Limiting Reactants — Practice Worksheet

Name: _____ Date: _____

Instructions: Show your reasoning, units, electron counts, or diagrams as needed. Use a separate sheet for additional work. For numeric results, use appropriate significant figures.

1. $2\ H_2 + O_2 \rightarrow 2\ H_2O$ Start: 3 mol H_2 and 1 mol O_2. Identify the limiting reagent and calculate the theoretical moles of H_2O.

2. $2\ H_2 + O_2 \rightarrow 2\ H_2O$ Start: 6 mol H_2 and 4 mol O_2. Identify the limiting reagent and calculate the theoretical moles of H_2O.

3. $N_2 + 3\ H_2 \rightarrow 2\ NH_3$ Start: 1.5 mol N_2 and 3 mol H_2. Identify the limiting reagent and calculate the theoretical moles of NH_3.

4. $N_2 + 3\ H_2 \rightarrow 2\ NH_3$ Start: 2 mol N_2 and 9 mol H_2. Identify the limiting reagent and calculate the theoretical moles of NH_3.

5. $2\ Mg + O_2 \rightarrow 2\ MgO$ Start: 1 mol Mg and 0.75 mol O_2. Identify the limiting reagent and calculate the theoretical moles of MgO.

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6. $2\ Mg + O_2 \rightarrow 2\ MgO$ Start: 3 mol Mg and 1 mol O_2. Identify the limiting reagent and calculate the theoretical moles of MgO.

7. $2\ Al + 3\ Cl_2 \rightarrow 2\ AlCl_3$ Start: 4 mol Al and 3 mol Cl_2. Identify the limiting reagent and calculate the theoretical moles of $AlCl_3$.

8. $2\ Al + 3\ Cl_2 \rightarrow 2\ AlCl_3$ Start: 2 mol Al and 6 mol Cl_2. Identify the limiting reagent and calculate the theoretical moles of $AlCl_3$.

9. $4\ Fe + 3\ O_2 \rightarrow 2\ Fe_2O_3$ Start: 8 mol Fe and 3 mol O_2. Identify the limiting reagent and calculate the theoretical moles of Fe_2O_3.

10. $4\ Fe + 3\ O_2 \rightarrow 2\ Fe_2O_3$ Start: 2 mol Fe and 3 mol O_2. Identify the limiting reagent and calculate the theoretical moles of Fe_2O_3.

11. $2\ CO + O_2 \rightarrow 2\ CO_2$ Start: 1.2 mol CO and 0.4 mol O_2. Identify the limiting reagent and calculate the theoretical moles of CO_2.

12. $2\ CO + O_2 \rightarrow 2\ CO_2$ Start: 0.8 mol CO and 1 mol O_2. Identify the limiting reagent and calculate the theoretical moles of CO_2.