

CHAPTER OVERVIEW

7: Aqueous Solutions

Water is the most remarkable solvent! The O—H bonds in water are *polarized* due to the differences in electronegativity between hydrogen and oxygen. When this uneven charge distribution is coupled with the fact that water has a “bent” molecular geometry, the two covalent bond dipoles combine to form a molecular dipole (shown in the electrostatic potential map on the right). This molecular dipole allows water to surround and stabilize ions in solution, making water a powerful solvent for the dissolution of polar and ionic compounds. If we know the *amount* of solute that we have dissolved in a given *volume* of solvent, we can define the term molarity, as the *number of moles of solute in each liter of solution*. Finally, by combining the concept of molarity with what we have learned about simple stoichiometric calculations, we can now approach quantitative chemical calculations in solution.

[7.1: Hydrogen Bonding and the Properties of Water](#)

[7.2: Molecular Dipoles](#)

[7.3: Dissolution of Ionic Compounds](#)

[7.4: Concentration and Molarity](#)

[7.5: Solution Stoichiometry](#)

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[7.S: Aqueous Solutions \(Summary\)](#)

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