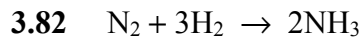


Chem 2 AP **Homework #3-5**: Problems pg. 109-110 #3.79, 3.82, 3.83, 3.84, 3.88, 3.92, 3.94, 3.108



**(a)**  $\text{N}_2$  is the **limiting reagent**.

**(b)** 9 molecules of  $\text{H}_2$  will react with 3 molecules of  $\text{N}_2$ , leaving 1 molecule of  $\text{H}_2$  in excess. The mole ratio between  $\text{N}_2$  and  $\text{NH}_3$  is 1:2. When 3 molecules of  $\text{N}_2$  react, 6 molecules of  $\text{NH}_3$  will be produced.

**3.83** **NO** is the **limiting reagent**; it limits the amount of product produced. The amount of product produced is **0.886 mole  $\text{NO}_2$** .

**3.84** The initial amount of  $\text{O}_3$  limits the amount of product that can be formed; therefore, it is the **limiting reagent**.

$$? \text{ g NO}_2 = 0.709 \text{ g NO}_2$$

$$\text{mol NO remaining} = 0.0069 \text{ mol NO}$$

**3.92**  $? \text{ g C}_6\text{H}_{14} = 3.47 \times 10^3 \text{ g C}_6\text{H}_{14}$

**3.94**  $? \text{ g S}_2\text{Cl}_2 = 8.55 \text{ g S}_2\text{Cl}_2$

$$\% \text{ yield} = 76.6\%$$

**3.108**  $\text{percent yield} = 89.6\% = \text{purity of Fe}_2\text{O}_3$