

Schiff Base polymers: synthesis and characterization

Hossein Mighani

Faculty of Science, Department of Chemistry, Golestan University, P.O. Box 155, Gorgan, Iran
email: hossein.mighani@gu.ac.ir

The reaction between a carbonyl group (aldehyde or ketone) with amine in suitable condition, the Schiff base compounds with an amine group with the general structure $R_1R_2C=NR_3$ ($R_3 \neq H$) was prepared (Fig. 1) [1, 2]. These compounds were first prepared by German scientist Hugo Schiff. The Schiff base compounds are widely used as a ligand in the coordination chemistry [3, 4].

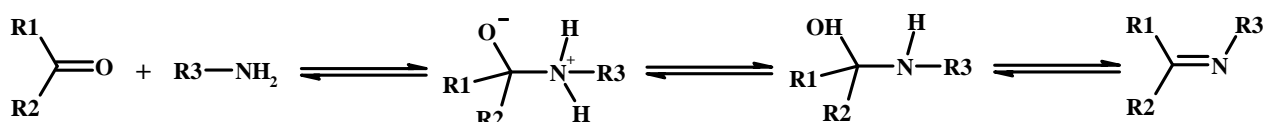


Fig. 1

The division of these compounds is diverse and depending on the various parameters, they are divided into symmetric, asymmetrical, anionic, neutral types and etc. But in most cases the division of these compounds is based on the number of atoms that are coordinated to the center ion. Accordingly, they are divided into mono-, bi- and multi-dentate ligands.

Important groups of these compounds are chelated bi- and tetra-dentate ligands, which can be obtained from the reaction of salicylic aldehyde and amine derivatives (Fig. 2) [5, 6].

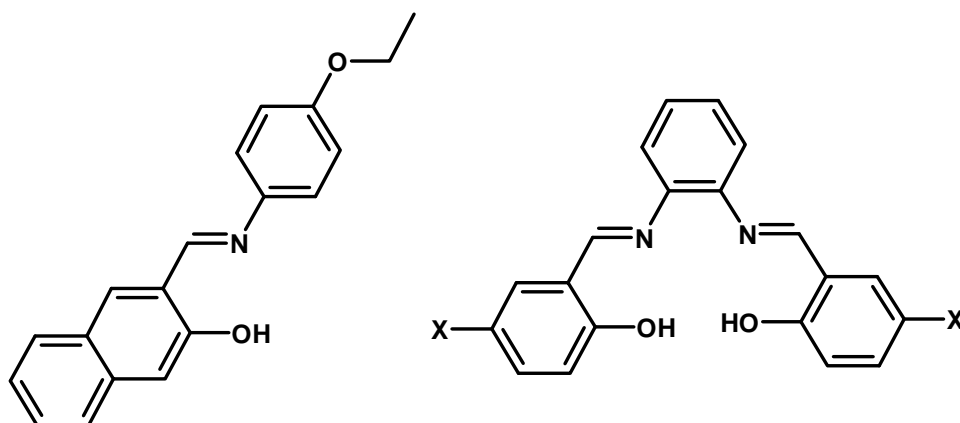


Fig. 2

The simplicity of providing, having different colors, stabilizing metal complexes and diverse applications has led many research groups to work on these compounds [1, 2, 5, 6].

The most important properties of these compounds are anion sensor [6-8] and avoid steel corrosion [9, 10].

In recent years the innovation of novel Schiff base polymers as thermally stable polymers play a vital role in many areas, among that the most important factor of thermally stable polymers for different industry. Because of that, these advances are interested in improvement of heat and thermal stability and safety. Day to day in this globalization, thermal stable polymers requires a long shelf life, along with monitoring the safety and quality based upon international standards. In this chapter it inculcates, thermally stable polymers such as PA, PI and PES and its stability, long life, mechanical and thermal properties for different applications.

Keywords Schiff base polymers; polyamides; DSC and TGA

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