

Answer on Question #42927 - Chemistry - Other

Question:

What is the molarity of a solution of NaCl if 35 mL of 0.30 M of it are diluted to 500 mL?

Answer:

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

From this equation we calculate moles of solute of NaCl in 35 mL of 0.30 M.

$$\text{moles of solute} = \text{molarity} * \text{liter of solution} = 0.3 \text{ M} * 0.035 \text{ L} = 0.0105 \text{ moles}$$

Now we calculate molarity of 0.0105 moles of NaCl diluted in 500 mL.

$$\text{molarity} = \frac{0.0105 \text{ moles}}{0.500 \text{ L}} = 0.021 \text{ M}$$

Answer: 0.021 M