

## Chemistry - Stoichiometry

### Limiting Reactants

Simple analogy: I have 3 steering wheels and 17 tires. What is the greatest number of cars that I can produce?

Terms we will use: Limiting reactant

Excess reactant

Maximum yield

Example: In a simple reaction of hydrogen gas with nitrogen gas we can form ammonia gas. If I react 13.5 g of nitrogen with 6.25 g of hydrogen gas, what is the maximum yield ammonia? Which is the limiting reactant? How much of the excess reactant remains in the container?

Example: In the reaction between lead (II) nitrate and potassium iodide, lead (II) iodide is formed. If we have 54.5 grams of potassium iodide reacting with 77.3 grams of lead (II) nitrate, determine the following:

- a. Limiting reactant
- b. Maximum product
- c. Amount of excess reactant remaining

Example: If 19.0 grams of sulfur trioxide gas reacts with 14.5 grams of water, what is the limiting reactant, the maximum amount of Hydrogen sulfate produced, and the amount of left over reactant remaining?