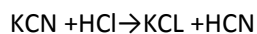


Answer on Question #39796 - Chemistry - Other

Question



If a sample of 0.140 g KCN is treated with an excess of HCl, calculate the mass of HCN formed.

Answer:

Molar mass of KCN equals:

$$M(\text{KCN}) = M(\text{K}) + M(\text{C}) + M(\text{N}) = 39 + 12 + 14 = 65 \frac{\text{g}}{\text{mole}}$$

Therefore, mass of 1 mole of KCN equals 65 g.

Molar mass of HCN equals:

$$M(\text{HCN}) = M(\text{H}) + M(\text{C}) + M(\text{N}) = 1 + 12 + 14 = 27 \frac{\text{g}}{\text{mole}}$$

Therefore, mass of 1 mole of HCN equals 27 g.

Then we make a proportion:

65 g of KCN produce 27 g of HCN

0.140 g of KCN – x g of HCN

$$x = \frac{0.140 \cdot 27}{65} = 0.058 \text{ g}$$

So, the mass of HCN formed equals 0.058 g.

Answer: m(HCN) = 0.058 g.