

# PHYSICAL VS. CHEMICAL PROPERTIES

A physical property is observed with the senses and can be determined without destroying the object. For example, color, shape, mass, length and odor are all examples of physical properties.

A chemical property indicates how a substance reacts with something else. The original substance is fundamentally changed in observing a chemical property. For example, the ability of iron to rust is a chemical property. The iron has reacted with oxygen, and the original iron metal is changed. It now exists as iron oxide, a different substance.

Classify the following properties as either chemical or physical by putting a check in the appropriate column.

	Physical Property	Chemical Property
1. blue color	✓	
2. density	✓	
3. flammability		✓
4. solubility	✓	
5. reacts with acid to form $H_2$		✓
6. supports combustion		✓
7. sour taste	✓	
8. melting point	✓	
9. reacts with water to form a gas		✓
10. reacts with a base to form water		✓
11. hardness	✓	
12. boiling point	✓	
13. can neutralize a base		✓
14. luster	✓	
15. odor	✓	

# PHYSICAL VS. CHEMICAL CHANGES

In a physical change, the original substance still exists, it has only changed in form. In a chemical change, a new substance is produced. Energy changes always accompany chemical changes.

Classify the following as being a physical or chemical change.

1. Sodium hydroxide dissolves in water. Physical
2. Hydrochloric acid reacts with potassium hydroxide to produce a salt, water and heat. Chemical
3. A pellet of sodium is sliced in two. ~~P~~
4. Water is heated and changed to steam. P
5. Potassium chlorate decomposes to potassium chloride and oxygen gas. C
6. Iron rusts. C
7. When placed in  $H_2O$ , a sodium pellet catches on fire as hydrogen gas is liberated and sodium hydroxide forms. C
8. Evaporation P
9. Ice melting C ~~P~~
10. Milk sours. C
11. Sugar dissolves in water. P
12. Wood rotting C ~~P~~
13. Pancakes cooking on a griddle C
14. Grass growing in a lawn C
15. A tire is inflated with air. P
16. Food is digested in the stomach. C
17. Water is absorbed by a paper towel. P

# BALANCING CHEMICAL EQUATIONS

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Rewrite and balance the equations below. Do only those circled.

