How would you prepare a total volume of 1.2 L of a 250 ppm salt solution?

Prepare 500 mL of a 120 ppm sugar solution.

Prepare a 400 ppm solution using 0.2 g of citric acid. What is the total volume in mL?

You have 750 mL of a 600 ppm potassium nitrate solution. How much potassium nitrate is present in mg?

How would you prepare a 100 ppm calcium chloride solution using 3 g of solute? What is the total volume in litres?

How would you prepare a total volume of 1.2 L of a 250 ppm salt solution?

$$C = \frac{m_{salt}}{V_{total}}$$

$$250 \text{ ppm} = 250 \frac{\text{mg}}{\text{L}} = \frac{m}{1.2 \text{ L}}$$

$$\frac{250 \text{ mg}}{1 \text{ L}} = \frac{m}{1.2 \text{ L}}$$

$$m = \frac{(250 \text{ mg})(1.2 \text{ L})}{1 \text{ L}}$$

$$m = 300 \text{ mg}$$

$$\boxed{m_{salt} = 3.0 \times 10^2 \text{ mg}}$$

Prepare 500 mL of a 120 ppm sugar solution.

$$C = \frac{m_{sugar}}{\forall_{total}}$$

$$120\ ppm = 120\ \frac{mg}{L} = \frac{m}{500\ mL}$$

$$\frac{120\ mg}{1\ L} = \frac{m}{500\ mL}$$

$$m = \frac{(120\ mg)(500\ \cancel{mL})}{1\ \cancel{L}}\left(\frac{1\ \cancel{L}}{1000\ \cancel{mL}}\right)$$

$$m = 60\ mg$$

$$\boxed{m_{sugar} = 60\ mg}$$

Prepare a 400 ppm solution using 0.2 g of citric acid. What is the total volume in mL?

$$C = \frac{m_{citric}}{V_{total}}$$

$$400\ ppm = 400\ \frac{mg}{L} = \frac{0.2\ g}{V}$$

$$\frac{400\ mg}{1\ L} = \frac{0.2\ g}{V}$$

$$V = \frac{(1\ L)(0.2\ g)}{400\ mg}\left(\frac{1000\ mg}{1\ g}\right)$$

$$V = 0.5\ L\left(\frac{1000\ mL}{1\ L}\right) = 500\ mL$$

$$\boxed{V_{total} = 500\ mL}$$

You have 750 mL of a 600 ppm potassium nitrate solution. How much potassium nitrate is present in mg?

$$C = \frac{m_{\text{potassium nitrate}}}{V_{\text{total}}}$$

$$600\ \text{ppm} = 600\ \frac{\text{mg}}{\text{L}} = \frac{m}{750\ \text{mL}}$$

$$\frac{600\ \text{mg}}{1\ \text{L}} = \frac{m}{750\ \text{mL}}$$

$$m = \frac{(600\ \text{mg})(750\ \text{mL})}{1\ \text{L}} \left(\frac{1\ \text{L}}{1000\ \text{mL}}\right)$$

$$m = 450\ \text{mg}$$

$$\boxed{m_{\text{potassium nitrate}} = 450\ \text{mg}}$$

How would you prepare a 100 ppm calcium chloride solution using 3 g of solute? What is the total volume in litres?

$$C = \frac{m_{\text{calcium chloride}}}{\forall_{\text{total}}}$$

$$100 \text{ ppm} = 100 \frac{\text{mg}}{\text{L}} = \frac{3 \text{ g}}{\forall}$$

$$\frac{100 \text{ mg}}{1 \text{ L}} = \frac{3 \text{ g}}{\forall}$$

$$\forall = \frac{(1 \text{ L})(3 \text{ g})}{100 \text{ mg}} \left(\frac{1000 \text{ mg}}{1 \text{ g}} \right)$$

$$\forall = 30 \text{ L}$$

$$\boxed{\forall_{\text{total}} = 30 \text{ L}}$$