

Chemical Reactions

What is Chemistry?

Chemical Reactions

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Chemistry is the science of matter.

Anything that can be touched, tasted, smelled, seen or felt is made of chemicals.

Careers

What careers do you think could be associated with chemistry?

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Biochemistry- Study of chemical processes in living organisms

Chemical Engineering – application of physical science to the process of converting chemicals into more useful forms

Environmental Chemistry – study of chemical and biochemical phenomenon that occur in natural places

Geochemistry – study of the chemical composition of Earth

Hazardous Waste Management – disposal, transport and storage of hazardous materials.

Chemical Reactions



Chemical Reactions



Compressed Gas
-barbecue propane



Flammable
-these materials can easily catch fire



Oxidizing Material:
-can decompose readily to release oxygen



Poisonous and Infectious Material
-cause serious health effects or death following dosage or brief exposure



Materials Causing Other Toxic Effects
example: latex is a skin sensitizer



Biohazardous Infectious Materials
-fungi, bacteria,
-E coli, HIV/Aids

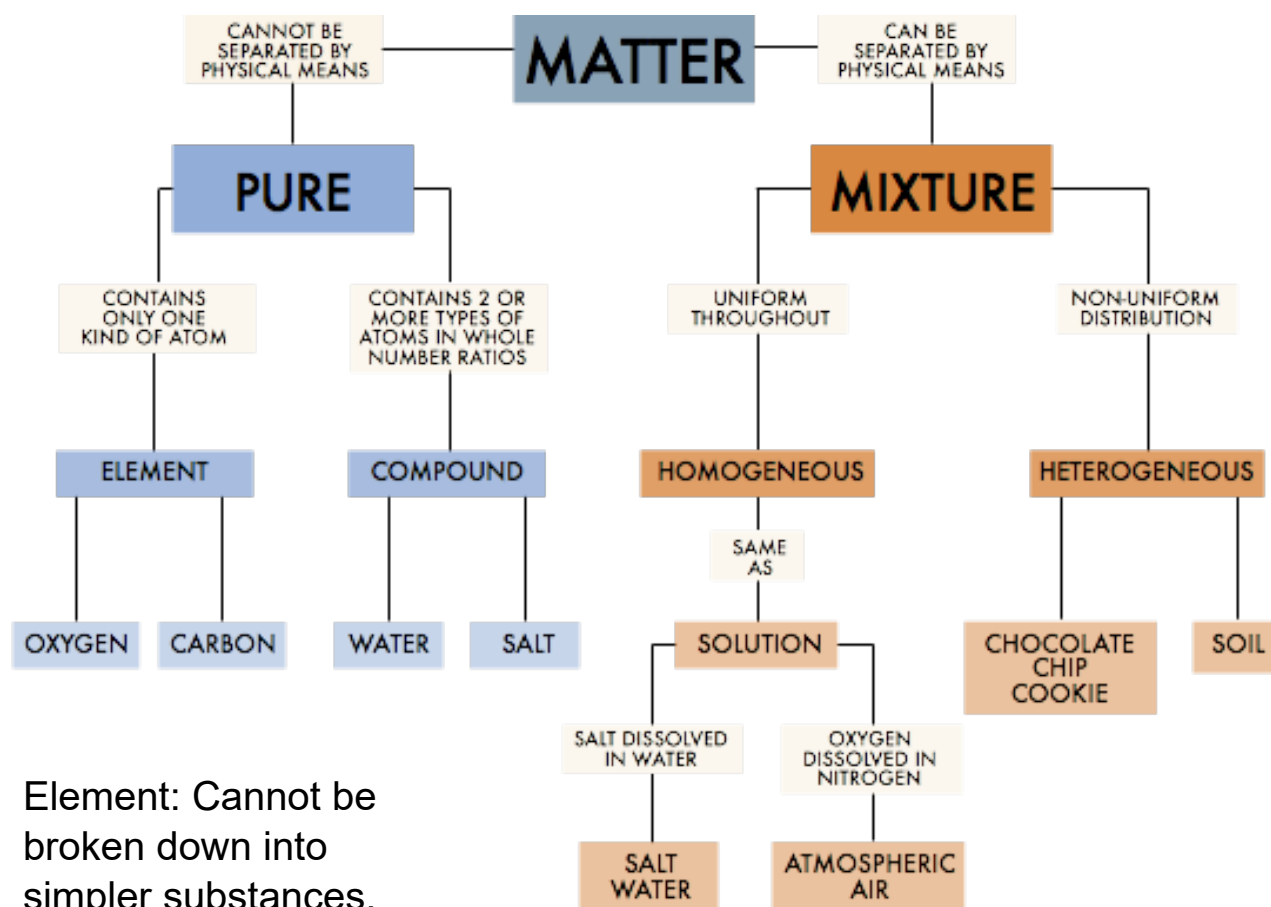


Corrosive
-can burn or destroy human tissue



Dangerously Reactive Material

Chemical Reactions



Element: Cannot be broken down into simpler substances.

Element:

Cannot be broken down into simpler substances.

Identified with a chemical symbol.

For example, Au is the chemical symbol for pure gold.

Compound:

Pure substances that contain two or more different elements.

Identified with a chemical formula

For example, CO₂ is the chemical symbol for carbon dioxide, or one carbon atom with two oxygen atoms.

Chemical Reactions

CR 1: What is it called when a solid turns directly into a gas?

- a) melting
- b) boiling
- c) freezing
- d) sublimation

CR 2: In an experiment, the variable deliberately changed by the scientist is called the:

- a) dependant variable
- b) controlled variable
- c) manipulated variable
- d) testing variable

1. Which of the following is NOT a symbol for an element?

- a) S
- b) K
- c) CO
- d) Na

2. A _____ is made of two or more elements chemically combined.

- a) mixture
- b) solution
- c) element
- d) compound

3. Which of the following is an example of a compound?

- a) oxygen
- b) pizza
- c) sodium chloride
- d) helium

4. The symbol for a _____ is always one or two letters.

- a) mixture
- b) compound
- c) solution
- d) element

5. Provide one example of a compound you use or see everyday.

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What is the difference?

Chemical Reactions

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What is the difference?

Physical properties can be seen through direct observation or measurement.

Examples:

color



boiling point



melting point



PHYSICAL CHANGE

- changes form but keeps its same chemical composition
- does not result in a new substance
- changes the way a substance looks.

INDICATORS OF A PHYSICAL CHANGE

- a change in size, shape, or location
- a change in state, or concentration

examples: ice melting, broken vase, diluting vinegar

Chemical Reactions

Matter has physical properties and chemical properties.

What is the difference?

Chemical properties can only be observed when one substance is changed into a different substance.

Examples:

reactivity



combustibility / flammability



CHEMICAL CHANGE

- something new is formed
- the starting materials change into an entirely different substance
- changing the way particles are linked together.
- result of a chemical reaction

INDICATORS OF A CHEMICAL CHANGE

- energy is taken in or given off in the form of light, heat, etc
- formation of gas bubbles
- formation of solid (precipitate)
- change in color
- formation of a different odor

examples:

- burning paper = paper turned to ash or carbon
- rusting of iron

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