

Answer on Question #56742 – Chemistry - General Chemistry

Question:

Calculate the pH and pOH of a solution made by dissolving 0.0432 grams of NaOH in 300 mL of solution.

Answer:

$$\text{pOH} = -\lg[\text{OH}^-]$$

$$\text{pH} + \text{pOH} = 14$$

$$[\text{OH}^-] = C_M(\text{NaOH})$$

$$C_M(\text{NaOH}) = \frac{v(\text{NaOH})}{V(\text{NaOH})}$$

$$v(\text{NaOH}) = \frac{m(\text{NaOH})}{M(\text{NaOH})}$$

$$M(\text{NaOH}) = 40 \text{ g/mol}$$

$$v(\text{NaOH}) = \frac{0.0432}{39.9971} = 0.0011 \text{ mol}$$

$$C_M(\text{NaOH}) = \frac{0.0011}{0.300} = 0.004 \text{ M}$$

$$\text{pOH} = -\lg 0.004 = 2.436$$

$$\text{pH} = 14 - 2.436 = 11.564$$