

Understanding geometry and shape of inorganic molecules

Abstract

Inorganic molecules like PCl_3 , PCl_5 , AlCl_3 , etc are used as reagents/catalysts in many reactions, where these reagents play important roles. Various theories like VBT, VSEPR, etc., are used to explain the shape, geometry and orientation of these types of molecules. These theoretical concepts are often complex to explain and students find it difficult to visualize the shapes of molecules. This project will attempt to explain the geometry and shape of the molecules by drawing their 3D representations. It will emphasize the relationship between a lone pair and a bond pair and significance of their contributions to the shape of the molecules. From this understanding, we hope to extend the explanation to coordination complexes as well. This can be applied to explain crystal field splitting of complexes with weak field and strong field ligands in these complexes.

Key words: VBT, VSEPR, geometry, orientation, crystal field splitting, complexes