

Answer on Question #48865, Chemistry, Other

Task:

35.2 mL 1.66 M KCl is added to 16.7 mL 0.892 M CaCl₂. What is the chloride ion, Cl⁻ Molarity (mol/L) in the mixture? Hint: calculate the number of moles in each of the two solutions mixed. The total final volume is the sum of the two volumes mixed.

Answer:

$$v(KCl) = C_M(KCl) \cdot V(KCl)$$

$$v(KCl) = 1,66 \cdot \frac{35,2}{1000} = 0,058 \text{ mol}$$

$$v(CaCl_2) = 0,872 \cdot \frac{16,7}{1000} = 0,015 \text{ mol}$$

$$\sum Cl' = 0,058 + 0,015 = 0,073 \text{ mol}$$

$$L = 35,2 + 16,7 = 51,9 \text{ l}$$

$$C_M(Cl') = \frac{0,073}{51,9} = 0,0014 \text{ mol}$$