CHAPTER 1
INTRODUCTION

Copper(II) benzoate was considered by some researches as low dimensional material [1]. It may also be treated as a potential thermally stable molecular electronics due to the presence of aromatic benzoato bridging bidendate ligand and a central copper(II) ion in a planar structure.

The objective of the present research is to study the thermal properties of copper(II) benzoate and its derivatives containing electron-attracting substituents, namely fluoro, chloro, bromo, iodo, pentafluoro, nitro and dinitro attached at the para position. The analytical techniques used were differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA).

The thesis reviews the theory of molecular electronics in Chapter 2. This includes the molecular properties, molecular arrangement, molecular interaction and two examples of conductive organic materials, namely conductive charge-transfer complexes and conductive polymers. The reviews also include structure, thermal properties and different models of electric conduction mechanisms. The theoretical concept of TGA and DSC were also included in this chapter.

Chapter 3 contains the synthesis of samples and the experimental techniques of TGA and DSC. Chapter 4 presents the results and discussion of TGA and DSC of the materials studied. Finally, Chapter 5 contains the conclusion and suggestions for future work.

Reference

1. H.J. Keller (Ed.) *Low Dimensional Cooperative Phenomena,* Plenum Press, New York and London, 1975.