

PHYSICAL VS. CHEMICAL CHANGES

Name _____

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.

- Sodium hydroxide dissolves in water. _____
- Hydrochloric acid reacts with potassium hydroxide to produce a salt, water and heat. _____
- A pellet of sodium is sliced in two. _____
- Water is heated and changed to steam. _____
- Potassium chlorate decomposes to potassium chloride and oxygen gas. _____
- Iron rusts. _____
- When placed in H_2O , a sodium pellet catches on fire as hydrogen gas is liberated and sodium hydroxide forms. _____
- Evaporation _____
- Ice melting _____
- Milk sours. _____
- Sugar dissolves in water. _____
- Wood rotting _____
- Pancakes cooking on a griddle _____
- Grass growing in a lawn _____
- A tire is inflated with air. _____
- Food is digested in the stomach. _____
- Water is absorbed by a paper towel. _____

PHYSICAL VS. CHEMICAL PROPERTIES

Name _____

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		

2-3 Review and Reinforcement

Matter

Complete the following sentences by filling in the appropriate word from the list below.

gas	plasma	physical
liquid	matter	chemical
solid	energy	evaporation

- _____ is anything that has mass and volume.
- The two states of matter that occupy a definite volume are _____ and _____.
- _____ and _____ are the other two states of matter.
- _____ changes alter the identity of a substance, whereas _____ changes do not.

Identify whether each of the following changes is a physical change or a chemical change. Write a "P" on the line for a physical change and a "C" for a chemical change.

- water boiling _____
- iron rusting _____
- butter melting _____
- alcohol evaporating _____
- wood rotting _____
- leaves changing color _____
- glass breaking _____
- mowing the lawn _____
- magnetizing a nail _____
- baking a cake _____

Answer each of the following questions in the space provided.

- What is the relationship between the kinetic energy of molecules and their physical state?

Chem11 Physical and Chem. Reactions :

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Classify the following as a physical (P) or chemical reaction (C).

- | | |
|--|-----------------------------------|
| 1) boiling water | 2) baking bread |
| 3) distillation of petroleum | 4) burning gasoline |
| 5) rusting of iron | 6) digestion |
| 7) grinding wheat into flour | 8) a battery produces electricity |
| 9) melting sulfur | 10) dissolving fat in gasoline |
| 11) ripening of fruit | 12) dynamite explodes |
| 13) sublimation | 14) sugar dissolves in water |
| 15) melting wax | 16) cooking an egg |
| 17) gas escaping from a can of pop that has just been opened | |
| 18) bubbles appear when zinc is put into an acid | |
| 19) a hot stove element changes color | |
| 20) gold can be pounded into thin sheets (it's malleable) | |
| 21) litmus paper turns from red to blue when put in a base | |
| 22) hitting a nail with a hammer | |
| 23) heating of glass | |
| 24) salt dissolving in water | |