Limiting Reactant Lab

Inquiry Statement:

* Make sure it is clear and connects dependent variable to independent variable

Plan:

* Take a picture of your plan to include in

Possible Data Table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Tube Number | Pb(NO3)2 | | NaI | | Height (cm) | Maximum theoretical yield (mol) |
| mL | Mol | mL | Mol |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |

Calculations: # of drops x 1Litre\_x \_0.5mo\_= # of moles

30 1000ml 1 litre

Graph:

1. Theoretical Yield: test tube number vs. Theoretical Yield of precipitates (mol)
2. Your results: Test tube number vs. Height of precipitate.

Conclusion:

* Does your data makes sense to you
  + Mention anything that happened that you were not expecting and why you think that happened
  + What you learned from this experiment
  + Does this compare to what you expected (why/why not)
  + What can you conclude from your experiment
  + Explain what previous knowledge you needed to understand this experiment and what you learned
* What are some sourced of error
* If you were to do this experiment again what/how would you change?

Day 2

Purpose:

In this part of the experiment you will test the supernatants (the liquid above a settled precipitate) from each of the six test tubes for the presence of excess reagent. The testing will be done on spot plates. Two depressions will be needed for each supernatant because each much be tested both with Pb(NO3)2 and NaI.

Materials

* 0.5 MPb(NO3)2
* Spot plate
* 0.5 MNaI
* Pipet dropper
* Beaker distilled water
* Beaker for waste

Procedure

1. Gather the materials needed
2. Set up the spot plate so that you can first distribute all the supernatant samples and then add the drops of appropriate test solution to each spot. Make sure you have a reliable system for identifying which supernatants and which test solutions are in what spots
3. Using a dropper pipet, remove a sample of supernatant from tube 1 and add one drop t oa depression on the spot plate. Add a second drop to another spot plate.
4. Empty the excess into the waste beaker
5. Rinse the pipet with distilled water 3 times, emptying the water into the waste beaker
6. Repeat steps 3-5 for beakers 2-6
7. Now use the pipet to add a drop of .5 M PB(NO3)2 to the one of the two samples on your spot plate from each test tube.
8. Empty excess into waste beaker and Rinse with distilled water
9. Now add one drop of .5 M NaI to the other sample from each test tube.
10. Record your results on the table.

Data

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Substance Added** | **Tube 1** | **Tube 2** | **Tube 3** | **Tube 4** | **Tube 5** | **Tube 6** |
| **Pb(NO3)2** |  |  |  |  |  |  |
| **NaI** |  |  |  |  |  |  |
| **Reagent present in excess** |  |  |  |  |  |  |

Conclusion:

What kind of information can you conclude from your data and explain how you know this.

Is this what you would have expected to happen? Explain?

1. Theoretically should the supernatant of tube number 3 react with NaI or Pb(NO3)2? Explain why you think it may have?
2. Write the balanced chemical formula for the reaction that observed in this experiment