

Writing and Balancing Equations — Alternate Option

Procedure

For each chemical word equation below, first write the formula for each reactant and product. Then write the complete chemical equation; include the physical state for each substance. Balance each equation by following the procedure outlined on page 3 of the handout.

1. Hydrogen and oxygen gas react to form water.
2. Aqueous lead(II) chloride reacts with aqueous sodium sulfate to produce a lead(II) sulfate precipitate and aqueous sodium chloride.
3. Silicon reacts with chlorine gas to form liquid silicon tetrachloride.
4. Aqueous chlorine and aqueous potassium bromide react to make a solution of potassium chloride and bromine.
5. Sodium metal combines with chlorine gas to form crystalline sodium chloride.
6. Nitrogen combines with hydrogen to make gaseous ammonia.
7. Solid sodium bicarbonate decomposes to make aqueous sodium carbonate, carbon dioxide gas, and water.
8. Aluminum combines with oxygen gas to form solid aluminum oxide.
9. Methane gas undergoes combustion with oxygen to produce carbon dioxide and water.
10. Zinc reacts with aqueous hydrogen chloride to form aqueous zinc chloride and hydrogen gas.
11. Lithium metal combines with oxygen to form lithium oxide.
12. Aqueous silver nitrate reacts with solid copper to form a copper(II) nitrate solution and silver crystals.
13. Propane fuel burns in oxygen to form carbon dioxide and water.
14. Solid calcium carbonate decomposes to produce calcium oxide and carbon dioxide.
15. A sodium hydroxide solution neutralizes a hydrochloric acid solution to form a solution of sodium chloride and water.
16. Solid mercuric oxide decomposes to form liquid mercury metal and oxygen.
17. Iron metal reacts with water to form iron(III) oxide and hydrogen gas.
18. Aluminum reacts with a solution of hydrochloric acid to form aluminum chloride dissolved in water.
19. Potassium metal reacts violently with water to form a basic solution of potassium hydroxide, releasing hydrogen gas.
20. Ammonia gas and oxygen combine to form nitrous oxide and water vapor.