$

$$= 0.314$$

Now, using Equation 18.12

$$\rho = \rho_\alpha V_\alpha + \rho_\varepsilon V_\varepsilon$$

$$= (1.88 \text{ x } 10^{-8}\ \Omega\text{-m})(0.686) + (5.32 \text{ x } 10^{-7}\ \Omega\text{-m})(0.314)$$

$$= 1.80 \text{ x } 10^{-7}\ \Omega\text{-m}$$

Finally, for the conductivity (Equation 18.4)

$$\sigma = \frac{1}{\rho} = \frac{1}{1.80 \text{ x } 10^{-7}\ \Omega-\text{m}} = 5.56 \text{ x} 10^{6}\ (\Omega\text{-m})^{-1}$$