

Identifying Substances

<http://www.dummies.com/how-to/content/how-to-distinguish-pure-substances-and-mixtures.html>

<http://www.differencebetween.net/science/difference-between-a-pure-substance-and-a-mixture/>

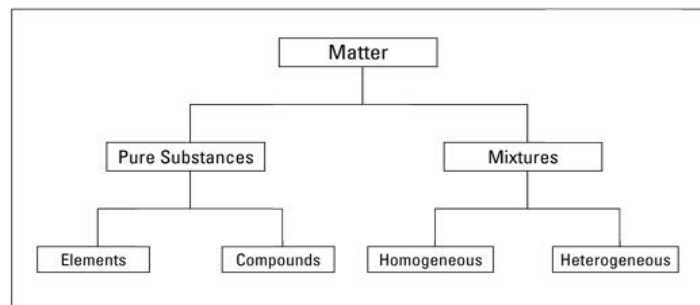
<http://chemistry.about.com/od/molecularformulas/tp/Chemical-Formula-Molecular-Formula.htm>

Name _____ Date _____ Period _____

For the purposes of this experiment,

let's assume that the liquids are

not solutions.



DIRECTIONS: Observe the samples you've been given and complete. You must do page 2 to find the formulas.

You may be given the common names or asked to look them up. (1 pt. each; Descriptions-2 pts each)

**To test for solubility, place one scoop of the sample in one of the wells of water as instructed.*

Sample	Description - Be specific!!!	Soluble (Yes or No)	Mixture or Pure Substance	*Formula- Dichotomous Key	Common Name
A					
B					
C					
D					
E					
F					
G					
H					
I					

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Place a SMALL pinch of each substance on the colored paper as you observe it to better help you see the particles.

- | | |
|--|-------------------------------------|
| 1. Sample is liquid..... | Go to #2 |
| Sample is solid..... | Go to #4 |
| 2. Sample has a smell..... | Go to #3 |
| Sample has no smell..... | Go to #7 |
| 3. Sample smells like alcohol..... | C_3H_8O & H_2O |
| Sample smells like vinegar..... | CH_3COOH |
| 4. All particles are the same..... | Go to #8 |
| All particles are not the same..... | Go to #5 |
| 5. One particle type may be separated by placing the sample in water..... | $C_6H_{12}O_6$ & $C_{17}H_{19}NO_3$ |
| One particle type may NOT be separated by placing the sample in water..... | Go to #6 |
| 6. Sample is a heterogeneous mixture of brown particles..... | Soil |
| Sample is a heterogeneous mixture of white particles..... | $NaCl$ & $NaHCO_3$ |
| 7. Sample is | H_2O |
| 8. Sample is powdery, fine, and consistent..... | $NaHCO_3$ |
| Particles are made of crystals..... | Go to #9 |
| 9. Particles are dull, frosted or white with 5 sides..... | $NaCl$ |
| Particles are 6 sided, are clear and sparkly with sharp corners, melts at $320^{\circ}F$ | $C_6H_{12}O_6$ |



Putting it All Together - The Conclusion (1 pt each)

1. What were the solutes in this experiment? _____
2. Name the solvent used in this experiment. _____
3. What does it mean to be soluble? _____
4. Describe any solutions you saw. _____
5. How did you decide if something was a pure substance or a mixture? _____
6. How did this experiment help you better understand the vocabulary? _____

Pure Substance: A substance that is completely identical throughout. It has a definite density, melting/freezing/boiling point no matter the volume. Ex. Water is a pure substance.

Elements: Every atom in an element is exactly alike. Elements are pure substances.

Compounds: composed of two or more elements like water H_2O and carbon dioxide CO_2
They are molecules!

Mixture: A combination of things put together.
There are two types of mixtures.

Heterogeneous Mixture: A mixture that's different throughout the sample. For example: a jar of sugar and sand (This mixture isn't the same throughout the jar.)

Homogeneous Mixture: Sometimes called a *solution*, is pretty much the same in every portion of the mixture.

For example: sugar in water