

Handbook of Emerging Materials for Sustainable Energy



Edited by

Naveen V. Kulkarni
Boris I. Kharissov



Recent developments in techniques and technologies for analytical, spectroscopic, structural, and morphological characterization of modern materials of advanced applications

*Sefiu Adekunle Bello¹, Funsho Olaitan Kolawole^{2,3},
Stephen Idowu Durowaye⁴, Sunday Wilson Balogun¹,
Maruf Yinka Kolawole⁵ and Shuaib Ajibola Mohammed¹*

¹Department of Materials Science and Engineering, Kwara State University, Malete, Nigeria

²Department of Metallurgical and Materials Engineering, University of Sao Paulo, Sao Paulo, Brazil

³Department of Materials and Metallurgical Engineering, Federal University Oye-Ekiti, Ekiti State, Nigeria

⁴Department of Metallurgical and Materials Engineering, University of

Lagos, Nigeria ⁵Department of Mechanical Engineering, Kwara State University, Malete, Nigeria

28.1 Introduction

The development of any society is measured by the level of technological advancement. Consequently, as the world advances, the technology also advances at an equilibrium pace. In this regard, conventional engineering materials are fading-off in their applicability and/or may not possess all the required properties to make it functional with emerging technology. Thus the need for replacement with a functional new material that can fulfill the needs and requirements of the new technologies is a key