

Table of Contents

Preface

Progressive Steps in the Platform Science and Technology for Advanced Magnesium Alloys	
Y. Kojima, T. Aizawa, S. Kamado and K. Higashi	3
Magnesium Research Trend in Japan	
S. Kamado, T.B. Abbott, J. Koike, K. Kondoh and Y. Kawamura	21
Magnesium Die Casting Alloys for Use in Applications Exposed to Elevated Temperatures: Can They Compete with Aluminium?	
H. Westengen and P. Bakke	35
Issues that Influence Magnesium's Use in the Automotive Industry	
G.S. Cole	43
Current and Future Use of Magnesium in the Automobile Industry	
S. Schumann and H.E. Friedrich	51
Recent Magnesium Alloy Development for Automotive Powertrain Applications	
A.A. Luo	57
Automotive Applications of Magnesium Alloys	
T. Kaneko and M. Suzuki	67
Fatigue Crack Propagation Behavior of AZ91D Magnesium Alloy	
H.C. Jung, D.Y. Chang, W.W. Park, C.S. Lee and K.S. Shin	75
Effect of Stress Ratio on Fatigue Crack Growth Behavior of Magnesium Alloys	
Z. Sajuri, Y. Miyashita and Y. Mutoh	81
Pyramidal Slip in Magnesium Alloy Single Crystals	
S. Ando, M. Tanaka and H. Tonda	87
On Methods for Improving the Fatigue Performance of the Wrought Magnesium Alloys AZ31 and AZ80	
L. Wagner, M. Hilpert, J. Wendt and B. Küster	93
Cyclic Deformation Behavior of Magnesium Alloys AZ31 and AZ91 in the Temperature Range 20-300°C	
U. Noster and B. Scholtes	103
Fatigue Fracture Mechanisms for Caliber Rolled AZ91D Magnesium Alloys	
T. Fujii, N. Fuyama and C. Masuda	109
Corrosion Fatigue of Magnesium Alloys	
E.M. Gutman, A. Eliezer, Y. Unigovski and E. Abramov	115
Hall-Petch Parameters for Tension and Compression in Cast Mg	
P. Andersson, C.H. Cáceres and J. Koike	123
Temperature Dependence on Impact Failure Behaviour in Extruded Pure Magnesium and Mg-Al-Zn System Alloys	
N. Aoyagi, S. Kamado and Y. Kojima	129
The Effect of Heat Treatment and Orientation on the Mechanical Behavior of Extruded Mg-Al-Zn Alloy	
K.Y. Sohn, M.C. Kang and K.H. Kim	135
Mechanical Behaviour of Cast Magnesium Alloys	
T.B. Abbott, M. Easton and W. Song	141
The Effect of Microstructural Features and Defects on the Ductility of High Pressure Die Cast AS21, AM60 and AZ91	
M. Easton, T.B. Abbott and C.H. Cáceres	147
Effects of Solid Solution Treatments on Microstructure and Mechanical Properties of AM60B Magnesium Alloys with RE Addition	
L.M. Peng, X.Q. Zeng, G.Y. Yuan and W.J. Ding	153
Microstructure and Mechanical Properties of Mg-Zn-Ag Alloys	
S.C. Park, J.D. Lim, D. Eliezer and K.S. Shin	159
Microstructures and Mechanical Behavior of Processed Mg-Li-Zn Alloy	
J.Y. Wang, W. Hong, P. Hsu, C. Hsu and S. Lee	165
Guide for Enhancement of Room Temperature Ductility in Mg Alloys at High Strain Rates	
T. Mukai, H. Watanabe, K. Ishikawa and K. Higashi	171

