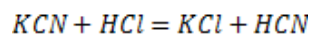


Question#19742

when potassium cyanide(kcn reacts with acids dealdy poisonous gas, hydrogen cyanide hcn is given of here is the equation. $\text{KCN}(\text{aq}) + \text{HCl}(\text{aq}) \rightarrow \text{KCl}(\text{aq}) + \text{HCN}(\text{g})$ if a sample of 0.140g of kcn is treated with an excess of hcl calculate the amount of HCN formed in grams.

Solution:

According to the equation:



1 mol KCN produce 1 mol HCN

the molar mass of KCN is: $M(\text{KCN}) = (39.1 + 12 + 14) \text{ g/mol} = 65.1 \text{ g/mol}$

the molar mass of HCN is: $M(\text{HCN}) = (1 + 12 + 14) \text{ g/mol} = 27 \text{ g/mol}$

$\left\{ \begin{array}{l} 65.1 \text{ g}(\text{KCN}) \Rightarrow 27 \text{ g}(\text{HCN}) \\ 0.14 \text{ g}(\text{KCN}) \Rightarrow x \text{ g}(\text{HCN}) \end{array} \right.$

$$x = \frac{0.14 \times 27}{65.1} = 0.058 \text{ g}$$

Answer: 0.058 g HCN.