

Ch3/ PowerPoint Study-3Stoichiometry – Limiting Reagent/Excess

Name: _____

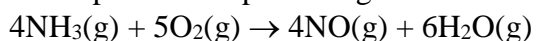
Answer these questions as you are watching the videos. They are due in class.

These questions are not just for you to answer but also to prepare you for the exam.

*Make sure you understand what you are writing and not just copy from the text book. **Show all work.***

Calculating limiting reagent, percent yield and excess reagent.

The first step in the Ostwald process for producing nitric acid is



- If the reaction of 150. g of ammonia with 150. g of oxygen gas yields 87. g of nitric oxide (NO) then what is the percent yield of this reaction?
- How much in grams is the excess reagent left?

Strategy: For solving part a

- g NH₃ → mol NH₃ → mol ratio to NO
- g O₂ → mol O₂ → mol ratio to NO
- See which mols are less in steps 1 and 2. Less quantity means that is the starting material that will finish first and the mols calculated are the mols of the product formed.
- Convert the lesser of the mols of NO to g of NO. This is the theoretical yield of NO.
- Calculate % yield (87gNO divided by the grams (theoretical you calculated from step 4) and multiply by 100%.

Strategy: For solving part b

- Subtract the smaller number from the larger number of mols from steps 1 and 2. This is mols of the reagent that is excess in quantity.
- Mols of the excess reagent → mol ratio to the starting material → g of the starting material.