

Answer on Question #68648 - Chemistry - Physical Chemistry

Question:

in a solution NaOH is 12 percent of total mass.its density is 1.131gram per mL.what is the value of volume which is keep 5 mole of NaOH?

Solution:

$$d = \frac{m}{V};$$

$$m = \frac{m(\text{NaOH})}{\omega} = \frac{n(\text{NaOH}) \cdot M(\text{NaOH})}{\omega};$$

$$d = \frac{\frac{n(\text{NaOH}) \cdot M(\text{NaOH})}{\omega}}{V};$$

$$1.131 = \frac{\frac{5 \cdot 40}{0.12}}{V} = \frac{1666.67}{V};$$

$$V = \frac{1666.67}{1.131} = 1473,6 \text{ mL} \approx 1.5 \text{ L.}$$

Answer: $V = 1473,6 \text{ mL} \approx 1.5 \text{ L.}$