

## 1.0 Introduction

Applications of conducting polymers will be driven by the unique combination of electronic, mechanical, as well as fabrication properties that are anticipated for this class of materials. The delocalized electronic structure frequently enables high electrical conductivity and those properties in conjunction with traditional properties of polymers (e.g., good mechanical properties, ease of fabrication, low cost, and low weight) are anticipated to enable this class of materials to be commercially more important in the future. Commercial use of conducting polymers has been inaugurated by the Xerox Corporation which is marketing a copier containing static dissipation brushes comprised of an conductive polymer. In addition to conductivity, these compounds exhibit highly anisotropic optical properties and uses based on these properties may arise in the future. Our study group, which was unfortunately composed of nonexperts in application areas, attempted to identify potential uses of conducting polymers and further identify potential research areas which, if successfully undertaken, might ultimately enable development and commercialization of these applications. The group took a broad brush long term view and thus avoided development types of projects.

## 1.1 POTENTIAL APPLICATIONS OF CONDUCTING POLYMERS

### SCOPE

Research samples of polymers exhibiting high dc electrical conducting have been developed and samples suitable for