

$$\text{Molarity} = \frac{\overset{1.75 \text{ mol}}{\# \text{ mol Na}_2\text{CO}_3}}{\underset{1 \text{ L}}{1.75 \frac{\text{mol}}{\text{L}}}} \quad \# \text{ L solution}$$

$$\text{molality} = \frac{\overset{1.75 \text{ mol}}{\# \text{ mol Na}_2\text{CO}_3}}{\underset{0.927 \text{ kg}}{\# \text{ kg H}_2\text{O}}} = 1.89 \text{ m}$$

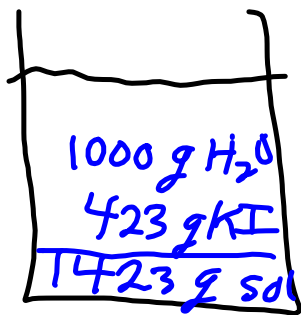
1.75 M Na_2CO_3

$$d = 1.112 \frac{\text{g}}{\text{mL}}$$

$$1000 \text{ mL} \left(1.112 \frac{\text{g}}{\text{mL}} \right) = 1112 \text{ g}$$

$$1.75 \text{ mol} \left(\frac{105.99 \text{ g}}{1 \text{ mol}} \right) = 185 \text{ g}$$

$$\begin{array}{r} 1112 \text{ g Na}_2\text{CO}_3 + \text{H}_2\text{O} \\ - 185 \text{ g Na}_2\text{CO}_3 \\ \hline 927 \text{ g H}_2\text{O} \end{array}$$



$$\text{molality} = \frac{\# \text{ mol KI}}{\# \text{ kg H}_2\text{O}} = \frac{2.55 \text{ mol}}{1 \text{ kg}}$$

$$\text{Molarity} = \frac{\# \text{ mol KI}}{\# \text{ L solution}}$$

2.55 m KI

$$d = 1.254 \frac{\text{g}}{\text{mL}}$$

M = ?

$$= \frac{2.55 \text{ mol}}{1.135 \text{ L}} = 2.25 \text{ M}$$

$$d = \frac{M}{V} \rightarrow V = \frac{M}{d} = \frac{1423 \text{ g}}{1.254 \frac{\text{g}}{\text{mL}}} = 1135 \text{ mL}$$

$$2.55 \text{ mol} \left(\frac{166 \text{ g}}{1 \text{ mol}} \right) = 423 \text{ g}$$



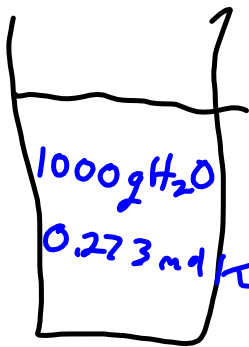
$$15.11 \text{ g} \left(\frac{1 \text{ mol}}{58.44 \text{ g}} \right) = 0.258556 \text{ mol}$$



$$275.2 \text{ g} \left(\frac{1 \text{ mol}}{18.016 \text{ g}} \right) = 15.275311 \text{ mol}$$

$$\text{TOTAL MOLES} = 15.533867$$

$$X_{\text{NaCl}} = \frac{\# \text{ mol NaCl}}{\text{Total mol}} = \frac{0.258556 \text{ mol}}{15.533867 \text{ mol}} \\ = 0.01664 \\ = 1.664 \times 10^{-2}$$



$$\text{molality} = \frac{\# \text{ mol KI}}{\# \text{ kg H}_2\text{O}} = \frac{0.273 \text{ mol}}{1 \text{ kg}}$$

$$X_{\text{KI}} = \frac{\# \text{ mol KI}}{\# \text{ mol KI} + \# \text{ mol H}_2\text{O}} \rightarrow 0.273 \text{ mol}$$

0.273 m KI

$$\begin{matrix} \swarrow & \searrow \\ 0.273 \text{ mol} & 55.506 \text{ mol} \end{matrix}$$

$$X_{\text{KI}} = 0.00489 = 4.89 \times 10^{-3}$$

H₂O

$$1000 \text{ g} \left(\frac{1 \text{ mol}}{18.016 \text{ g}} \right) = 55.506 \text{ mol}$$