


Sept. 8 / 2017

# Chemistry : Chemical Processes



Water:  $H_2O$

What is Chemistry and Matter?

**Chemistry** is the study of **matter**, its **properties** and its **changes** or **transformations**.

**Matter** is anything that has **mass** and takes up **space**. (All elements on the periodic table.)

## WHMIS

- Workplace Hazardous Materials Information System
- Why is it important? — Your Safety.

Read labels.

Employer is responsible to label products.  
Manufacturers are responsible to label products

Quiz. on: Matching

## WHMIS Symbols

CLASS A	CLASS B	CLASS C
Compressed Gas	Flammable and Combustible Material	Oxidizing Material
CLASS D		
1. Materials Causing Immediate and Serious Toxic Effects	2. Materials Causing Other Toxic Effects	3. Biohazardous Infectious Materials
CLASS E	CLASS F	
Corrosive Material	Dangerously Reactive Material	

WHMIS Classes and Hazard Symbols

## Hazardous Household Product Symbols (HHPS)

Home.

- HHPS is used for products at home.
- WHMIS is used in the workplace.
- MSDS – Materials Safety Data Sheet
  - describes the hazards that are associated with the chemical ( protective clothing, how to handle the chemical, how to clean up a spill ).

Reading & understanding the products that YOU use at home & work.

## Classification of Matter

Know this chart. Everything in the Universe.

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graph TD
    Matter --> PureSubstances[Pure Substances]
    Matter --> Mixtures[Mixtures]
    PureSubstances --> Compounds[Compounds]
    PureSubstances --> Elements[Elements]
    Mixtures --> Solutions[Solutions (Homogeneous Mixtures)]
    Mixtures --> HeterogeneousMixtures[Heterogeneous Mixtures]
    
```

Set ratios.  $H_2O$  water.  $NaCl$  salt

Hydrogen  $H$  Helium  $He$

Kool Aid colors sugar water  $H_2O$  Artificial flavors

Pizza

## Pure Substances

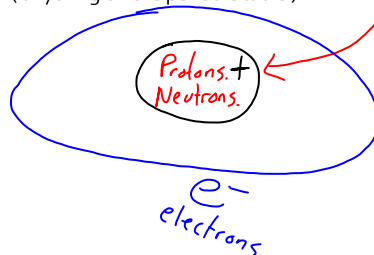
- How do we know that a sample of matter is a pure substance?
- A pure substance is made up of all the same particles. (atoms)
- A pure substance also has constant properties. Example: pure water, aluminum foil.
- Pure substances can be either elements or compounds.

↳ combinations of elements in fixed ratios.

Periodic table.

## Elements

- Elements are pure substances that cannot be broken down into simpler substances.
- Elements contain only one kind of atom.
- Example: Oxygen, hydrogen, iron, etc. (anything on the periodic table)



## Compounds $H_2O$

- Compounds are pure substances that contain two or more different elements in a fixed proportion.  $2:1$   $3:1$
- Example: Water  $H_2O = \underline{2 \text{ parts hydrogen to } 1 \text{ part oxygen}}$ .
- Salt  $NaCl = \underline{1 \text{ sodium to } 1 \text{ chlorine}}$

Homework: Find a simple compound and show its composition (ratio)