Answer on Question #52792 – Chemistry – Other

Question:

In determination percent Na_3PO_4 as P_2O_5% what is equivalent gram P_2O_5, E=m/n what is n for P_2O_5?

Answer:

$P_2O_5 + 3\ Na_2O \rightarrow 2\ Na_3PO_4$

The molecular weights for Na_3PO_4 and P_2O_5 are 164 and 142 g/mol, respectively.

Thus, the mass fraction for P_2O_5 w(%) = $[M_w(P_2O_5)/M_w(Na_3PO_4)] \times 100\% = 86.59\ \%$

The mass fraction for Na_3PO_4 from P_2O_5% is: w (%) = $[M_w(Na_3PO_4)/ M_w(P_2O_5)] \times 100\% = 100/w\ (P_2O_5) = 115.49\ \%$

The equivalent gram for P_2O_5 is $M_w/2$ which equals 142 g mol^{-1}/2 eq mol^{-1} = 71 g/eq

An equivalent is of 2 (n = 2), because the coefficient at the product (Na_3PO4) in the reaction equals 2. It means that the one molecule of P_2O_5 gives 2 molecules Na_3PO_4 or a half of P_2O_5 forms 1 molecule of Na_3PO_4.