

Double Replacement Reaction Worksheet

What happens when solutions in each row is mixed with solutions in each column?

- If a reaction occurs and a precipitation is observed, write *precipitate forms*.
- If the mixed solutions remain clear, write *no reaction*.

	$\text{K}_2\text{CO}_3 (\text{aq})$	$\text{NaCl} (\text{aq})$	$\text{Na}_3\text{PO}_4 (\text{aq})$
$\text{Mg}(\text{NO}_3)_2 (\text{aq})$	yes (Reaction 1)	no	yes (Reaction 2)
$\text{Ca}(\text{NO}_3)_2 (\text{aq})$	yes (Reaction 3)	no	yes (Reaction 4)
$\text{Sr}(\text{NO}_3)_2 (\text{aq})$	yes (Reaction 5)	no	yes (Reaction 6)
$\text{Ba}(\text{NO}_3)_2 (\text{aq})$	yes (Reaction 7)	no	yes (Reaction 8)

For each reaction that occurred, write:

1. the *balanced* chemical reactions, and
2. the net ionic reactions and identify the spectator ion(s).

Remember to include physical states.

1. Balanced chemical reaction: $\text{Mg}(\text{NO}_3)_2 (\text{aq}) + \text{K}_2\text{CO}_3 (\text{aq}) \rightarrow \text{MgCO}_3 (\text{s}) + 2 \text{KNO}_3 (\text{aq})$
Net ionic reaction: $\text{Mg}^{2+} (\text{aq}) + \text{CO}_3^{2-} (\text{aq}) \rightarrow \text{MgCO}_3 (\text{s})$
Spectator ions: $\text{K}^+, \text{NO}_3^-$
2. Balanced chemical reaction: $3 \text{Mg}(\text{NO}_3)_2 (\text{aq}) + 2 \text{Na}_3\text{PO}_4 (\text{aq}) \rightarrow 6 \text{NaNO}_3 (\text{aq}) + \text{Mg}_3(\text{PO}_4)_2 (\text{s})$
Net ionic reaction: $3 \text{Mg}^{2+} (\text{aq}) + 2 \text{PO}_4^{3-} (\text{aq}) \rightarrow \text{Mg}_3(\text{PO}_4)_2 (\text{s})$
Spectator ions: $\text{Na}^+, \text{NO}_3^-$
3. Balanced chemical reaction: $\text{Ca}(\text{NO}_3)_2 (\text{aq}) + \text{K}_2\text{CO}_3 (\text{aq}) \rightarrow \text{CaCO}_3 (\text{s}) + 2 \text{KNO}_3 (\text{aq})$
Net ionic reaction: $\text{Ca}^{2+} (\text{aq}) + \text{CO}_3^{2-} (\text{aq}) \rightarrow \text{CaCO}_3 (\text{s})$
Spectator ions: $\text{K}^+, \text{NO}_3^-$
4. Balanced chemical reaction: $3 \text{Ca}(\text{NO}_3)_2 (\text{aq}) + 2 \text{Na}_3\text{PO}_4 (\text{aq}) \rightarrow 6 \text{NaNO}_3 (\text{aq}) + \text{Ca}_3(\text{PO}_4)_2 (\text{s})$
Net ionic reaction: $3 \text{Ca}^{2+} (\text{aq}) + 2 \text{PO}_4^{3-} (\text{aq}) \rightarrow \text{Ca}_3(\text{PO}_4)_2 (\text{s})$
Spectator ions: $\text{Na}^+, \text{NO}_3^-$
5. Balanced chemical reaction: $\text{Sr}(\text{NO}_3)_2 (\text{aq}) + \text{K}_2\text{CO}_3 (\text{aq}) \rightarrow \text{SrCO}_3 (\text{s}) + 2 \text{KNO}_3 (\text{aq})$
Net ionic reaction: $\text{Sr}^{2+} (\text{aq}) + \text{CO}_3^{2-} (\text{aq}) \rightarrow \text{SrCO}_3 (\text{s})$
Spectator ions: $\text{K}^+, \text{NO}_3^-$
6. Balanced chemical reaction: $3 \text{Sr}(\text{NO}_3)_2 (\text{aq}) + 2 \text{Na}_3\text{PO}_4 (\text{aq}) \rightarrow 6 \text{NaNO}_3 (\text{aq}) + \text{Sr}_3(\text{PO}_4)_2 (\text{s})$
Net ionic reaction: $3 \text{Sr}^{2+} (\text{aq}) + 2 \text{PO}_4^{3-} (\text{aq}) \rightarrow \text{Sr}_3(\text{PO}_4)_2 (\text{s})$
Spectator ions: $\text{Na}^+, \text{NO}_3^-$
7. Balanced chemical reaction: $\text{Ba}(\text{NO}_3)_2 (\text{aq}) + \text{K}_2\text{CO}_3 (\text{aq}) \rightarrow \text{BaCO}_3 (\text{s}) + 2 \text{KNO}_3 (\text{aq})$
Net ionic reaction: $\text{Ba}^{2+} (\text{aq}) + \text{CO}_3^{2-} (\text{aq}) \rightarrow \text{BaCO}_3 (\text{s})$
Spectator ions: $\text{K}^+, \text{NO}_3^-$
8. Balanced chemical reaction: $3 \text{Ba}(\text{NO}_3)_2 (\text{aq}) + 2 \text{Na}_3\text{PO}_4 (\text{aq}) \rightarrow 6 \text{NaNO}_3 (\text{aq}) + \text{Ba}_3(\text{PO}_4)_2 (\text{s})$
Net ionic reaction: $3 \text{Ba}^{2+} (\text{aq}) + 2 \text{PO}_4^{3-} (\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2 (\text{s})$
Spectator ions: $\text{Na}^+, \text{NO}_3^-$