

Exploring the Structural Features of an Octahedral Metal Ion Complex using Avogadro Software

Abstract

The octahedral complex hexaamminecobalt(III) chloride was chosen for exploring the properties. The 3D structure of the complex was drawn in Avogadro software. Using the Avogadro interface, various properties such as bond length, bond angle of the complexes were explored. The 3D structure of the complex was created by interchanging six amine ligands with six aqua ligands. The new complex obtained was Hexaaqua cobalt(III) chloride. The properties of the newly drawn Hexaaqua cobalt(III) chloride complex were explored in comparison with hexaamminecobalt(III) chloride using Avogadro interface. Then as a second phase of modification, the central metal atom Cobalt was replaced with Nickel. The new complex obtained was hexaminenickel(II) chloride. The properties of the newly drawn Nickel complex were compared with hexaamminecobalt(III) chloride complex.

Keywords

Complex, ligand, central metal, geometry, Avogadro