

CHEMICAL PROPERTIES VS. PHYSICAL PROPERTIES

How are chemical properties and physical properties different?

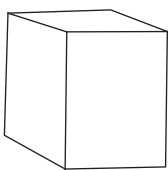
In the last section you learned that chemical and physical changes were different. Chemical changes are due to changes in the chemical makeup of a molecule. Physical changes occur when temperature (heat or cold) and pressure (high or low) act on states of matter (gas, liquid, or solid). In this section you will be able to describe the differences in physical and chemical properties of molecule.

Chemical Properties of Water (H_2O)

H_2O has:

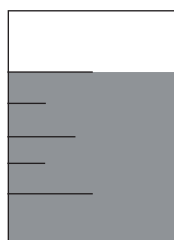
- 2 hydrogen molecules
- 1 oxygen molecule

Physical Properties of Water (H_2O)



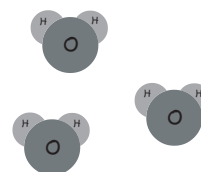
Water in its **solid state**

- ice - hard
- molecules are tightly packed



Water in its **liquid state**

- water - clear
- molecules are tightly packed but not as tightly as a solid



Water in its **gaseous state**

- gas - invisible
- molecules are spread out

Identifying Physical Properties

Identify the physical properties of the following objects.

Example:

Salt (NaCl) in its solid state has the following physical properties:

- White or clear in color
- Solid

water vapor



ice cube



rectangle



Ed Ed the Cabbage Head

How is a physical property different from a chemical property?

Identifying Chemical Properties

Identify the chemical properties of the following objects. You may use the Periodic Table.

Example:

Bleach (NaOCl) has the following chemical properties:

- 1 sodium molecule
- 1 oxygen molecule
- 1 chlorine molecule

NaCl
(Salt)

CO₂
(Carbon Dioxide)

13
Al
Aluminum

29
Cu
Copper

What are the chemical properties of water in its liquid state?
