

Patterns in Solubility

Purpose: To explore factors affecting solubility

Materials: acetate film, .1 M solutions of the following compounds: K_2SO_4 ; $BaCl_2$; $NaOH$; NaI ; Na_2CO_3 ; $CuCl_2$; $Pb(NO_3)_2$, Na_3PO_4 ; $AgNO_3$

Procedure: Mix 1 – 2 drops of each solution with every other solution individually

Data: Use the **numbered boxes** on the data table on the back of the page to record the results of the solution mixing

Conclusion:

1. For each mixture that resulted in a precipitate, write the possible chemical equation for the reaction. Be sure to write all formulas correctly and then balance the equation.

SUBSCRIPTS THAT ARE PART OF A POLYATOMIC ION CARRY OVER TO THE OTHER SIDE OF THE EQUATION. Other subscripts DO NOT!!

2. In each case where there was a precipitate, use the solubility rules to determine which formula represents the precipitate. PUT A BOX AROUND THE FORMULA THAT IS THE PRECIPITATE.

3. Based on your observations, what generalization can you make about the type of ionic compounds that tend to be insoluble?

SOLUTION FORMULA	K ₂ SO ₄	BaCl ₂	NaOH	NaI	Na ₂ CO ₃	CuCl ₂	Pb(NO ₃) ₂	Na ₃ PO ₄	AgNO ₃
K ₂ SO ₄	xxxx								
BaCl ₂	1 yes	xxxx							
NaOH	2 no	3 yes	xxxx						
NaI	4 no	5 no	6 no	xxxx					
Na ₂ CO ₃	7 no	8 yes	9 no	10 no	xxxx				
CuCl ₂	11 no	12 no	13 yes	14 yes	15 yes	xxxx			
Pb(NO ₃) ₂	16 yes	17 yes	18 yes	19 yes	20 yes	21 yes	xxxx		
Na ₃ PO ₄	22 no	23 yes	24 no	25 no	26 no	27 yes	28 yes	xxxx	
AgNO ₃	29 yes	30 yes	31 yes	32 yes	33 yes	34 yes	35 no	36 yes	xxxx