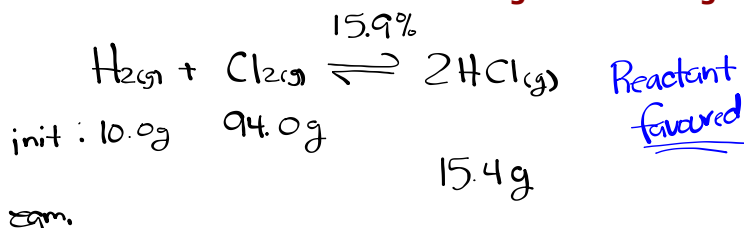


Warm Up

Find the % reaction and write the expression if 10.0 g of $H_{2(g)}$ and 94.0 g of $Cl_{2(g)}$ react to form 15.4 g of hydrochloric acid.

Determine the amount of excess reagent remaining.



Find max. product:

If H_2 is L.R.:

$$10.0g H_2 \times \frac{1 \text{ mol } H_2}{2.02g H_2} \times \frac{2 \text{ mol } HCl}{1 \text{ mol } H_2} \times \frac{36.46g HCl}{1 \text{ mol } HCl} = \frac{36.46g HCl}{360.99g}$$

If Cl_2 is L.R.:

$$94.0g Cl_2 \times \frac{1 \text{ mol } Cl_2}{70.90g Cl_2} \times \frac{2 \text{ mol } HCl}{1 \text{ mol } Cl_2} \times \frac{36.46g HCl}{1 \text{ mol } HCl} = 96.67g HCl$$

Cl_2 is L.R.

$$\% \text{ rxn} = \frac{\text{exp.}}{\text{theor.}} \times 100\%$$

$$\% \text{ rxn} = \frac{15.4g}{96.67g} \times 100\%$$

$$\% \text{ rxn} = 15.9\%$$

$$94.0g Cl_2 \times \frac{1 \text{ mol } Cl_2}{70.90g Cl_2} \times \frac{1 \text{ mol } H_2}{1 \text{ mol } Cl_2} \times \frac{2.02g H_2}{1 \text{ mol } H_2} = 2.68g H_2$$

Used

$$\begin{array}{r}
 10.0g \\
 \text{start}
 \end{array}
 - \begin{array}{r}
 2.68g \\
 \text{used}
 \end{array}
 = \boxed{7.32g}$$

Remaining

Percent Reaction Worksheet