

Table of Contents

Preface

Chapter 1: Evaluation of Steel and Alloys Properties

Experimental Bench Tests on the Corrosion Resistance and the Environmental Safety of Structural Materials of the Cooling System of Nuclear Power Plant P. Kuznietsov and O. Biedunkova	3
The Iron-Carbon System: Genesis and Morphology of the Eutectic Involving Hyper-Cementite Carbide V. Mazur	11
The Role of Cell Collapse Mechanism in Mechanical Performance of Aluminium Foam Fabricated by Melt Processing O. Byakova, Š. Gnyloskurenko, A. Vlasov, Y. Yevych, N. Semenov and D. Kytranov	21
Features of Microstructural Evolution and Corrosion Behavior of Ti6Al4V Titanium Alloy Fabricated from Elemental Powder Blends S. Lavrys, I. Pohrelyuk, D.G. Savvakín, K. Shliakhetka and M.O. Danyliak	29
A Comparative Study of Lubrication Performance for Bs 080M46 Medium Carbon Steel Using Ring Compression Test and Finite Element Simulation R. Pongprasert, N. Siripath and S. Suranuntchai	37
Effect of Individual Alloying Addition on the Microstructure and Creep Behavior of Squeeze Cast AZ91 Magnesium Alloy H. Patil, A. Ghosh and H. Borkar	45

Chapter 2: Metalworking

Method for the Determination of Rational Constructional and Technological Parameters for the Processes of Powder Materials Forming A. Mikhailov, Y. Shtefan, O. Mikhailov and M. Shtern	53
Optimization and Evaluation of Mechanical and Electrochemical Properties of Ferritic Stainless Steel Welding Using Taguchi Design M.F. Benlamouar, N. Bensaid, M.O. Azzoug, T. Saadi, M. Zidani and R. Badji	61
Peculiarities Formation of Welded Joints under the External Electromagnetic Influence S.Y. Maksimov, O.M. Berdnikova, O.A. Prilipko, T. Alekseenko and Y. Polovetskyi	73
Study on the Material Models of the Forming Limit Curves Development for Predicting a Fracture Behavior of AA5754-O in Automotive Parts P. Larprasoetkun, J. Leelaseat, A. Nakwattanasat, A. Sunanta and S. Suranuntchai	81
Weldability and Joining of Dissimilar Metal Welding between Low Carbon Steel and Ferritic Stainless Steel J. Luján, K. Eidhed and P. Surin	87
Application of Origami Engineering in the Formation of Complex Spring Shapes of Thin Steel Plates via Laser Quenching Forming Y. Mima, T. Hirogaki and E. Aoyama	93
Investigation on the Effect of Blank Holder Force and Initial Blank Size on the Thinning Problem of the Fuel Tank Part Made from Aluminum Alloy Sheet 5754-O under Deep Drawing Process J. Leelaseat, P. Larprasoetkun, A. Sunanta, A. Nakwattanasat and S. Suranuntchai	101

Chapter 3: Properties and Processing of Polymers and Composites

Effect of Powdered Swarf on Self-Adhesive Moldings with Machining Center Extracted Bamboo Fiber K. Tanaka, R. Kitazaki, T. Hirogaki, E. Aoyama and H. Nobe	111
Investigation of the Two-Channel Feedblock Zone in Co-Extrusion of Polymers N. Sharipkhan, A. Perveen, D.C. Zhang and D.M. Wei	119

Investigation of Co-Extrusion Using a Coat Hanger Die with Different Feedblock Cross-Section

N. Sharipkhan, O. Clifford, A. Perveen, D.C. Zhang and D.M. Wei

131

Consideration of Moisture Factor during Material Selection in Plastic Product Design

B. Kukcu and B. Dasdemir

139