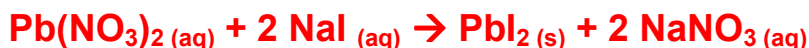


Limiting Reagent Worksheet - Solutions

Using your knowledge of stoichiometry and limiting reagents, answer the following questions:

- 1) Write the balanced equation for the reaction of lead (II) nitrate with sodium iodide to form sodium nitrate and lead (II) iodide:



- 2) If I start with 25.0 grams of lead (II) nitrate and 15.0 grams of sodium iodide, how many grams of sodium nitrate can be formed?

To solve, the students should do two calculations. In the first, they'll determine the quantity of sodium nitrate that can be formed with 25 grams of lead (II) nitrate, assuming that there's plenty of sodium iodide present to react with it – their calculation should indicate that 12.8 grams of sodium nitrate can be formed.

Likewise, they should do a calculation in which they determine the quantity of sodium nitrate that can be formed with 15 grams of sodium iodide. Their calculation should find that 8.51 grams of sodium nitrate can be formed.

Since the smallest of the two answers is 8.51 grams, this is the quantity of sodium nitrate that will actually be formed in this reaction.

- 3) What is the limiting reagent in the reaction described in problem 2?

Because sodium iodide is the reagent that causes 8.51 grams of sodium nitrate to be formed, it is the limiting reagent.

- 4) How much of the nonlimiting reagent will be left over from the reaction in problem #2?

By doing a stoichiometry calculation to determine the amount of lead (II) nitrate required to form 8.51 grams of sodium nitrate, students should determine that there are 8.38 grams of lead (II) nitrate remaining.