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RECENT TRENDS IN RESEARCH IN CHEMICAL SCIENCES



Dr. MANOJKUMAR O. MALPANI

Associate Professor
Department of Chemistry
Shankarlal Khandelwal Arts,
Science and Commerce College,
Akola

Dr. VIVEK D. MANE

Associate Professor
Department of Chemistry
Shankarlal Khandelwal Arts,
Science and Commerce College,
Akola

Dr. PRASANNA S. PANDE

Professor and Head
Department of Chemistry
Shankarlal Khandelwal Arts,
Science and Commerce College,
Akola



PRAGATI PRAKASHAN

CONDUCTING POLYMERS: A REVIEW

Bhagyashri U.Tale*¹, Kailash R. Nemade², Pradip V. Tekade³

^{1, 3} Department of Chemistry, Bajaj College of Science, Wardha, Maharashtra, India

² Department of Physics, Indira Mahavidyalaya Kalam, District: Yavatmal, Maharashtra, India

Corresponding author email address: bhagyashritale@gmail.com

ABSTRACT

The field of research has shown a significant interest in materials based on conducting polymers, primarily due to their advantageous mechanical, optical, and electronic characteristics. These conducting polymers exhibit an array of remarkable attributes, including stability, elasticity, strength, conductivity, and thermal stability. Hybrid materials that incorporate conducting polymers show a unique combination of optical and electronic properties, important for their use as the semiconductor material. This composite state makes them particularly valuable for applications in optoelectronic and electrochemical devices. Within this chapter, we delve into the comprehensive exploration of conducting polymers. This discussion encompasses their historical development, classification, intrinsic properties, and a wide range of applications that highlight their significance in various fields.

Keywords: Conducting polymers; inorganic semiconductors; hybrid materials.

1. INTRODUCTION

Polymers are one of the fundamental categories of substances. Polymers are used for the synthesis of many materials such as rubber, resins, plastic, adhesives etc. The terminology polymer originated from Greek words, 'poly' means 'many' and 'mers' means 'units or parts'). Polymers are made up of many monomeric structural units (low molecular weight molecules) interlinked by the process of polymerization [1 -4].

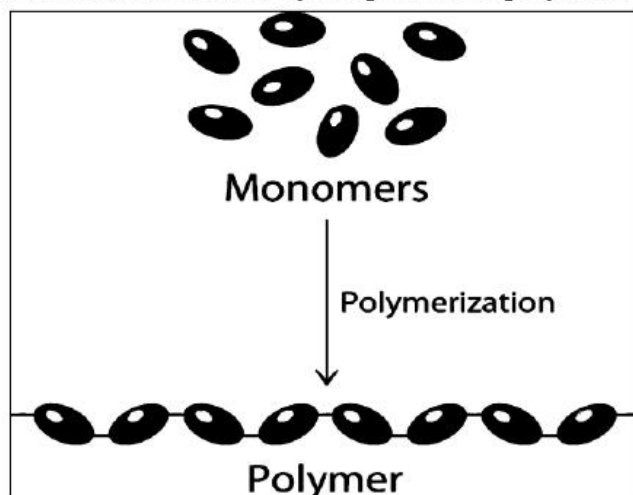


Fig.1: Polymer [3].