

Answer on Question #85429 - Chemistry - Physical Chemistry

Question:

On the basis of dipole study, predict whether HF compound is purely ionic or polar covalent. The bond length of HF is 92 pm and dipole moment is 1.92 D.

Solution:

The HF compound has a polar covalent nature. In the aquatic environment, it behaves as an ionic compound, and this is due to the fact that the electronegativity of fluorine is higher than that of hydrogen. This difference in electronegativity leads to the fact that the total pair of electrons is maintained near the fluorine atom. This causes polarity in the H - F bond. While in the aquatic environment even a small amount of the enthalpy of hydration is enough to break this polar covalent bond, and it forms ions, and as a result, it exhibits an ionic character. But actually this is a polar covalent bond.

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