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Nota di contenuto	Part 1. Magnesium Technology 2018 -- Magnesium Alloys: Challenges

and Achievements in Controlling Performance, and Future Application Perspectives -- Solute/Stacking Fault Energies in Mg and Implications for Ductility -- Recent Developments in Magnesium Alloy Corrosion Research -- Towards Active Corrosion Protection of Mg Alloys Using Corrosion Inhibition Approaches -- Ni-P-MWNTs Composite Coatings on Magnesium Alloys AZ31 Part 1: MWNTs Content in Coating -- Ni-P-MWNTs Composite Coatings on Magnesium Alloys AZ31 Part 2: Tribological Behavior and MWNTs Content in Coating -- Adding Dimensions to the Immersion Testing of Magnesium Corrosion -- Effect of Fluoride Ion on the Microstructure and Properties of Permanganate Conversion Coating on AZ91D Magnesium Alloy -- Corrosion Characteristics of Two RE Containing Magnesium Alloys -- Surface and interfacial energies of Mg₁₇Al₁₂-Mg system -- Effect of Ca on the Microstructure and Mechanical Properties in Mg Alloys -- Investigation of Grain Refinement Method for AZ91 Alloy using Carbide Inoculation -- Experimental Study of the Solidification Microstructure in the Mg-rich Corner of Mg-Al-Ce System -- Material Design for Enhancing Toughness of Mg Alloy and Application for Biodegradable Devices -- Influences of Yttrium Content on Microstructure and Mechanical Properties of As-cast Mg-Ca-Y-Zr Alloys -- Strengthening and Toughening Behaviors of the Mg-9Al Alloy Containing Oxygen Atoms -- Investigations on Microstructure and Mechanical Properties of Non-flammable Mg-Al-Zn-Ca-Y Alloys -- Development of BioMg 250 Bioabsorbable Implant Alloy -- The Electrolytic Production of Magnesium from MgO -- Empirical Examination of the Formation of Mechanical Properties of Heated Twin-roll-cast Magnesium Strips -- The Morphology and Distribution of Al₈Mn₅ in High Pressure Die Cast AM50 and AZ91 -- Study on the Production of Metallic Magnesium from Nickel - Containing Serpentine -- Fabrication of Mg(OH)₂ by Electrolysis Using MgCl₂ Aqueous Solution -- An Experimental Study on Penetration Resistance Characteristics of Full Production Scale Magnesium Alloy AMX602 -- Experimental Study on the Reversion Reaction between Magnesium and CO Vapor in the Carbothermic Reduction of Magnesia under Vacuum -- Study on Metal Smelting Process under Microwave Irradiation -- Thermogravimetric Analysis of Simultaneous Decomposition and Formation of MgB₂ -- Dislocations in Mg Alloys with Rare-earth Element Addition -- Microstructure, Mechanical Properties and Deformation Behavior of Mg-Gd-Y-Zn-Zr Alloy -- Twin-slip Interaction at Low Stress Stage Deformation in an AZ31 Mg Alloy -- In-situ Neutron Diffraction and Acoustic Emission during the Biaxial Loading of AZ31 Alloy -- Acoustic Emission Study of High Temperature Deformation of Mg-Zn-Y Alloys with LPSO Phase -- Deformation and Recrystallization Mechanisms and their Influence on the Microstructure Development of Rare Earth Containing Magnesium Sheets -- Thermo-mechanical Treatment of Extruded Mg-1Zn Alloy: Cluster Analysis of AE Signals -- The effect of initial texture on deformation behaviors of Mg alloys under Erichsen test -- Measurement of Twin Formation Energy Barriers Using Nudged Elastic Band Molecular Statics -- Microstructure and Mechanical Properties of Mg-7.71Gd-2.39Nd-0.17Zr Alloy after the Different Heat Treatments -- Superplasticity in a Chip-consolidated Mg₉₇Zn₁Y₂ Alloy with LPSO Phase -- Technological Solutions to Apply Magnesium Bulk Materials in Dynamic Bending and Axial Compression Load Cases -- Mechanical Properties of Thermo-mechanically Treated Extruded Mg-Zn-based Alloys -- Influence of Low Temperature Forging on Microstructure and Low Cycle Fatigue Behavior of Cast AZ31B Mg Alloy -- The Recrystallization and Grain Growth Behavior of Unalloyed Mg and a Mg-Al Alloy -- Strengthening of a Biodegradable Mg-Zn-Ca Alloy ZX50

after Processing by HPT and Heat Treatment -- Strain Heterogeneity Structures in Wrought Magnesium AZ31 under Reversed Loading -- Hot Forging Behavior of Mg-8Al-4Ba-4Ca (ABaX844) Alloy and Validation of Processing Map -- Effect of Calcium on Resistance to Oxidation of Magnesium Alloys (AZ91) -- Evolution of Microstructure and Mechanical Properties during the Casting and Rolling of the ZEK100 Sheet -- Part 2. Magnesium Alloy Development: An LMD Symposium in Honor of Karl Kainer -- Recent Developments in the Application of the Interdependence Model of Grain Formation and Refinement -- Thermodynamics of Phase Formation in Mg-Al-C Alloys Applied to Grain Refinement -- Development of Magnesium-Rare Earth Die-casting Alloys -- Creep Resistant Mg-Mn Based Alloys for Automotive Powertrain Applications -- Solutions for Next Generation Automotive Lightweight Concepts Based on Material Selection and Functional Integration -- Magnesium Pistons in Engines: Fiction or Fact? -- Development of Magnesium Sheets -- Development of Heat-treatable High-strength Mg-Zn-Ca-Zr Sheet Alloy with Excellent Room Temperature Formability.-Interaction between Propagating Twins and Non-shearable Precipitates in Magnesium Alloys -- Effects of Severe Plastic Deformation on Mechanical Properties and Corrosion Behavior of Magnesium Alloys -- Alloy Design for the Development Heat Treatable Mg Sheet Alloy with Excellent Room Temperature Formability and Strength -- Co-precipitation on the Basal and Prismatic Planes in Mg-Gd-Ag-Zr Alloy Subjected to Over-ageing -- Evolution of the Dislocation Structure during Compression in a Mg-Zn-Y Alloy with Long Period Stacking Ordered Structure -- Intermetallic Phase Characteristics in the Mg-Nd-Zn System -- Biodegradable Mg-Y and Mg-Li Alloys with the Addition of Ca and Zn to the Medical Application -- Degradable Magnesium Implants - Assessment of the Current Situation -- Study on Mg-Si-Sr Ternary Alloys for Biomedical Applications -- Solidification Analysis of Grain Refined AZ91D Magnesium Alloy via Neutron Diffraction -- Microstructure Evolution and Mechanical Properties of Thin Strip Twin Roll Cast (TRC) Mg Sheet -- Part 3. Environmental Challenges and Opportunities for the Magnesium Industry: Recycling and Sustainability Joint Session -- Repaired Algorithm for Nonlinear to Predict the Displacement of Copper Ion in the Absorbion System of Treated Steel Slag.

Sommario/riassunto

The Magnesium Technology Symposium, the event on which this collection is based, is one of the largest yearly gatherings of magnesium specialists in the world. Papers represent all aspects of the field, ranging from primary production to applications to recycling. Moreover, papers explore everything from basic research findings to industrialization. Magnesium Technology 2017 covers a broad spectrum of current topics, including alloys and their properties; cast products and processing; wrought products and processing; forming, joining, and machining; corrosion and surface finishing; ecology; and structural applications. In addition, there is coverage of new and emerging applications.