

Net Ionic Equation Worksheet

Directions: Write balanced molecular, ionic, and net ionic equations for each of the following reactions. Assume all reactions occur in aqueous solution. Include states of matter in your balanced equation.

1. Sodium chloride and lead(II) nitrate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

2. Sodium carbonate and iron(II) chloride

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

3. Calcium hydroxide and hydrochloric acid

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

4. Potassium sulfide and calcium chloride

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

5. Ammonium phosphate and zinc nitrate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

6. Lithium hydroxide and barium chloride

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

7. Magnesium nitrate and sodium sulfite

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

8. Barium bromide and sodium sulfate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

9. Silver nitrate and magnesium iodide

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

10. Ammonium sulfide and aluminum perchlorate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

11. Nickel nitrate and sodium hydroxide

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

12. Hydrobromic acid and lead(II) perchlorate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

13. Potassium fluoride and magnesium nitrate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

14. Sodium phosphate and nickel(II) chlorate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

15. Copper(II) chloride and silver acetate

Molecular Equation:

Overall Ionic Equation:

Net Ionic Equation:

Net Ionic Equation Worksheet - answers

- Molecular Equation:** $2\text{NaCl}(\text{aq}) + \text{Pb}(\text{NO}_3)_2(\text{aq}) \rightarrow \text{PbCl}_2(\text{s}) + 2\text{NaNO}_3(\text{aq})$
Ionic Equation: $2\text{Na}^+(\text{aq}) + 2\text{Cl}^-(\text{aq}) + \text{Pb}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq}) \rightarrow \text{PbCl}_2(\text{s}) + 2\text{Na}^+(\text{aq}) + 2\text{NO}_3^-(\text{aq})$
NIE: $2\text{Cl}^-(\text{aq}) + \text{Pb}^{2+}(\text{aq}) \rightarrow \text{PbCl}_2(\text{s})$
- Molecular Equation:** $\text{Na}_2\text{CO}_3(\text{aq}) + \text{FeCl}_2(\text{aq}) \rightarrow \text{FeCO}_3(\text{s}) + 2\text{NaCl}(\text{aq})$
Ionic Equation: $2\text{Na}^+(\text{aq}) + \text{CO}_3^{2-}(\text{aq}) + \text{Fe}^{2+}(\text{aq}) + 2\text{Cl}^-(\text{aq}) \rightarrow \text{FeCO}_3(\text{s}) + 2\text{Na}^+(\text{aq}) + 2\text{Cl}^-(\text{aq})$
NIE: $\text{CO}_3^{2-}(\text{aq}) + \text{Fe}^{2+}(\text{aq}) \rightarrow \text{FeCO}_3(\text{s})$
- Molecular Equation:** $\text{Ca}(\text{OH})_2(\text{aq}) + 2\text{HCl}(\text{aq}) \rightarrow \text{CaCl}_2(\text{aq}) + 2\text{H}_2\text{O}(\text{l})$
Ionic Equation: $\text{Ca}^{2+}(\text{aq}) + 2\text{OH}^-(\text{aq}) + 2\text{H}^+(\text{aq}) + 2\text{Cl}^-(\text{aq}) \rightarrow \text{Ca}^{2+}(\text{aq}) + 2\text{Cl}^-(\text{aq}) + 2\text{H}_2\text{O}(\text{l})$
NIE: $2\text{OH}^-(\text{aq}) + 2\text{H}^+(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l})$ (your final answer would be: $\text{OH}^-(\text{aq}) + \text{H}^+(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l})$)
- Molecular Equation:** $\text{K}_2\text{S}(\text{aq}) + \text{CaCl}_2(\text{aq}) \rightarrow 2\text{KCl}(\text{aq}) + \text{CaS}(\text{aq})$
Ionic Equation: $2\text{K}^+(\text{aq}) + \text{S}^{2-}(\text{aq}) + \text{Ca}^{2+}(\text{aq}) + 2\text{Cl}^-(\text{aq}) \rightarrow 2\text{K}^+(\text{aq}) + 2\text{Cl}^-(\text{aq}) + \text{Ca}^{2+}(\text{aq}) + \text{S}^{2-}(\text{aq})$
NIE: N/A, all spectator ions
- Molecular Equation:** $2(\text{NH}_4)_3\text{PO}_4(\text{aq}) + 3\text{Zn}(\text{NO}_3)_2(\text{aq}) \rightarrow 6\text{NH}_4\text{NO}_3(\text{aq}) + \text{Zn}_3(\text{PO}_4)_2(\text{s})$
Ionic Equation: $6\text{NH}_4^+(\text{aq}) + 2\text{PO}_4^{3-}(\text{aq}) + 3\text{Zn}^{2+}(\text{aq}) + 6\text{NO}_3^-(\text{aq}) \rightarrow 6\text{NH}_4^+(\text{aq}) + 6\text{NO}_3^-(\text{aq}) + \text{Zn}_3(\text{PO}_4)_2(\text{s})$
NIE: $2\text{PO}_4^{3-}(\text{aq}) + 3\text{Zn}^{2+}(\text{aq}) \rightarrow \text{Zn}_3(\text{PO}_4)_2(\text{s})$
- Molecular Equation:** $2\text{LiOH}(\text{aq}) + \text{BaCl}_2(\text{aq}) \rightarrow 2\text{LiCl}(\text{aq}) + \text{Ba}(\text{OH})_2(\text{aq})$
Ionic Equation: $2\text{Li}^+(\text{aq}) + 2\text{OH}^-(\text{aq}) + \text{Ba}^{2+}(\text{aq}) + 2\text{Cl}^-(\text{aq}) \rightarrow 2\text{Li}^+(\text{aq}) + 2\text{Cl}^-(\text{aq}) + \text{Ba}^{2+} + 2\text{OH}^-$
NIE: N/A, all spectator ions
- Molecular Equation:** $\text{Mg}(\text{NO}_3)_2(\text{aq}) + \text{Na}_2\text{SO}_3(\text{aq}) \rightarrow 2\text{NaNO}_3(\text{aq}) + \text{MgSO}_3(\text{s})$
Ionic Equation: $\text{Mg}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq}) + 2\text{Na}^+(\text{aq}) + \text{SO}_3^{2-}(\text{aq}) \rightarrow 2\text{Na}^+(\text{aq}) + 2\text{NO}_3^-(\text{aq}) + \text{MgSO}_3(\text{s})$
NIE: $\text{Mg}^{2+}(\text{aq}) + \text{SO}_3^{2-}(\text{aq}) \rightarrow \text{MgSO}_3(\text{s})$

