

Answer on the question #49294, Chemistry, Physical Chemistry

Question:

What is the concentration of nitrate ions if equal volume of .1M AgNO₃ and .1M NaCl are mixed together.

(1).1

(2).2

(3).05

(4).25

All are in M

Solution:

As the nitrate ions came from the AgNO₃ solution and are not incorporated to the AgCl precipitation, their concentration will be twice less, as in usual dilution:

$$V(\text{sol}) = V(\text{AgNO}_3) + V(\text{NaCl}) = 2 V(\text{AgNO}_3)$$
$$c(\text{NO}_3) = \frac{c(\text{NO}_3) * V(\text{AgNO}_3)}{V(\text{AgNO}_3) + V(\text{NaCl})} = \frac{c(\text{NO}_3)}{2} = 0.05 \text{ M}$$

Answer: 0.05 M