

Lab #7: Solubility of Ionic Compounds

Since everyone gets the same results, the first table (I) are the results you would have received. Consult pages 123-134, but especially page 129 from your text.

Observations: In this table, indicate which pairs form precipitates (ppt) and which are soluble (no)

(I)

	AgNO ₃	Na ₂ CO ₃	Na ₂ SO ₄	CuSO ₄	Na ₃ PO ₄
NaCl	ppt	NO	NO	NO	NO
CaCl ₂	ppt	ppt	NO	NO	ppt
BaCl ₂	ppt	ppt	ppt	ppt	ppt
HCl	ppt	NO	NO	NO	NO

The ions used in this lab are: Anions: Na⁺, Ca²⁺, Ba²⁺, H⁺, Ag⁺, and Cu²⁺.

The Cations are: Cl⁻, NO₃⁻, CO₃⁻², SO₄⁻², and PO₄⁻³.

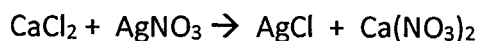
To fill in the second table, see the You Tube video and read below.

Three items that will help you complete the lab.

- (1) In the second table: correctly write in the two compounds formed since they are all double replacement reactions. No balancing is necessary.

For example:

The reaction between calcium chloride and silver nitrate, the products will be silver chloride and calcium nitrate.



Now you may ask, why are there two nitrate ions, NO₃⁻, following calcium and only one nitrate ion after silver. It's because silver has a +1 charge, Ag⁺, and Calcium is a +2 charge, Ca²⁺. When you write the formula, the positive charges and negative charges must be the same.

If one were to balance the above reaction:, which we will not do in this lab, it would be:
$$\text{CaCl}_2 + 2 \text{AgNO}_3 \rightarrow 2 \text{AgCl} + \text{Ca}(\text{NO}_3)_2$$

- (2) After the second table has been filled out, circle which of the two products was the precipitate, ppt. if any. To do that, use deductive reasoning. If NaCl was not a ppt in one box, it never will be a ppt.
- (3) To answer the questions concerning solubility rules, it is best to say for example "All sulfates are soluble except with barium."

Good Luck! This lab is due as usual the week of March 30th. See you all then. I hope