Answer on Question #34706, Chemistry, Other

Task:

A solution contains 50 g/dm^3 of impure sodium hydroxide. 25 cm^3 of it got neutralised by 14 cm^3 of sulfuric acid. Sulfuric acid = 1 mol/dm^3

$H_2SO_4+2NaOH = Na_2SO_4+2H_2O$

-No. Of moles of sulfuric acid present in 14 cm^3 of the solution.

-Concentration of sodium hydroxide

-Percentage purity of sodium hydroxide

Answer:

$$C=\frac{\nu}{V} \qquad \nu = CV$$

$$\nu(H_2SO_4)=1\cdot\frac{14}{1000}=0.014\ mol$$

$$\nu(NaOH)=2\cdot\nu(H_2SO_4)$$

$$\nu(NaOH)=2\cdot 0.014=0.028\ mol$$

$$C(NaOH)=\frac{\nu(NaOH)}{V(NaOH)}=\frac{0.028}{0.025}=1.12\ mol/l$$

$$\nu=\frac{m}{M} \qquad M(NaOH)=40\ g/mol$$

$$C(NaOH)=1.12\cdot 40=44.8\ g/l$$

$$\%NaOH=\frac{44.8}{50}\cdot 100=89.6\%$$