

PHYSICAL VS. CHEMICAL PROPERTIES

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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

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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. P
2. Hydrochloric acid reacts with potassium hydroxide to produce a salt, water and heat. C
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 P
10. Milk sours. C
11. Sugar dissolves in water. P
12. Wood rotting X **Chemical**
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.

