

Answer on Question #45504 – Chemistry – Inorganic Chemistry

Question:

Why does bond angle decreases when surrounding atom is more electronegative than the central atom?

Answer:

The shape of the molecule or ion depends upon the number of bonding electron pairs (BP) and nonbonding electron pairs or lone pairs (LP) around the central atom. Electron repulsion is the main factor which determines the values of bond angles.

The central atoms are oriented in such a way that there is minimum repulsion (maximum stability) between them. The molecule has a definite shape, because there is only one orientation of orbitals corresponding to minimum energy.

If the electronegativity of the central atom decreases, bond angle decreases, at the same time if the electronegativity of the surrounding atoms decreases (central atom remains the same) the bond angle increases.

