

8.1: Dissolution

There are a couple of very basic procedures that are used routinely in the laboratory, and that are actually key steps in other methods. The preparation of solutions, or dissolution of solutes, is one of them.

In a solution, one compound is dissolved in another. For example, sugar water and salt water are solutions. The sugar molecules can dissolve in the water because of hydrogen bonding; these strong intermolecular attractions allow the water molecules to pull sugar molecules apart from one another. The sugar molecules interact with the water molecules instead of with each other.

In salt water, ion-dipole interactions pull the sodium ions apart from the chloride ions in the salt. Instead of interacting directly with each other, the ions interact with the partial charges on the polar water molecules.

In a solution, there is always a liquid compound that dissolves the other compound. This liquid compound is called the "solvent". Water is a very common solvent, but there are other ones, too. The compound that gets dissolved is called the "solute". This compound could be a solid, a liquid, or even a gas. Life in the oceans depends on gas-phase oxygen from the atmosphere dissolving in the water so that respiration is possible in marine organisms. Life on earth depends on solid minerals dissolving in water so that they can be taken up by plants and other organisms.

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