

About Solutions

In a solution, one substance has mixed completely, or **dissolved**, into another. Solutions can occur as solids, liquids, or gases. Solid solutions are called **alloys**. The substances that dissolve are called the **solutes** and the substance into which they dissolve is called the **solvent**. The main substance (or larger quantity) is always the solvent.

Example: When you mix drink crystals with water, the crystal particles at the surface of the crystal are attracted to the water particles. If the attraction to the water particles is **at least** as strong as to the other crystal particles, some of the particles will break their connections to the rest of the crystal and float off into the water. This process continues until the drink crystals (solute) break apart and mix completely, or dissolve, into the water (solvent).

If the particles of the solute are not attracted to the particles of the solvent, the two substances generally cannot form a solution.

Water is often referred to as the **universal solvent** because many different solids, liquids, and gases dissolve in it to form solutions.

Questions for Homework

1. Based on the particle theory, why would a substance dissolve in one solvent, but not in another?
2. Using what you know about particles, predict two ways you could shorten the time it takes to dissolve sugar in a drink. Explain your predictions.