A Mechanistic Understanding of the Formability of Magnesium: Examining the Role of Temperature on the Deformation Mechanisms	
S.R. Agnew and O. Duygulu	177
New Deformation Mechanisms in Fine-Grain Mg Alloys	
J. Koike	189
Influence of Grain Boundaries on Plastic Deformation in Pure Mg and AZ31 Mg Alloy Polycrystals	
N. Ono, K. Nakamura and S. Miura	195
Mechanical Properties and Texture Evolution in ECAP Processed AZ61 Mg Alloys	
W.J. Kim and H.G. Jeong	201
Optimum Design of Plate Wing with Magnesium Alloys on Supersonic Flutter Characteristics and Structural Mass	
H. Furuya, I. Fukuchi, N. Kogiso and S. Matunaga	207
Reliability and Optimum Design of Structures with Magnesium Alloys	
N. Kogiso, S. Matunaga and H. Furuya	213
Lessons Learned from Small Space Systems Development Using Magnesium Alloys	
S. Matunaga, H. Sawada, H. Furuya and N. Kogiso	219
Generalized Stacking Fault Energy and Dislocation Properties for Various Slip Systems in Magnesium: a First-Principles Study	
T. Uesugi, M. Kohyama, M. Kohzu and K. Higashi	225
Anomalous Activity of Nonbasal Dislocations in AZ31 Mg Alloys at Room Temperature	
T. Kobayashi, J. Koike, T. Mukai, M. Suzuki, H. Watanabe, K. Maruyama and K. Higashi	231
Enhanced Grain-Boundary Sliding at Room Temperature in AZ31 Magnesium Alloy	
R. Ohyama, J. Koike, T. Kobayashi, M. Suzuki and K. Maruyama	237
Microstructures and Tensile Properties of Wrought Magnesium Alloys Processed by ECAE	
Z.W. Huang, Y. Yoshida, L. Cisar, S. Kamado and Y. Kojima	243
Development of High Strength and Ductile Magnesium Alloys for Automobile Applications	
L. Cisar, Y. Yoshida, S. Kamado, Y. Kojima and F. Watanabe	249
Microstructures and Tensile Properties of Mg-Zn-Y Alloys Containing Quasicrystals	
H. Taniuchi, H. Watanabe, H. Okumura, S. Kamado, Y. Kojima and Y. Kawamura	255
Requirements and Feasibility of Magnesium Alloys for Aerospace Applications	
H. Furuya, S. Matunaga and N. Kogiso	261
Precipitation Hardening in Mg-3 wt%Nd(-Zn) Casting Alloys	
R. Wilson, C.J. Bettles, B.C. Muddle and J.F. Nie	267
Microstructure and Mechanical Properties of MEZ Casting Alloy	
C.J. Bettles, K. Venkatesan and J.F. Nie	273
Improving the Performance of Mg-Rare Earth Alloys by the Use of Gd or Dy Additions	
G.W. Lorimer, P.J. Apps, H. Karimzadeh and J.F. King	279
Effect of Applied Stress on Precipitation Behavior in AZ91D Magnesium Alloy	
Y.G. Na, D.Y. Chang, S.C. Park and K.S. Shin	285
Constitution and Properties of the Ternary Magnesium Alloys Containing Two Rare-Earth Metals of Different Subgroups	
L.L. Rokhlin, T.V. Dobatkina and N.I. Nikitina	291
Influence of Heat Treatment on Microstructure of Hot Extruded AZ31	
J. Dzwonczyk, J. Bohlen, N. Hort and K.U. Kainer	297
HRTEM Observation of the Precipitates in Mg-Gd-Y-Zr Alloy	
T. Kawabata, K. Matsuda, S. Kamado, Y. Kojima and S. Ikeno	303
The Effect of Ca Addition on Age Hardening Behaviors and Mechanical Properties in Mg-Zn Alloy	
J. Eom, Q. Jin, S.G. Lim, B.Y. Hur and W.W. Park	307
Anisotropic Properties of Magnesium Sheet AZ31	
F. Kaiser, D. Letzig, J. Bohlen, A. Styczynski, C. Hartig and K.U. Kainer	315
Evaluation of Press Formability in Magnesium Alloy	
M. Kohzu, F. Yoshida and K. Higashi	321
Sheet Metal Production of Magnesium	
R. Poss	327
Plane-Strain Backward Extrusion of AZ31 Magnesium Alloy	
C.M. Choy, S.C.V. Lim, C.F. Chan and M.S. Yong	337

