

# Table of Contents

## Preface

## Chapter 1: Engineering Tribology

<b>Experimental Comparison of the Material Properties of Original and Aftermarket Gears</b> P. Mikuš, A. Breznická, L. Timárová and M. Jus	3
<b>Mathematical Model of Friction</b> M. Jus and L. Bartošová	11
<b>Examination of the Internal Surface of a Firing Chamber of Armament Elements</b> A. Trytek, M. Marciniak, T. Galek, K. Łysiak, M.J. Surowaniec and J. Czaja	19
<b>Research on the Characteristics of Steels Essential for Increasing the Durability of Selected Special Equipment Structures</b> M. Polášek, J. Pokluda, J. Maryáš, J. Escherová, P. Mikuš, M. Kohutiar and M. Jus	33
<b>Tribological Analysis of Manganese Phosphate Coating on Steel Pistons for Internal Combustion Engines</b> P. Zurawski and A. Trytek	43
<b>Degradation of Hydraulic Oil in Operating Conditions</b> L. Hujo and B. Kopiláková	61

## Chapter 2: Waste Treatment

<b>Synthesis of Epoxidized Waste Cooking Oil as Plasticizer in the Production of Xyloglucan-Chitosan Films</b> P. Assawasaengrat, K. Kikaew, W. Wanliphakha, W. Orachorn, W. Chokelarb and P. Sriprom	71
<b>Economic Assessment of Tamarind Kernel Powder Edible Film Production</b> S. Kirdponpattara, A. Phumkacha, T. Leejarkpai and S. Chueter	77
<b>A Comparative Analysis of Zn<sup>2+</sup> Adsorption from Simulated Mining Wastewater Using Unmodified and NaClO-Modified Sugarcane Bagasse-Derived Biochar</b> T.R.L. Panaligan, J.R. Aquino, A. Almario, J.D. Francia and I.A. Mendoza	83
<b>Physical and Functional Properties of Spent Coffee Ground after Various Drying Techniques</b> N. Maiyah, Y. Auenchitr, S. Supapvanich, A. Sirijariyawat, P. Ingkasupart, N. Chotigavin and S. Kerdpiboon	89
<b>Optimized Adsorption of Aqueous Cu (II) Ions Using Novel Microwave-Extracted Sodium Alginate from Brown Seaweed (<i>Sargassum sp.</i>)</b> G.J. Lainez, A.M.A. Umali, M.G.M.M. Casalme, A.P. Aquino, M.D. Virtus and I.D.S. Magsino	97
<b>Cleaner Bio-Based Plasticizer Synthesis from Waste Cooking Oil to Substitute Toxic Dioctyl Phthalate in PVC Film</b> C. Chaiyaraksa, P. Sriprom, F. Boonkaen, A. Laemsri, A. Smingkaew, W. Chokelarb and P. Assawasaengrat	103
<b>Morphology, Thermal Properties and Rheological Behavior of Acrylate-Styrene-Acrylonitrile-Based Composites Filled with Waste Non-Metallic Printed Circuit Boards</b> S. Wongmanee, A. Rattanapan, T. Sritapunya, S. Tuampoemsab, M. Nithitanakul and P. Sapsrithong	109
<b>A Comparative Study on Mechanical Properties and Morphology of PP/Waste Cement Composites with Using PP-g-MA as Compatibilizer and 3-Aminopropyl Triethoxysilane as Coupling Agent</b> S. Wongmanee, P. Sapsrithong, S. Tuampoemsab, T. Sritapunya, J. Paksamut and A. Rattanapan	117