

**Unit 7 Chemical Formulas and Reactions**  
**Using Nomenclature to Balance Equations**

**Name** \_\_\_\_\_  
**Block** \_\_\_\_\_

**Write balanced chemical equations for the following reactions.**

1. Ammonia ( $\text{NH}_3$ ) reacts with hydrogen chloride to form ammonium chloride.
2. Calcium carbonate decomposes upon heating to form calcium oxide and carbon dioxide.
3. Barium oxide reacts with water to form barium hydroxide.
4. Acetaldehyde ( $\text{CH}_3\text{CHO}$ ) decomposes to form methane ( $\text{CH}_4$ ) and carbon monoxide.
5. Zinc reacts with copper (II) nitrate to form zinc nitrate and copper.
6. Calcium sulfite decomposes when heated to form calcium oxide and sulfur dioxide.
7. Iron reacts with sulfuric acid ( $\text{H}_2\text{SO}_4$ ) to form iron (II) sulfate and hydrogen gas.
8. A nitrogen-containing carbon compound,  $\text{C}_2\text{H}_6\text{N}_2$ , decomposes to form ethane,  $\text{C}_2\text{H}_6$ , and nitrogen gas.
9. Phosgene,  $\text{COCl}_2$ , is formed when carbon monoxide reacts with chlorine gas.

10. Manganese (II) iodide decomposes when exposed to light to form manganese and iodine.
11. Dinitrogen pentoxide reacts with water to produce nitric acid ( $\text{HNO}_3$ ).
12. Magnesium reacts with titanium (IV) chloride to produce magnesium chloride and titanium.
13. Carbon reacts with zinc oxide to produce zinc and carbon dioxide.
14. Bromine reacts with sodium iodide to form sodium bromide and iodine.
15. Phosphorus ( $\text{P}_4$ ) reacts with bromine to produce phosphorus tribromide.
16. Ethanol,  $\text{C}_2\text{H}_5\text{OH}$ , reacts with oxygen gas to produce carbon dioxide and water.
17. Calcium hydride reacts with water to produce calcium hydroxide and hydrogen gas.
18. Sulfuric acid,  $\text{H}_2\text{SO}_4$ , reacts with potassium hydroxide to produce potassium sulfate and water.
19. Propane,  $\text{C}_3\text{H}_8$ , burns in air to produce carbon dioxide and water.