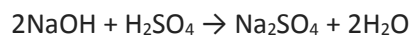**Answer on Question #54138 – Chemistry – General chemistry**

Question:

100 ml of 0.1 mol/dm3 NaOH solution is added to 50ml of 0.1 mol/dm3 H2SO4 solution and filled with distilled water upto 250 ml level. What would be the final OH concentration in the solution?

Answer:

The neutralization reaction can be shown:

$2NaOH + H_2SO_4 \rightarrow Na_2SO_4 + 2H_2O$

It is clear that two moles of the base reacts with one mole of the acid therefore the given amount of the reagents is equimolar:

$C_1V_1 = 2C_2V_2$,

where C_1 and V_1 – the concentration and the volume of NaOH, and C_2 and V_2 – the concentration and the volume of H_2SO_4.

100 ml × 0.1 mol/L = 2× (50 ml × 0.1 mol/L)

10 mmol = 2×5 mmol

Thus, the solution is neutral with pH of 7.

pOH = 14 – pH = 14 -7 = 7

The final concentration of hydroxide anions equals:

$[OH^-] = 10^{-7}$ mol/L