

Write each of the following as a balanced equation.

1. Iron can be produced from iron ore, Fe_2O_3 , by reacting the ore with carbon monoxide, CO . Carbon dioxide is also produced.
2. Sodium hydroxide or caustic soda, NaOH , used in many household drain cleaners, can be prepared by the reaction of calcium hydroxide, Ca(OH)_2 , with sodium carbonate, Na_2CO_3 . Calcium carbonate, CaCO_3 is also formed in this reaction.
3. Lead(II) chloride reacts with sodium chromate to form a precipitate of lead(II) chromate and another product.
4. You may have seen the thick haze commonly found over highly industrial areas. One of the substances responsible for this is ammonium sulphate, $(\text{NH}_4)_2\text{SO}_4$, which forms in the air by the reaction between ammonia, NH_3 , and sulphuric acid, H_2SO_4 .
5. Magnesium hydroxide, Mg(OH)_2 , commonly called milk of magnesia, is often used to neutralize stomach acid, HCl . Write the balanced equation for the reaction if one of the products is water.
6. Carbon monoxide burns in oxygen to produce carbon dioxide.
7. When potassium chlorate, KClO_3 , is strongly heated, it decomposes into potassium chloride and oxygen.
8. When calcium is added to water, calcium hydroxide is formed along with a gas.
9. The process of photosynthesis in plants produces glucose, $\text{C}_6\text{H}_{12}\text{O}_6$, and oxygen, from the raw materials carbon dioxide and water.
10. Magnesium reacts with sulphuric acid, forming magnesium sulphate and releasing hydrogen gas.
11. Ammonia gas and hydrogen chloride gas react to form ammonium chloride, a white solid.
12. Sulphur dioxide, formed during the burning of sulphur containing coal, may be removed from smokestack gases by passing the gases over solid calcium oxide. Calcium sulphite is formed in this reaction.
13. If a bottle of hydrogen peroxide solution, H_2O_2 , is left to stand at room temperature, oxygen gas is slowly released. After a period of time, the bottle contains only water.
14. In some water treatment plants, solutions of aluminum sulphate and calcium hydroxide are added to the water. A "sticky" precipitate of aluminum hydroxide forms. This sticky substance removed some of the small particles in the water as it settles to the bottom. There is another substance produced as well.