

## Limiting Reactant & Percent Yield Practice

- $2\text{Na(s)} + \text{Cl}_2\text{(g)} \rightarrow 2\text{NaCl(s)}$ 
  - 6.0 mol of Na and 4.0 mol of  $\text{Cl}_2$  are mixed. What is the maximum amount of NaCl in moles that can be made from each reactant? (Hint: 2 grids)
  - What is the limiting reactant?
  - What is the excess reactant?
- $\text{C}_2\text{H}_4\text{(g)} + 3\text{O}_2\text{(g)} \rightarrow 2\text{CO}_2\text{(g)} + 2\text{H}_2\text{O(g)}$ 
  - 2.7 mol of  $\text{C}_2\text{H}_4$  is reacted with 6.3 mol of  $\text{O}_2$ , how many moles of water will be made?
  - What is the limiting reactant?
  - What is the excess reactant?
- $2\text{Cu(s)} + \text{S(s)} \rightarrow \text{Cu}_2\text{S(s)}$ 
  - If 80.00 grams of copper is reacted with 25.00 grams of sulfur, how much product can be produced in grams?
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4.  $\text{CaCO}_3(\text{s}) \rightarrow \text{CaO}(\text{s}) + \text{CO}_2(\text{g})$
- How many grams of CaO can be made by heating 24.8 grams of  $\text{CaCO}_3$ ?
  - If 13.1 g CaO is produced in lab, what is the percent yield of CaO?
5.  $3\text{CaCO}_3 + 2\text{FePO}_4 \rightarrow \text{Ca}_3(\text{PO}_4)_2 + \text{Fe}_2(\text{CO}_3)_3$
- 100.00 grams of calcium carbonate and 45.00 grams of iron (III) phosphate are mixed and allowed to react. What mass of iron (III) carbonate is formed?
6.  $3\text{NH}_4\text{NO}_3 + \text{Na}_3\text{PO}_4 \rightarrow (\text{NH}_4)_3\text{PO}_4 + 3\text{NaNO}_3$
- 30.00 grams of ammonium nitrate and 50.00 grams of sodium phosphate are mixed and allowed to react. What mass of ammonium phosphate is formed?
  - If 12.55 grams of ammonium phosphate is formed in lab, what is the percent yield of ammonium phosphate?
  - How many grams of the excess reactant are left over?

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