

Precipitation Chemistry Questions with Solutions

Q1. What precipitate will form when silver nitrate reacts with sodium chloride?

- (a) Silver chloride
- (b) Silver nitrite
- (c) Both (a) and (b)
- (d) None of the above

Answer: (a) Silver chloride will form when silver nitrate reacts with sodium chloride.

Q2. True or false: precipitation reactions are ionic reactions.

- (a) True
- (b) False
- (c) Neither true nor false
- (d) None of the above

Answer: (a) True, Precipitation reactions are ionic reactions.

Q3. True or false: precipitation reactions are not temperature-dependent.

- (a) True
- (b) False
- (c) Neither true nor false
- (d) None of the above

Answer: (b) False, precipitation reactions are temperature-dependent.

Q4. True or false: precipitation reactions are dependent on solution concentration.

- (a) True
- (b) False
- (c) Neither true nor false
- (d) None of the above

Answer: (a) True, precipitation reactions are dependent on solution concentration.

Q5. EDTA method is also known as _____

- (a) Complexometric titration
- (b) Complex titration
- (c) Complement titration
- (d) Complexion titration

Answer: (a) EDTA method is also known as complexometric titration.

Q6. Identify the precipitation reaction.

- (a) Hydrogen + Oxygen \rightarrow Water
(b) Sodium + Chlorine \rightarrow Sodium chloride
(c) Sodium chloride + Silver nitrate \rightarrow Sodium nitrate + Silver chloride
(d) Calcium carbonate \rightarrow Calcium oxide + Carbon dioxide

Answer: (c) Sodium chloride + Silver nitrate \rightarrow Sodium nitrate + Silver chloride is an example of precipitation reaction.

Q7. What is a precipitation reaction?

Answer: A chemical reaction that combines two ionic bonds in an aqueous solution leads to the formation of an insoluble salt is known as a precipitation reaction. The insoluble salts formed during precipitation reactions are known as a precipitate.

Q8. Give any two applications of precipitation reactions?

Answer: A chemical reaction that combines two ionic bonds in an aqueous solution leads to the formation of an insoluble salt is known as a precipitation reaction. The insoluble salts formed during precipitation reactions are known as a precipitate.

There are a lot of applications of precipitation reactions. A few of them are mentioned below.

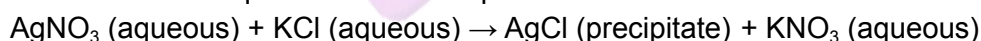
1. It helps determine the specific elements present in the given solution.
2. It is useful in extracting magnesium from seawater.

Q9. Give any two examples of the precipitation reactions.

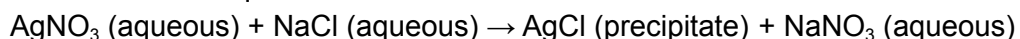
Answer: A chemical reaction that combines two ionic bonds in an aqueous solution leads to the formation of an insoluble salt is known as a precipitation reaction. The insoluble salts formed during precipitation reactions are known as a precipitate.

Examples of precipitation reactions:

1. An aqueous solution of silver nitrate reacts with potassium chloride to form a precipitate of silver chloride and an aqueous solution of potassium nitrate.



2. An aqueous solution of silver nitrate reacts with sodium chloride to form a precipitate of silver chloride and an aqueous solution of sodium nitrate.



Q10. What is the effect of temperature on the precipitation reaction?

Answer: A change in the temperature will affect the occurrence of a precipitation reaction. With an increase in the temperature, the solubility of ionic compounds increases, leading to an increase in the occurrence of a precipitation reaction.

Q11. What is a precipitating agent?

Answer: A chemical reagent responsible for forming precipitates is known as a precipitating agent or precipitant.

Calcium hydroxide (lime) or sodium hydroxide (caustic soda) are common examples of precipitating agents.

Q12. Why is precipitation important in chemistry?

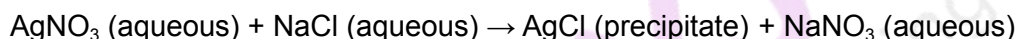
Answer: Precipitation plays a critical role in chemistry. It is useful in

1. Purification
2. Removing or recovering salts
3. Making pigments
4. Identify substances in qualitative analysis

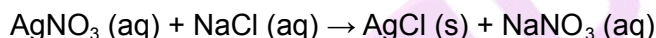
Q13. Is precipitation a sign of a chemical reaction?

Answer: Yes, a precipitate's formation is a chemical reaction sign.

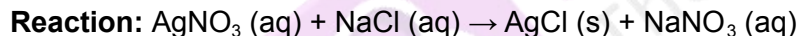
Example: When an aqueous solution of silver nitrate is mixed with sodium chloride, a chemical reaction occurs leading to the formation of a precipitate of silver chloride and an aqueous solution of sodium nitrate is formed.



Q14. Mention the formula, name and physical state of the products of the following precipitation reaction.



Answer:



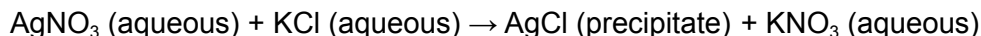
Name: AgCl (Silver chloride)

NaNO₃ (Sodium nitrate)

Physical state of AgCl is solid while NaNO₃ is aqueous in nature.

Q15. Under what conditions will a precipitate form?

Answer: A precipitate will form if the resulting compound is insoluble in water. For example, an aqueous solution of silver nitrate reacts with potassium chloride to form a precipitate of silver chloride and an aqueous solution of potassium nitrate.



Practise Questions on Precipitation

Q1. Why do precipitation reactions occur?

Answer: When a solution containing a particular cation (a positively charged ion) is combined with another solution containing a certain anion (a negatively charged ion), the formation of an insoluble compound can often occur. These insoluble compounds formed during precipitation reactions are known as a precipitate.

Q2. What is the effect of pH on the precipitation reaction?

Answer: A change in the pH of a solution will affect the occurrence of a precipitation reaction. pH is often used to control the anion concentration in the solution, which controls which cations precipitate. We can often control the concentration of anions in solution by adjusting the pH of the solution, thereby allowing the selective precipitation of cations.

Q3. Is a precipitate soluble?

Answer: Precipitates are insoluble ionic solid products of a reaction formed when certain cations and anions combine in an aqueous solution.

Q4. How will you differentiate between precipitation reaction and agglutination?

Answer: We can differentiate between precipitation reaction and agglutination in the following ways.

S. No.	Precipitation reaction	Agglutination
1.	Precipitation is forming insoluble solid mass from the reaction of ions present in a solution.	Agglutination is forming a solid mass from particles present in a solution.
2.	The starting material for precipitation is ions present in a solution.	The starting material for agglutination is the particles present in the solution.
3.	Precipitation involves chemical reactions between salts or ionic compounds.	Agglutination involves complex, forming reactions.
4.	The residue will either stay as a suspension or sink to the bottom of the container under the influence of gravity.	The formed solid mass usually sinks to the bottom of the container under the influence of gravity.
5.	Precipitation is useful in quantitative analysis, water treatment techniques, and pigment formation.	Agglutination is useful in blood grouping.

Q5. What is the effect of the degree of dissociation on the precipitation reaction?

Answer: The degree of dissociation does not affect the precipitation reaction.