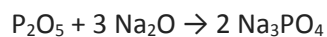


Answer on Question #52792 – Chemistry – Other

Question:

In determination percent Na_3PO_4 as $\text{P}_2\text{O}_5\%$ what is equivalent gram P_2O_5 , $E=m/n$ what is n for P_2O_5 ?

Answer:



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 $w(\%) = [M_w(\text{P}_2\text{O}_5)/M_w(\text{Na}_3\text{PO}_4)] \times 100\% = 86.59\%$

The mass fraction for Na_3PO_4 from $\text{P}_2\text{O}_5\%$ is: $w(\%) = [M_w(\text{Na}_3\text{PO}_4)/M_w(\text{P}_2\text{O}_5)] \times 100\% = 100/w(\text{P}_2\text{O}_5) = 115.49\%$

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

An equivalent is of 2 ($n = 2$), because the coefficient at the product (Na_3PO_4) 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 .