

CONCEPT: MOLECULAR EQUATIONS

Introduction to Molecular Equations

- A *Molecular Equation* shows the intact _____ instead of their dissociated ionic forms.

□ **Molecular Equation:** **Reactant 1** + **Reactant 2** \longrightarrow _____ + _____ .

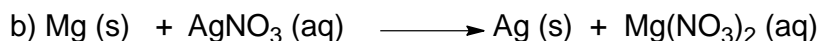


- **Neutralization Equation:** **Acid** + **Base** \longrightarrow _____ + _____ .

- **Gas Evolution Equation:** **Reactant 1** + **Reactant 2** \longrightarrow _____ + _____ .

- **Precipitation Equation:** If at least one of the products formed is a _____ ionic compound.

EXAMPLE: Which of the following is a precipitation reaction?



Solving Molecular Equations

- A molecular equation can be written when given **Reactant 1** and **Reactant 2**.

EXAMPLE: Predict whether a chemical reaction occurs and write the balanced molecular equation.



STEP 1: Break up **Reactant 1** and **Reactant 2** into their ionic forms.

STEP 2: **Swap Ionic Partners** by remembering that opposite charges attract.

- Apply the rules for combining ions based on the numerical values of their charges.

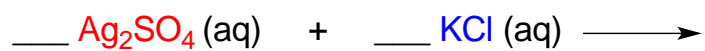
STEP 3: A reaction only occurs if a _____, _____, or liquid water is formed as a product.

- If both of the products formed are _____ (soluble) then NO REACTION has occurred and we STOP.
- Use the Solubility Rules to determine if the products formed will be soluble or insoluble.

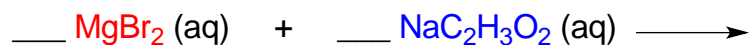
STEP 4: If necessary, balance your molecular equation by placing the correct coefficients in front of each molecule.

CONCEPT: MOLECULAR EQUATIONS

PRACTICE: Predict whether a chemical reaction occurs and write the balanced molecular equation.



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PRACTICE: Determine the balanced equation for the neutralization equation.

