

Grab a textbook.

Friday - test

**Purpose:**

Practice Find which reactant is limiting.

**WARMUP (just copy, we'll solve):**

"If you have 100. grams of each reactant, find which is the limiting reactant".

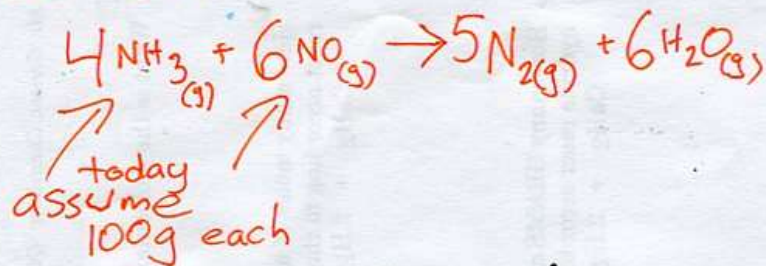


Strategy: Convert each into moles or grams of *PRODUCT*.  
The smaller product must be what really happens.

The limiting reactant is KCl. The excess reactant is ~~2~~ O<sub>2</sub>. It will be useless for doing stoichiometric calculations.

Definition: Stoichiometric calculations **COUNTING**  
**HOW MANY MOLECULES**  
**WILL REACT (ALWAYS**  
**GOES INTO MOLES**  
**AT SOME POINT)**

Solve 33(B)



$$100\text{g NH}_3 \times \left( \frac{1 \text{ mole NH}_3}{17.03 \text{ g NH}_3} \right) \times \left( \frac{6 \text{ moles H}_2\text{O}}{4 \text{ moles NH}_3} \right) = 8.81 \text{ moles H}_2\text{O}$$

excess

$$\begin{array}{r} \text{N} - 1 \times 14.00 = 14.00 \\ \text{H} - 3 \times 1.00 = 3.00 \\ \hline 17.03 \\ \text{mol mass} \end{array}$$

$$100\text{g NO} \times \left( \frac{1 \text{ moles NO}}{29.9 \text{ g NO}} \right) \times \left( \frac{6 \text{ moles H}_2\text{O}}{6 \text{ moles NO}} \right) = 3.3 \text{ moles H}_2\text{O}$$

TRUTH  
Limiting