



$$\left(\frac{35.5\text{g HCl}}{1}\right) \left(\frac{1\text{ mole HCl}}{36.5\text{g HCl}}\right) \left(\frac{1\text{ mole H}_2}{2\text{ mole HCl}}\right) \left(\frac{2.02\text{g H}_2}{1\text{ mole H}_2}\right) = \boxed{.97\text{g H}_2}$$

Single Replacement

$$\left(\frac{35.5\text{g HCl}}{1}\right) \left(\frac{1\text{ mole HCl}}{36.5\text{g HCl}}\right) \left(\frac{1\text{ mole Zn}}{2\text{ mole HCl}}\right) = \boxed{.486\text{ mole Zn}}$$

$$\left(\frac{35.5\text{g HCl}}{1}\right) \left(\frac{1\text{ mole HCl}}{36.5\text{g HCl}}\right) \left(\frac{1\text{ mole ZnCl}_2}{2\text{ mole HCl}}\right) \left(\frac{136.4\text{g ZnCl}_2}{1\text{ mole ZnCl}_2}\right) = \boxed{66.3\text{g ZnCl}_2}$$

$$\text{Percent Yield} = \frac{\text{Actual yield}}{\text{Theoretical yield}} \times 100\%$$

$$\text{Actual yield} = \text{Theoretical yield} \times \% \text{ yield}$$

$$= (66.3\text{g ZnCl}_2) (.985)$$

$$\boxed{\text{Actual yield} = 65.3\text{g ZnCl}_2}$$

- 1) limiting reactant
- 2) Actual yield
- 3) mole Ratio
- 4) Excess reactant
- 5) Theoretical yield
- 6) stoichiometry
- 7) Percent yield
- 8) limiting reactant
- 9) theoretical yield
- 10) Catalyst