Table of Contents

Preface, Scientific Committee

Chapter 1: Technologies for Wire Production and Treatments

Challenges and Innovation in Steel Wire Production L. Chabbi, S. Hasler, H. Roelofs and H. Haupt-Peter	3
Ultrasonic Wire Cleaning - An Overview	
T. Hielscher and K. Hielscher	10
Heat Treatment of Cold Formed Springs Made from Oil Hardened and Tempered Spring Steel Wire	
V. Geinitz and U. Kletzin	16
Chapter 2: Modelling of Wire Production Processes	
Through Process Modelling of Rolling and Controlled Cooling of TRIP Assisted Bainitic Steel Rods and Prediction of the Retained Austenite in Products	
R. Kuziak, Z. Kania, V. Pidvysots'kyy, H. Roelofs, M. Pernach and M. Pietrzyk	23
Model Approaches for Simulation of Processes in Rod and Wire Production M. Schmidtchen, P. Adamyanets and R. Kawalla	34
Flow Stress Modelling and Microstructure Development during Deformation of Metallic Materials	
J. Kreyca and E. Kozeschnik	44
Chapter 3: Materials for High-Performance Wire Applications	
Influence of Cold Working on Mechanical Properties of Al-SiC Composites S. Szczepanik, P. Nikiel and P. Bednarczyk	53
New Technological Approach in Fabrication of High Purity Nickel Wire T. Stuth, R. Theile and O. Krivtsova	59
Ultrafine-Grained High Strength Cu-Ni-Si Alloys	
I. Altenberger, H.A. Kuhn, M. Gholami-Kermanshahi, M. Mhaede, M. Wollmann and L. Wagner	64
Chapter 4: Quality Assurance in Wire Production Processes	
Advanced Possibilities of Fast Quality Check in Wire Production Processes by Means of Fast Microstructure Analysis	
A. Oswald, R. Schmidtchen, D. Šimek, D. Rafaja, R. Kawalla and G. Lehmann	73
Development of a Procedure for Low-Temperature Testing of Wire Materials and Basic Research into the Behaviour of Materials in the Temperature Range of -50 to -80 °C	0.2
G. Korpala, F. Hoffmann and R. Kawalla	82
Influence of Deformation Controlled Strain Rate on Tensile and Compression Behaviour of Magnesium and Steel Wire	
T. Henseler, M. Ullmann, G. Korpala, K. Klimaszewska, R. Kawalla and F. Berge	89