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Experimental Determination of the Impact of Concentration on Precipitation

Determine if some minimum concentration is required for precipitation

- Here you will look at the relationship between salt solubility (the concentration of ions) and precipitation

[http://www.youtube.com/watch?feature=player_embedded&v=j7vQzOmMOcM]

- So it all depends on the concentration of the ions inside the solution, whether or not you will observe the precipitation of the salt in solution.
- Remember: the ion concentration has to be over the solubility threshold in order to precipitate. Just because you don't see precipitate it doesn't mean there aren't ions in the solution.

So here's a question to ponder about: do all the reactants in a reaction react together to form a precipitate?

[http://www.youtube.com/watch?feature=player_embedded&v=EnIne5_WkqU]

Let's test to see what ions are leftover.

- The video demonstrates the process of filtration, which allows to determine whether all the reactants are used up to produce the products.

[http://www.youtube.com/watch?feature=player_embedded&v=Me_dRdfdItA]

- The filtration system is initially set up by first placing the rubber adapter onto the glass funnel and then placed into an Erlenmeyer flask.
- The circular filter paper is folded in half and then folded in half again (so the filter now quartered and looks like a cone).

- The filter paper is placed in the glass funnel and rinsed with DI water to stick the filter paper onto the walls of the funnel.
- KI (aq) and HgCl_2 are reacted together in a separate test tube, creating a pink precipitate.
- The original mixture is poured into the filter paper, the precipitate being caught in the filter and the solution drips out into the flask.
- KI (aq) is added to the filtrate (solution in the flask).

As proven in the demonstration, even though the reaction of: KI (aq) +

- $\text{HgCl}_2(\text{aq})$ initially produced a precipitate, upon the addition of KI(aq) to the **filtrate** (a liquid produced after filtering a suspension of a solid in a liquid) in the flask produced more precipitate.
- This means that all the reactants didn't combine together to produce the pink precipitate and there were some left over to react with more KI(aq)!

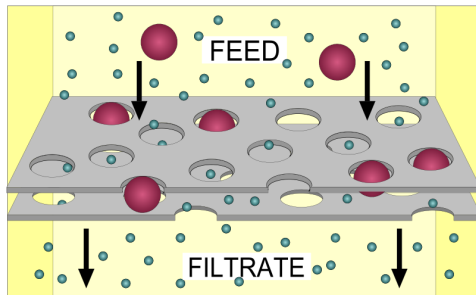


 Diagram of simple (dead-end) filtration.
<http://en.wikipedia.org/wiki/File:FilterDiagram.svg>