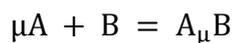# Answer on the question #42483, Chemistry, Physical Chemistry

Question:

A compound is formed when 6g of element A (with an AW of 24 g/mol) reacts with 15g of element B (with an AW of 20 g/mol). What is the empirical formula for the resulting compound?

Solution:

The chemical reaction equation is:

$$\mu A \; + \; B \; = \; A_\mu B$$

$$\frac{n(A)}{\mu} = n(B)$$

$$n(A) = \frac{m(A)}{AW(A)} = \frac{6}{24} = \; 0.25 \; \text{mol}$$

$$n(B) \; = \; 15/20 \; = \; 0.75 \; \text{mol}$$

$$n \; = \; n(A)/n(B) \; = \; 0.25/0.75 \; = \; 0.33(3)$$

$$n(A){:}\,n(B) \; = \; 0.33(3){:}\,1 \; = \; 1{:}\,3$$

The empirical formula for the resulting compound is AB_3

Answer: AB_3