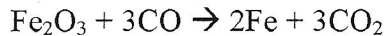


### More Limiting Reactant Practice

1. Calculate the theoretical yield of Fe in **grams**, and identify the limiting reactant using the reactant amounts and equation given.



Given:

167g Fe<sub>2</sub>O<sub>3</sub>

85.8g CO

Find:

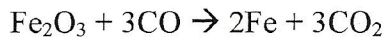
Theoretical Yield: 114.05 g Fe

Limiting Reactant: CO

$$\frac{167\text{g Fe}_2\text{O}_3}{1} \left( \frac{1\text{mol Fe}_2\text{O}_3}{159.7\text{g Fe}_2\text{O}_3} \right) \left( \frac{2\text{mol Fe}}{1\text{mol Fe}_2\text{O}_3} \right) \left( \frac{55.85\text{g Fe}}{1\text{mol Fe}} \right) = 116.81\text{g Fe}$$

$$\frac{85.8\text{g CO}}{1} \left( \frac{1\text{mol CO}}{28.01\text{g CO}} \right) \left( \frac{2\text{mol Fe}}{3\text{mol CO}} \right) \left( \frac{55.85\text{g Fe}}{1\text{mol Fe}} \right) = \boxed{114.05\text{g Fe}}$$

2. Calculate the theoretical yield of CO<sub>2</sub> in **grams**, and identify the limiting reactant using the reactant amounts and equation given.



Given:

167g Fe<sub>2</sub>O<sub>3</sub>

85.8g CO

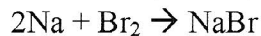
Find:

Theoretical Yield: 134.81 g CO<sub>2</sub>

Limiting Reactant: CO

$$\frac{85.8\text{g CO}}{1} \left( \frac{1\text{mol CO}}{28.01\text{g CO}} \right) \left( \frac{3\text{mol CO}_2}{3\text{mol CO}} \right) \left( \frac{44.01\text{g CO}_2}{1\text{mol CO}_2} \right) = 134.81\text{g CO}_2$$

3. Calculate the theoretical yield of NaBr in **moles**, and identify the limiting reactant using the reactant amounts and equation given.



Given:

1.8mol Na

1.4mol Br<sub>2</sub>

Find:

Theoretical Yield: 0.9 mol NaBr

Limiting Reactant: Na

$$\frac{1.8\text{mol Na}}{1} \left( \frac{1\text{mol NaBr}}{2\text{mol Na}} \right) = \boxed{0.9\text{mol NaBr}}$$

$$\frac{1.4\text{mol Br}_2}{1} \left( \frac{1\text{mol NaBr}}{1\text{mol Br}_2} \right) = 1.4\text{mol NaBr}$$