

Answer on Question #43708 - Chemistry - Physical Chemistry

Question:

A 500 mL solution of 0.002 M NaOH would contain how many moles of OH⁻?

Answer:

$$\text{molarity} = \frac{\text{moles of solute}}{\text{liter of solution}}$$

From this equation we calculate moles of solute of NaOH in 500 mL of 0.002 M.

$$\text{moles of solute} = \text{molarity} * \text{liter of solution} = 0.002 \text{ M} * 0.5 \text{ L} = 0.001 \text{ moles}$$

When dissolved in water, the strong base sodium hydroxide ionizes into hydroxide and sodium ions:



As you see from the chemical equation from 1 mole of NaOH we can get 1 mole of OH⁻. That's why from 0.001 moles of NaOH we can get 0.001 moles of OH⁻.

Answer: 0.001 moles of OH⁻