## **Table of Contents**

## **Preface**

## **Chapter 1: Metallurgical Technologies, Properties of Steels and Alloys**

Microstructure and Impact Toughness of Flux-Cored Arc Welded SM570-TMC Steel at Low and High Heat Input H. Oktadinata, W. Winarto and E.S. Siradj	3
Investigation of the Intermetallic Formation on Wet Underwater Welding of AISI 4012 Steel	
A.D. Anggono, Suwantri, W.A. Siswanto and J. Sedyono	10
Effect of Magnesium on the Strength, Stiffness and Toughness of Nodular Cast Iron A.S. Darmawan, P.I. Purboputro, A. Yulianto, A.D. Anggono, Wijianto, Masyrukan, R.D. Setiawan and N.D. Kartika	17
Effect of Ti Contents on the Microstructure and Mechanical Properties of NiAlTi System D. Wicaksono, X.M. Zhu, M.S. Mustapa, S. Yulianto, A.Y. Nasution and T.W.B. Riyadi	24
Defect Investigation of Sand Casted Aluminum Cooling Fan D. Prihtiantoro, A.D. Anggono and W.A. Siswanto	30
Microstructure and Hardness of Gray Cast Iron as a Product of Solidification in Permanent Mold	
A. Yulianto, R. Soenoko, W. Suprapto, A. Sonief, A.S. Darmawan and M.D. Setiawan	37
Structure and Properties of NiAlTi Systems Formed by Combustion Synthesis T.W.B. Riyadi	44
Chapter 2: Characterization and Testing of Materials	
HAp Coated Hip Prosthesis Contact Pressure Prediction Using FEM Analysis M. Nagentrau, A.L. Mohd Tobi, S. Jamian and Y. Otsuka	53
Effect of the Fine Recycled Aggregates on the Dynamic Compressive Behavior of Recycled Mortar S. Ismail, M.A. Abd Hamid and Z. Yaacob	62
Assessment of the Stress-Strain State of a Tube Sheet of the Heat Exchanger at Rotary Friction Welding Application	02
A.S. Tokarev, D. Karetnikov, R.G. Rizvanov, A.M. Fahrushin and M.Z. Zaripov	70
Characterisation of Electrode Drying Effect on the Tungsten Carbide Hardfacing Microstructure  M. Nagentrau, A.L. Mohd Tobi, S. Jamian and M. Sambu	77
Fatigue Behavior Improvement of A356 Aluminum Alloy of Motorcycle Cast Wheel Produced by High Speed Centrifugal Casting Based on T6 Heat Treatment and Artificial	, ,
Aging P.T. Iswanto, Akhyar, A. Janata, L.M. Mauludin and H.M. Sadida	86
Electrochemical Performance of Barium Strontium Cobalt Ferrite -Samarium Doped Ceria- Argentum for Low Temperature Solid Oxide Fuel Cell U.A. Yusop, T.K. Huai, H.A. Rahman, N.A. Baharuddin and J. Raharjo	94
Resistance to Chloride Penetration of Recycled Aggregate Concrete Modified Using Treated Coarse Recycled Concrete Aggregate and Fibres S. Ismail and M. Ramli	101
Chapter 3: Technologies of Biomass Processing	101
Catalytic Pyrolysis of Palm Empty Fruit Bunch over Activated Natural Dolomite Catalyst: Product Distribution and Product Analysis A. Hidayat, M.A. Adnan and A. Chafidz	111

CaO/Natural Dolomite as a Heterogeneous Catalyst for Biodiesel Production B. Sutrisno, A.D. Nafiah, I.S. Fauziah, W. Kurniawan, H. Hinode and A. Hidayat	117
Investigating the Potential Use of Cassava Leaf Extract as a Natural Coloring Substance for	
Fabrics S. Rusdi, M.Y. Zakaria, R.N.F. Aditya and A. Chafidz	123
Investigating the Potential Use of Papaya Leaf Extract as Natural Dyes in the Textile Industry	
S. Rusdi, H.F. Maulana, N.L. Samudro and A. Chafidz	129
Synthesis of Grafted Cationic Starch with DMDAAC Using Ammonium Persulfate/Carbamide Initiation System H. Tang, P.Y. Zhang, T.X. Li and Y. Ma	135
Biodiesel Synthesis from Used Cooking Oil Using Red Mud as Heterogeneous Catalyst A. Hidayat, G.K. Roziq, F. Muhammad, W. Kurniawan and H. Hinode	144
Effect of HCl-Alcoholic Treatment on the Modification of Jackfruit (Artocarpus	
heterophyllus Lam) Seed Starch T.H.T. Le, H.T. Nguyen, V.K. Nguyen, T.L. Nguyen and T.T. Nguyen	150
Chapter 4: Technologies of Chemical Production and Wastewater Treatment	
Characterization of Hydroxyapatite Synthesized from Calcium Hydroxide and Phosphoric Acid as Adsorbents of Lead in Wastewater  H.T. Nguyen and P.T. Dang	159
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang Research and Application of a New Demulsifier for the Processing of Produced Liquid in	159
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang	159 166
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of	
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen	
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang  Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen  Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of Liquid Waste from Electroplating Industries Z. Salimin, M. Susianto, B. Batara and A. Chafidz  Chemical Treatment of Liquid Waste Generated from Leather Tannery Industry by Using Alum as Coagulant Material	166 172
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang  Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen  Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of Liquid Waste from Electroplating Industries Z. Salimin, M. Susianto, B. Batara and A. Chafidz  Chemical Treatment of Liquid Waste Generated from Leather Tannery Industry by Using Alum as Coagulant Material Z. Salimin, F.W. Satiyoaji, D.A. Prasetya and A. Chafidz	166
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang  Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen  Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of Liquid Waste from Electroplating Industries Z. Salimin, M. Susianto, B. Batara and A. Chafidz  Chemical Treatment of Liquid Waste Generated from Leather Tannery Industry by Using Alum as Coagulant Material	166 172
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang  Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen  Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of Liquid Waste from Electroplating Industries Z. Salimin, M. Susianto, B. Batara and A. Chafidz  Chemical Treatment of Liquid Waste Generated from Leather Tannery Industry by Using Alum as Coagulant Material Z. Salimin, F.W. Satiyoaji, D.A. Prasetya and A. Chafidz  Synthesis of Hydrophobically Associating Polymers and the Application as Oil-Displacing Agent R.J. Zhang, J.L. Zhao, X.K. Wang, Z.P. Zhou and G. Chen  Corrosion Rate Analysis of API 5L Gr B Steel Pipe in Acetic Acid Contained Crude Oil	166 172 178
Acid as Adsorbents of Lead in Wastewater H.T. Nguyen and P.T. Dang  Research and Application of a New Demulsifier for the Processing of Produced Liquid in Chanqing Gasfield S.J. Chen, F. Tang, W. Tian, Q.n. LIU and G. Chen  Utilization of Modified Zeolite Materials as Chromium Cation Exchanger for Treatment of Liquid Waste from Electroplating Industries Z. Salimin, M. Susianto, B. Batara and A. Chafidz  Chemical Treatment of Liquid Waste Generated from Leather Tannery Industry by Using Alum as Coagulant Material Z. Salimin, F.W. Satiyoaji, D.A. Prasetya and A. Chafidz  Synthesis of Hydrophobically Associating Polymers and the Application as Oil-Displacing Agent R.J. Zhang, J.L. Zhao, X.K. Wang, Z.P. Zhou and G. Chen	166 172 178