

Percent Yield Problems:

Objective: Determine the percent yield of product based on the theoretical yield and the actual yield. This type of calculation relates the result of actual real world work to the results predicted from reaction stoichiometry.

Techniques and Definitions

Actual Yield: The quantity of product produced in a real experiment.

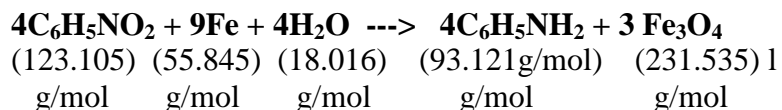
Theoretical Yield: The quantity of product production predicted by the complete consumption of the limiting reagent.

Percent Yield: The ratio of Actual Yield to the Theoretical Yield times 100.

$$\text{Percent Yield} = \left(\frac{\text{Actual Yield}}{\text{Theoretical Yield}} \right) 100$$

Tips: Identify moles of all reactants present and divide by stoichiometric coefficients. The smallest value represents the limiting reagent.

Aniline, (C₆H₅NH₂) can be formed from nitro benzene (C₆H₅NO₂) by the following equation:



- 1.) What is the percent yield if 4.128 g of Fe₃O₄ was produced if 3.320g of nitrobenzene reacted with excess iron and water?
- 2) What is the percent yield if 16.0g of aniline was formed after mixing 23.89g of nitrobenzene with excess iron and water?
- 3) What is the percent yield if 1.80 g of aniline was formed after mixing 3.78g of iron with excess nitrobenzene and water?