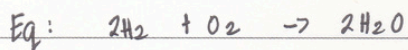


Limiting and Excess Reactants

Limiting Reactant (LR) - reactants that are completely consumed during rxn.

Excess Reactant (ER) - reactants that are left in the rxn.

In the formation of H_2O 5.00 g H_2 and 5.00 g O_2 were used:



a. Which is LR?

c. How much is excess?

b. Which is ER?

d. How many grams of H_2O produced?

• 5.00 g $H_2 \rightarrow$ g H_2O

$$5.00 \text{ g } H_2 \times \frac{1 \text{ mol } H_2}{2 \text{ g } H_2} \times \frac{2 \text{ mol } H_2O}{2 \text{ mol } H_2} \times \frac{18 \text{ g } H_2O}{1 \text{ mol } H_2O}$$

$$\frac{5.00 \times 1 \times 2 \times 18}{2 \times 2 \times 1} = \boxed{45.0 \text{ g } H_2O} \text{ ER}$$

• 5.00 g $O_2 \rightarrow$ g H_2O

$$5.00 \text{ g } O_2 \times \frac{1 \text{ mol } O_2}{32 \text{ g } O_2} \times \frac{2 \text{ mol } H_2O}{1 \text{ mol } O_2} \times \frac{18 \text{ g } H_2O}{1 \text{ mol } H_2O} = \boxed{5.625 \text{ g } H_2O} \text{ LR}$$

$$5.00 \text{ g } O_2 \times \frac{1 \text{ mol } O_2}{32 \text{ g } O_2} \times \frac{2 \text{ mol } H_2}{1 \text{ mol } O_2} \times \frac{2 \text{ g } H_2}{1 \text{ mol } H_2}$$

$$\frac{5 \times 1 \times 2 \times 2}{32} = 0.625 \text{ g } H_2$$

$$\text{Excess : } 5 - 0.625 \text{ g} = \boxed{4.375 \text{ g Excess}}$$