Answer on Question #39796 - Chemistry - Other

Question

KCN +HCl→KCL +HCN

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:

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

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

Molar mass of HCN equals:

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

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

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

So, the mass of HCN formed equals 0.058 g.

Answer: m(HCN) = 0.058 g.