**Exercise 7**

**Chem 1013 Intro to Chem**

 **Spring 2014 Alfred State College**

 Limiting Yield calculations

**Sample reaction 1**



 **+ 3HNO3 🡪 + 3H2O**

 **(toluene) (TNT)**

**MW 92 63 165 18 g/mol**

**1) 2 moles of toluene and 5 moles of HNO3 are combined.**

 **a) what is the limiting reagent ?**

 **b) what is the theoretical yield of TNT ?**

**2) 0.557 g of toluene and 3.054 g HNO3 are cautiously combined to produce TNT.**

 **How many grams of TNT can in theory form ?**

**3) 3.130 g HNO3 and 2.292 g toluene combine. How many TNT molecules can form in theory?**

**4) The weight ratio of toluene to HNO3 has been adjusted at a commercial explosive plant to**

 **3:1 toluene:HNO3 . Which is limiting, toluene or HNO3 ?**