

Answer on Question #43709, Chemistry, Physical Chemistry

Question:

A solution contains 0.040 moles of NaOH in 400 mL of solution volume? what is $[OH^-]$ for this solution?

Solution:

The molar concentration of NaOH in solution is:

$$c(\text{NaOH}) = \frac{n(\text{NaOH})}{V(\text{solution})} = \frac{0.04}{0.4} = 0.1 \frac{\text{mol}}{\text{L}}$$

As the NaOH is a strong base, the concentrations of NaOH and $[OH^-]$ are equal:

$$c(\text{NaOH}) = [OH^-] = 0.1 \frac{\text{mol}}{\text{L}}$$

Answer: 0.1 mol/L