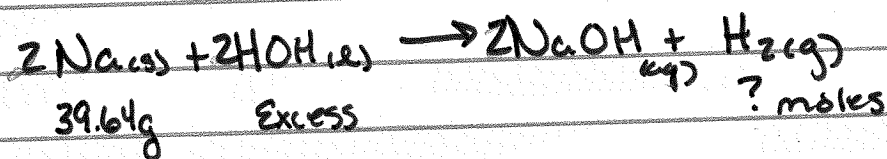


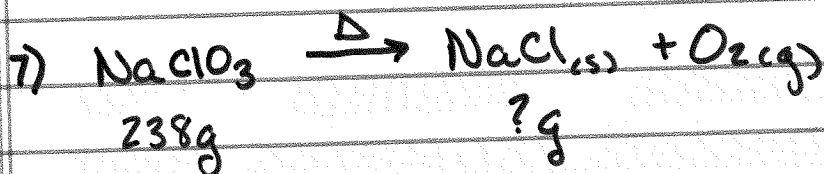
Chemistry
Review II

1/2

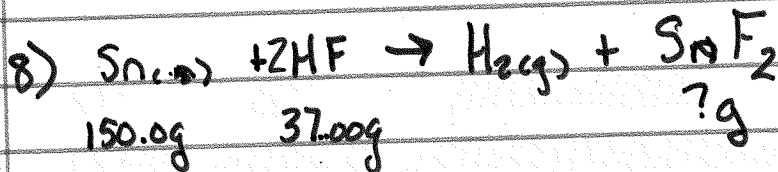
- 1) Stoichiometry
- 2) Theoretical yield
- 3) Actual
- 4) Ratio
- 5) Limiting
- 6)



$$\left(\frac{39.64g \text{ Na}}{1} \right) \left(\frac{1 \text{ mole Na}}{23.0g} \right) \left(\frac{1 \text{ mole H}_2}{2 \text{ mole Na}} \right) = \boxed{0.862 \text{ mole H}_2}$$



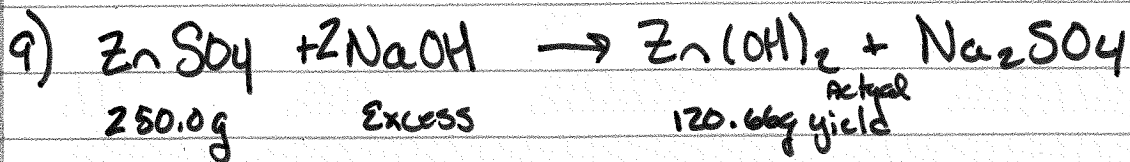
$$\left(\frac{238g \text{ NaClO}_3}{1} \right) \left(\frac{1 \text{ mole NaClO}_3}{106.5g \text{ NaClO}_3} \right) \left(\frac{1 \text{ mole NaCl}}{1 \text{ mole NaClO}_3} \right) \left(\frac{58.5g \text{ NaCl}}{1 \text{ mole NaCl}} \right) = \boxed{131g \text{ NaCl}}$$



$$\left(\frac{37.0g \text{ HF}}{1} \right) \left(\frac{1 \text{ mole HF}}{20.0g \text{ HF}} \right) \left(\frac{1 \text{ mole Sn}}{2 \text{ mole HF}} \right) \left(\frac{116.7g \text{ Sn}}{1 \text{ mole Sn}} \right) = 108 \text{ g Sn needed}$$

∴ HF Limiting 150.0g Sn Have - 108g Sn Need = 42g Sn Excess

$$\left(\frac{37.0g \text{ HF}}{1} \right) \left(\frac{1 \text{ mole HF}}{20.0g \text{ HF}} \right) \left(\frac{1 \text{ mole SnF}_2}{2 \text{ mole HF}} \right) \left(\frac{186.7g \text{ SnF}_2}{1 \text{ mole SnF}_2} \right) = \boxed{145g \text{ SnF}_2}$$

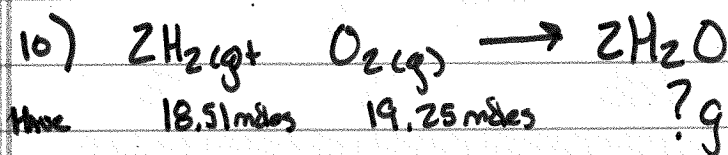


$$\left(\frac{250.0g \text{ ZnSO}_4}{1} \right) \left(\frac{1 \text{ mole ZnSO}_4}{161.5g \text{ ZnSO}_4} \right) \left(\frac{1 \text{ mole Zn(OH)}_2}{1 \text{ mole ZnSO}_4} \right) \left(\frac{99.4g \text{ Zn(OH)}_2}{1 \text{ mole Zn(OH)}_2} \right)$$

= 154g Theoretical yield

$$\frac{120.66g}{154g} \times 100\% = \boxed{78.4\% \text{ Percent yield}}$$

Zn(OH)₂



$$\left(\frac{19.25 \text{ moles O}_2}{1} \right) \left(\frac{2 \text{ moles H}_2}{1 \text{ mole O}_2} \right) = 38.5 \text{ moles Need H}_2 \text{ only Have 18.51}$$

∴ H₂ Limiting

$$\left(\frac{18.51 \text{ moles H}_2}{1} \right) \left(\frac{1 \text{ mole O}_2}{2 \text{ moles H}_2} \right) = 9.26 \text{ moles O}_2 \text{ Need, have 19.25}$$

O₂ is Excess

$$\left(\frac{18.51 \text{ mole H}_2}{1} \right) \left(\frac{2 \text{ moles H}_2\text{O}}{2 \text{ moles H}_2} \right) \left(\frac{18.0g \text{ H}_2\text{O}}{1 \text{ mole H}_2\text{O}} \right) = \boxed{333g \text{ H}_2\text{O}}$$