

Precipitate Lab

Making Ionic Compounds

Name _____ (40 minutes)

Objectives: In this activity, you will do 9 double replacement reactions and observe any precipitates that form. Write the balanced chemical equations all nine of these. You'll need table F to get phase symbols.

Directions:

- Lay the page with the boxes on a flat table surface. Place a plastic sheet over it.
- In each of the squares: put 2 drops of both of the aqueous solutions in each square.
- NEVER TOUCH DROPPER TO THE SHEET!!
- NEVER TOUCH THE EYEDROPPERS TO THE OTHER SOLUTIONS

Once you have finished wash off the plastic sheets. Clean your lab area up

When you finish with the wet chemistry, use the sheet with the boxes to write ALL of the ions and formulas so you can balance the reactions later.

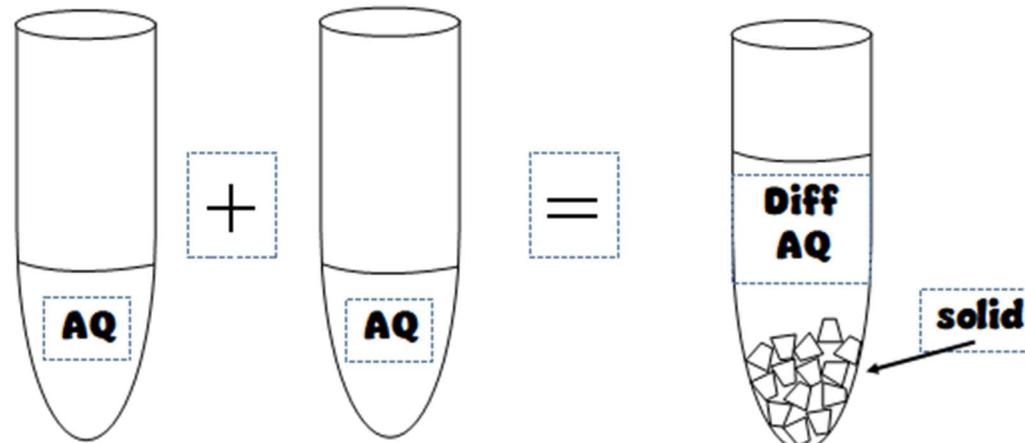
No guessing allowed, don't do the formulas in your head either.

DR: switch 'em, fix 'em, balance 'em, and then table F 'em.

In a double replacement reaction, the 2 AQ solutions mix. One ion from each of the reactants becomes bonded together into an insoluble, or solid, compound.

The solid product will precipitate out of solution.

Table F shows you which of the products is AQ or S.



If you end up with 2 AQ products, no reaction really occurred, and you have a mixture, a physical blend of the solutions. This would not be a chemical reaction.

BALANCE NINE EQUATIONS -- PHASE SYMBOLS ARE MANDATORY

A

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B

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C

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D

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E

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F

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G

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H

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I

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Ten Lab Questions – on a LOT of white paper please, using blue or black ink, or pencil!

1. Explain the “KB square dance” reference that explains how a double replacement reaction happens. (Love = precipitate = DR)
2. Describe what happens when table salt is put into water. Include the word “ionization” and “this solution contains loose...” in your answer. COPY the chemical symbols (look on table I).
3. Would this saltwater solution conduct electricity?
4. Describe what happens when table sugar ($C_{12}H_{22}O_{11}$) is put into water. Include “the sugar water solution contains loose..., but does not contain any...” in your answer. Use symbols to show this too.
5. Would this sugar water solution conduct electricity?
6. Describe what happens when you put calcium sulfate into water. Why would it NOT dissolve in water?
7. Would this calcium sulfate + water conduct electricity?
8. Define ELECTROLYTE.
9. Write a balanced chemical equation with phases for the double replacement reaction between ammonium phosphate and niobium (V) nitrate solutions.
10. Write a balanced chemical equation with phases for the double replacement reaction between the two aqueous solutions of lead (II) acetate and sodium bromide.

lab report	Includes	points
Cover	Title, optional drawing, single sentence explaining what you did today.	1
1	9 balanced chemical reactions WITH PHASE SYMBOLS	9
2	6 lab questions on loose leaf paper (they are on last page)	6
Conclusion	Include this: Name the 6 main indicators of chemical reactions Explain what this means: $AQ + AQ \rightarrow$ diff $AQ +$ Solid Explain what this means: $AQ + AQ \rightarrow$ diff $AQ +$ diff AQ Then tell how and why we use Table F. Define electrolytic solution + give 3 examples of electrolyte solutions. Using table F, Name 3 ionic compounds that <u>do not</u> dissolve in water. If an ionic compound FORMS during a Double Replacement Reaction it precipitates. What happens when you put that same compound into water? Copy the symbols for the dissociation of potassium nitrate in water from table I Copy the symbols for the ionization of ammonium nitrate in water from table I.	9
	THIS LAB REPORT IS DUE	25

$$\Omega$$

	copper (II) sulfate	magnesium nitrate	cobalt (II) chloride
sodium carbonate	A	B	C
potassium chromate	D	E	F
ammonium hydroxide	G	H	I