# Stoichiometry

Stoichiometry is the mathematics of chemical reactions. Want to be able to predict how much products will be produced or how much reactants will be needed. This turns out to be extremely important.


Chemical equations are balanced in terms of numbers of molecules. However, we generally measure out chemicals in terms of mass. We will need to do some conversions. . .

$$100.0\text{g } C_2H_5OH \cdot \frac{1 \text{ mole } C_2H_5OH}{46.07 \text{ g } C_2H_5OH} \cdot \frac{2 \text{ mol } CO_2}{1 \text{ mole } C_2H_5OH} \cdot \frac{44.01 \text{ g } CO_2}{1 \text{ mole } CO_2} = 191.1 \text{ g } CO_2$$

$$100.0\text{g } C_2H_5OH \cdot \frac{1 \text{ mole } C_2H_5OH}{46.07 \text{ g } C_2H_5OH} \cdot \frac{3 \text{ mol } O_2}{1 \text{ mole } C_2H_5OH} \cdot \frac{32.00 \text{ g } O_2}{1 \text{ mole } CO_2} = 208.4 \text{ g } O_2$$

Ex:

Future Thoughts:

What if you had more than one reactant amount?