

# Electrolytes Worksheet

$$\text{Na}^+ : \frac{142 \text{ mEq}}{\text{L}} \times \frac{1 \text{ Eq}}{1000 \text{ mEq}} \times \frac{1 \text{ mol}}{1 \text{ Eq}} = 0.142 \frac{\text{mol}}{\text{L}}$$

$$\frac{0.142 \text{ mol Na}^+}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 500 \text{ mL} = 0.0710 \text{ mol Na}^+$$

$$0.0710 \text{ mol Na}^+ \times \frac{22.99 \text{ g}}{1 \text{ mol Na}} = 1.63 \text{ g Na}^+$$

$$d = \frac{m}{V} \Rightarrow m_{\text{sol'n}} = d \times V = 1.05 \frac{\text{g}}{\text{cm}^3} \times 500 \text{ mL} = 525 \text{ g}$$

↑  
or mL

$$\% (\text{m/m}) = \frac{1.63 \text{ g}}{525 \text{ g}} \times 100 = 0.311 \%$$

$$\% (\text{m/v}) = \frac{1.63 \text{ g}}{500 \text{ mL}} \times 100 = 0.326 \%$$

$$\text{ppm (m/v)} = \frac{1.63 \text{ g}}{500 \text{ mL}} \times 10^6 = 3260 \text{ ppm}$$

$$\text{or } 1.63 \text{ g} \times \frac{1 \text{ mcg}}{10^{-6} \text{ g}} = 1.63 \times 10^6 \text{ mcg}$$

$$\text{then ppm} = \frac{1.63 \times 10^6 \text{ mcg}}{500 \text{ mL}} = 3260 \text{ ppm}$$

✓

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$$\text{PO}_4^{3-}: 140 \frac{\text{mEq}}{\text{L}} \times \frac{1 \text{ Eq}}{1000 \text{ mEq}} \times \frac{1 \text{ mol}}{3 \text{ Eq}} = 0.0467 \frac{\text{mol}}{\text{L}}$$

$$0.0467 \frac{\text{mol}}{\text{L}} \times \frac{1 \text{ L}}{1000 \text{ mL}} \times 500 \text{ mL} = 0.0233 \text{ mol PO}_4^{3-}$$

$$0.0233 \text{ mol} \times \frac{(30.97 + 4 \times 16.00) \text{ g}}{\text{mol}} = 2.22 \text{ g}$$