Answer on Question #62480 - Chemistry | General Chemistry

How many grams of F are in 245 g of CaF_2 ?

Solution

$M(Ca) = 40.078$ (g/mol)

$M(F) = 18.998$ (g/mol)

$M(CaF_2)= M(Ca) + 2 \cdot M(F) = 40.078+2 \cdot 18.998 = 78.074$ (g/mol)

$$\%, W_F = \frac{M_{2F}}{M_{CaF_2}} \cdot 100\% = \frac{37.996 \text{ g/mol}}{78.074 \text{ g/mol}} \cdot 100\% = 0.467 \cdot 100\% = 46.7\%$$

$$m(F) = \frac{W \cdot m_{CaF_2}}{100\%} = \frac{46.7\% \cdot 245 \text{ g}}{100\%} = 114.415 \text{ (g)} \approx 114 \text{ (g)}$$

Answer

$m(F) = 114$ (g)