

15.2 Why do Ionic Solids Dissolve in Water (Ion-Dipole IMF)? (Video)

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Video Topics

When an ionic compound is dissolved in water a special interaction occurs. The ionic bonds are broken and the ionic species in the compound are separated. For sodium chloride, the Na^+ ion becomes surrounded by the negative side of multiple water molecules and the Cl^- ions are surrounded by the positive side of multiple water molecules. This interaction is called an ion-dipole intermolecular force, which is considered one of the strongest. During the reaction, the ionic bonds in sodium chloride are broken and replaced by the ion-dipole intermolecular forces present in the sodium chloride /water solution. Because the ion-dipole interactions are stronger than the ionic bonds, the products of the reaction (the sodium chloride/water solution) are in a more stable, lower energy state the reactants (solid sodium chloride and liquid water). The enthalpy change associated with the hydration of ions is called the enthalpy of solvation. The enthalpy of solvation is often exothermic.

Link to Video

Why do Ionic Solids Dissolve in Water (Ion-Dipole IMF)?: https://youtu.be/yz1M10Q8b_I



Attribution

- Prof. Steven Farmer ([Sonoma State University](#))

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