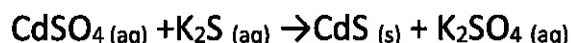


Precipitation Reactions

Sometimes when two aqueous solutions are mixed together, a solid, or precipitate, is produced. The solid is said to have low solubility and this reaction is called a precipitation reaction.

Precipitation and Double Displacement Reactions

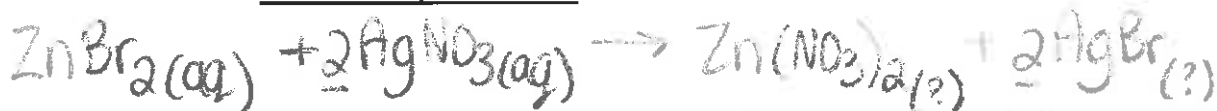
A double replacement reaction is specifically classified as a precipitation reaction when the reaction occurs in aqueous solution and one of the products formed is insoluble. An example of a precipitation reaction is given below:



Whether or not such a reaction is likely to occur can be determined by using a solubility table.

Example: A solution of zinc bromide is mixed with a solution of silver nitrate. Is this a precipitation reaction?

1. Write the balanced double displacement reaction that has occurred.



2. Determine which product, if any, is the precipitate. (look up on table)



3. Write a net ionic equation for the reaction.



Ions that are present in a reaction but do not participate are called spectator ions. These can be crossed off if present on both sides of the equation.



* Don't forget that while we can predict the products of a double displacement reaction, that does not always mean that a reaction will actually take place. Math is required! More tomorrow! *

Example: Is a precipitate formed when a solution of $\text{Mg}(\text{CH}_3\text{COO})_2$ is mixed with a solution of $(\text{NH}_4)_2\text{SO}_4$?



both products are soluble \therefore all really ions in solution so NO REACTION to said to occur

Example: A solution of copper II sulphate is mixed with a solution of ammonium sulfide. Is this a precipitation reaction?



Example: Determine the precipitate, if any, which would form when a solution of iron III nitrate was reacted with a solution of lithium hydroxide.

