

How would you prepare 100 mL of a 6 pph sugar solution?

Prepare 48 mL of a 3 ppb salt solution.

Prepare a pph solution using 12 g of glucose to make 4 pph.

You have 300 mL of a 5 pph sodium bicarbonate solution. How much sodium bicarbonate is present?

Prepare a 2.5 ppb potassium chloride solution using 0.5 kg of solute.

How would you prepare 100 mL of a 6 pph sugar solution?

$$C = \frac{m_{\text{sugar}}}{V_{\text{total}}}$$

$$6 \text{ pph} = 6 \% = \frac{m}{100 \text{ mL}}$$

$$\frac{6 \text{ g}}{100 \text{ mL}} = \frac{m}{100 \text{ mL}}$$

$$m = \frac{(6 \text{ g})(100 \text{ mL})}{100 \text{ mL}}$$

$$m = 6 \text{ g}$$

$$m_{\text{sugar}} = 6 \text{ g}$$

Prepare 48 mL of a 3 pph salt solution.

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

$$3\text{ pph} = 3\% = \frac{m}{48\text{ mL}}$$

$$\frac{3\text{ g}}{100\text{ mL}} = \frac{m}{48\text{ mL}}$$

$$m = \frac{(3\text{ g})(48\text{ mL})}{100\text{ mL}}$$

$$m = 1.44\text{ g}$$

$$m_{\text{salt}} = 1.4\text{ g}$$

Prepare a pph solution using 12 g of glucose to make 4 pph.

$$C = \frac{M_{\text{glucose}}}{V_{\text{total}}}$$

$$4 \text{ pph} = 4\% = \frac{12 \text{ g}}{V}$$

$$\frac{4 \text{ g}}{100 \text{ mL}} = \frac{12 \text{ g}}{V}$$

$$V = \frac{(100 \text{ mL})(12 \text{ g})}{4 \text{ g}}$$

$$V = 300 \text{ mL}$$

$$V_{\text{total}} = 300 \text{ mL}$$

You have 300 mL of a 5 pph sodium bicarbonate solution. How much sodium bicarbonate is present?

$$C = \frac{M_{\text{bicarbonate}}}{V_{\text{total}}}$$

$$5 \text{ pph} = 5\% = \frac{M}{300 \text{ mL}}$$

$$\frac{5 \text{ g}}{100 \text{ mL}} = \frac{M}{300 \text{ mL}}$$

$$M = \frac{(5 \text{ g})(300 \text{ mL})}{100 \text{ mL}}$$

$$M = 15 \text{ g}$$

$$M_{\text{bicarbonate}} = 20 \text{ g}$$

Prepare a 2.5 pph potassium chloride solution using 0.5 kg of solute.

$$C = \frac{M_{\text{potassium chloride}}}{V_{\text{total}}}$$

$$2.5 \text{ pph} = 2.5\% = \frac{0.5 \text{ kg}}{V}$$

$$\frac{2.5 \text{ g}}{100 \text{ mL}} = \frac{0.5 \text{ kg}}{V}$$

$$V = \frac{(100 \text{ mL})(0.5 \text{ kg})}{2.5 \text{ g}} \left(\frac{1000 \text{ g}}{1 \text{ kg}} \right)$$

$$V = 20000 \text{ mL} \left(\frac{1 \text{ L}}{1000 \text{ mL}} \right) = 20 \text{ L}$$

$$\boxed{V_{\text{total}} = 20 \text{ L}}$$