

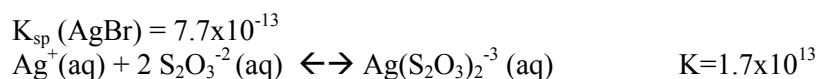
Lecture Notes AA: Solubility Demo's

1) Registering your handheld

Please go do <http://peb.cs.cmu.edu> and click on the "register handheld" link. Then enter your Andrew user id into the textbox. This will allow us to give you credit for participating in the concept tests.

2) Correction to Lecture Notes Z

The solubility of AgBr in a 0.2M solution of Na₂S₂O₃.



3) Orange tornado

In this demo, a solution of KI is mixed with Hg(NO₃)₂

What solid is precipitated:

- a) Hg₂I b) HgI₂ c) HgI₃ d) KNO₃

When more KI solution is added, the solid re-dissolves. This is due to:

- a) the common ion effect
- b) the effects of pH on solubility
- c) the formation of the complex ion HgI⁺
- d) the formation of the complex ion HgI₃⁻

4) Baryta water + sulfuric acid0.1M baryta water $\text{Ba}(\text{OH})_2$ 0.1M H_2SO_4 ($\text{pK}_{\text{a}1} = -2$, $\text{pK}_{\text{a}2} = 2.0$)

A light bulb conductivity tester will first be placed in the baryta water.

When 1 equivalent of sulfuric acid is added to the baryta water:

- a) the light will get dimmer
- b) the light will get brighter
- c) the light will stay the same

When 2 equivalents of sulfuric acid are added to the baryta water:

- a) the light will get dimmer
- b) the light will get brighter
- c) the light will stay the same

5) The Silver One-Pot Reaction

We will start with 200ml of distilled water in a 600ml beaker

10ml of 0.1M AgNO_3 will be added

Then 2ml of 0.1M NaHCO_3 will be added. This forms Ag_2CO_3 (s, white)

When we add 10ml of 0.1M NaOH . What will happen?

- a) the Ag_2CO_3 will remain
- b) the Ag_2CO_3 will be replaced with AgOH

When we add 30ml of 0.1M NaCl, what will happen?

- a) solid will remain as AgOH
- b) AgOH will be converted to AgCl
- c) AgOH will be dissolved due to formation of AgCl_2^-

The next step is addition of 35ml of 5M NH_3

Then we add 10ml of 0.1M NaBr

In the next two steps we will add:

50ml of 0.1M $\text{Na}_2\text{S}_2\text{O}_3$

10ml of 0.1M KI

We would like something interesting to happen both times. Should we add:

a) the $\text{Na}_2\text{S}_2\text{O}_3$ followed by the KI

b) the KI followed by the $\text{Na}_2\text{S}_2\text{O}_3$

The final two steps are:

20ml of 0.1M KCN

10ml of 0.1M Na_2S