

Composition of Matter

Unit 3

Mixtures

- In chemistry, a mixture is a material made up of two or more different chemical substances which are not chemically combined. A mixture is the physical combination of two or more substances in which the identities are retained and are mixed in the form of solutions, suspensions and colloids.
- A mixture is a composition of various substances not chemically bonded. There are two types of mixtures: heterogeneous and homogeneous mixtures.

Homogeneous vs. Heterogeneous

- ***Heterogeneous mixtures*** are made up of components that can be observed by the eye or with an optical microscope. The mixture is ***not uniform*** and its properties are ***different***.

- ***Homogeneous mixtures*** are made up of components that cannot be observed, not even using a powerful microscope. The mixture ***is uniform*** and its ***properties are the same*** in all its parts.

Properties of Heterogeneous mixtures

1. A heterogeneous mixture contains two or more ingredients or phases.
1. The different phases mix together, but are physically separate. In other words, they retain their own chemical identity.
1. Samples taken from different parts of the mixture may have a different composition.
1. It's usually possible to separate components of a heterogeneous mixture.

Properties of a Homogeneous mixture

1. A homogeneous mixture consists of a single phase. It consists only of a solid, liquid, or gas.
1. While the components of the mixture retain their chemical identity, they aren't visibly separate. But, at the molecular level, the mixture contains multiple compounds or elements.
1. Samples taken from different parts of the mixture have identical composition and characteristics.
1. It's usually not possible to separate components of a homogeneous mixture.

Examples

1. Wine
2. Water
3. Cereal in milk
4. Orange juice (with pulp)
5. Coffee
6. Liquid laundry detergent
7. A pepperoni pizza
8. Concrete

Answers

1. Wine → ***Homogeneous mixture***

1. Water → ***Homogeneous mixture***

1. Cereal in milk → ***Heterogeneous mixture***. It consists of a solid cereal in liquid milk.

1. Orange juice with pulp → ***Heterogeneous mixture***. The components are unevenly distributed, plus they exist in two phases. Juice is a liquid and pulp is a solid.

1. Coffee → ***Homogeneous mixture*** of water and filtered coffee grounds. You cannot easily separate the coffee from the water, making it mainly homogeneous.

Answers

6. Liquid laundry detergent → ***Homogeneous mixture*** of various soaps and chemicals for washing clothes; you cannot easily separate the soap from the water in concentrated laundry detergent.

7. A pepperoni pizza → ***Heterogeneous mixture***. You might get a pepperoni in one bite, yet not in another.

8. Concrete → ***Heterogeneous mixture*** of cement, gravel, sand, and water.

Video Summary

<https://www.khanacademy.org/science/ap-chemistry-beta/x2eef969c74e0d802:intermolecular-forces-and-properties/x2eef969c74e0d802:solutions-and-mixtures/v/types-of-mixtures>