

Answer on Question #77914 - Chemistry - Physical Chemistry

Question:

Why partial charges of a dipole dont attract?

Solution:

The nature of the dipole bonds begins when the atoms differ in their electronegativity, which quantitatively determines the ability of a single atom to attract electrons to itself. A classic example of an electronegative atom is fluorine.

When a covalent bond forms between two atoms, the electrons will be distributed unevenly between the two atoms; the more electronegative atoms will have a greater electron density. This uneven distribution of electrons creates a separation of charges, and the observation molecule will develop partial charges, where the electronegative atom develops a partial negative charge, and the neighboring atom will develop a partial positive charge. Then the molecule is called polarized because of this separation of charge. When molecules detect a charge separation, there is a pseudo-electrostatic force between the partial charges of the molecules.

The key to dipole bonds is the charge separation within the molecule.

When covalent bonds in a molecule are polarized so that one part of the molecule is experiencing a positive charge, and the other part of the molecule is experiencing a negative charge. This separation of opposing charges creates an electric dipole. Depending on the orientation of the two dipoles, the molecules can be attracted to each other, since a partial negative charge is attracted to a partial positive charge.