"TRY YOURSELF" PROBLEMS FROM STUDY SECTION 4.5

Try yourself 4.5 a

Calculate the concentration of <u>each</u> ion and the <u>total</u> ion concentration in mol.dm⁻³ in each of the following solutions

A 1.0 mol.dm⁻³ HCl-solution.

A 0.500 mol dm⁻³ Na₂SO₄-solution.

Calculate the concentration of each ion in a 0.500 mol/dm³ solution of ammonium phosphate.

Try yourself 4.5 b

Some potassium dichromate ($K_2Cr_2O_7 = 294.16 \text{ g.mol}^{-1}$), 2.335g, is dissolved in enough water to make exactly 500 mL of solution. What is the molar concentration (mol.dm⁻³) of the potassium dichromate? What are the molar concentrations (mol.dm⁻³) of the K⁺ and Cr₂O₇²⁻ ions?

Try yourself 4.5 c

What is the mass, in grams, of solute in 100.0 mL of a 1.023×10^{-3} M solution of Na₃PO₄? What are the molar concentrations of the Na⁺ and PO₄³⁻ ions?

Try yourself 4.5 d

Dissolve 62.1 g (1.00 mol) of ethylene glycol ($C_2H_6O_2$) in 250 g of H_2O . Calculate mol fraction, molality, and weight % of ethylene glycol.

Try yourself 4.5 e

If 4.00 mL of 0.0250 mol.dm⁻³ CuSO₄ is diluted to 10.0 mL with pure water, what is the concentration of copper(II) sulfate in the dilute solution?