

Answer on question # Physics / Atomic and Nuclear Physics

Question if molecular formula of certain compound is X_4O_6 .if 5.72 gram X is in 10gram X_4O_6 then what is the atomic weight of X?

Solution We can make an equation basing on given chemical formula, that connects atomic weights of elements:

$$4m(X)/(4m(X) + 6m(O)) = 5.72/10$$

Or, the same:

$$4m(X)/6m(O) = 5.72/(10 - 5.72) = 5.72/4.28$$

We know that $m(O) = 16$. So we can find $m(X)$.

$$2m(X) = 3 \cdot 16 \cdot 1.336 = 64.15$$

$$m(X) = 32.07$$

Probably this is Sulfur, S.