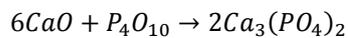


calculate the amount of calcium oxide required when it reacts with 852 gm of P_4O_{10}

Solution:

Reaction:



Amount of substance of P_4O_{10} :

$$v(P_4O_{10}) = \frac{m(P_4O_{10})}{Mr(P_4O_{10})} = \frac{852}{284} = 3 \text{ moles}$$

According to the reaction equation:

$$\frac{v(CaO)}{v(P_4O_{10})} = \frac{6}{1}$$

Thus:

$$v(CaO) = 6 * v(P_4O_{10}) = 6 * 3 = \mathbf{18 \text{ moles}}$$

Mass of CaO

$$m(CaO) = v(CaO) * Mr(CaO) = 18 * 56 = \mathbf{1008 \text{ gm}}$$

Answer:

1008 gm