Tensile Properties and Bending Formability of Drawn Magnesium Alloy Pipes	345
H. Takahashi, Y. Oishi, K. Wakamatsu and N. Kawabe	
Extrudability of Mg-Al-Zn Alloys	349
T. Murai, S. Matsuoka, S. Miyamoto and Y. Oki	
Recrystallized Grain Size in Cold-Rolled and Annealed AZ31 Wrought Magnesium Alloys Affected by Rolling Direction	355
G. Itoh, Y. Iseno and Y. Motohashi	
Study on Warm Caliber Rolling of Magnesium Alloy	359
Y. Tanno, T. Mukai, M. Asakawa and M. Kobayashi	
Friction Stir Welding of Magnesium Alloys	365
R. Johnson	
CAE Application to Press Forging of Magnesium Alloys	371
J.K. Hwang, K.Y. Sohn, K.H. Kim and D.M. Kang	
Formability of AZ91D Alloy by Casting - Forging Process	377
T. Mohri, T. Nishiwaki, M. Kobashi and N. Kanetake	
Isothermal Sheet Formability and Microstructure Study of Rolling Processed Magnesium Alloy AZ31	383
Y.H. Chen, S. Lee and J.Y. Wang	
Mushy State Forming of Magnesium Alloy Making Use of Resistance Heating	387
S. Maki, Y. Harada and H. Makino	
The Diffusion Bonding and Theoretical Model Including Void Growth Mechanism in Magnesium Alloys	393
H. Somekawa, H. Watanabe, M. Kohzu and K. Higashi	
Microstructures of Friction Welded Joints of AZ31 to AM60 Magnesium Alloys	399
S. Fukumoto, T. Ono, S. Tanaka, H. Tsubakino, T. Tomita, M. Aritoshi and K. Okita	
The Art of Developing New Magnesium Alloys for High Temperature Applications	407
E. Aghion, B. Bronfin, D. Eliezer, F. Von Buch, S. Schumann and H.E. Friedrich	
Tensile and Creep Properties of Squeeze Cast Mg Alloys with Various Second Phases	419
M.S. Yoo, Y.C. Kim, S.H. Ahn and N.J. Kim	
Development of a Cheap Creep Resistant Mg-Al-Zn-Si-base Alloy	425
G.Y. Yuan, M.P. Liu, W.J. Ding and A. Inoue	
High Temperature Behaviour of the HPDC AS21X Magnesium Alloy	433
E. Evangelista, S. Spigarelli, E. Gariboldi, E. Cerri, O. Lohne and K. Pettersen	
Newly Developed Heat Resistant Magnesium Alloy by Thixomolding	439
R. Uchida, T. Tsukeda, M. Suzuki, J. Koike and K. Maruyama	
Heat Resistant Magnesium Alloys for Automotive Powertrain Applications	445
I.A. Anyanwu, Y. Gokan, S. Nozawa, S. Kamado, Y. Kojima, S. Takeda and T. Ishida	
Development of Heat Resistant Mg-Zn-Al-Ca-RE Diecasting Alloys	451
Y. Gokan, A. Suzuki, S. Nozawa, I.A. Anyanwu, S. Kamado, Y. Kojima, S. Takeda and T. Ishida	
Creep Characteristics of Ca-Added Die-Cast AM50 Magnesium Alloys	459
Y. Terada, N. Ishimatsu, R. Sota, T. Sato and K. Ohori	
Thixoforming of Mg-9%Al Alloys with and without RE	465
J.M. Kim, K.T. Kim and W.J. Jung	
Effects of Zinc on Creep Behavior and Deformation Substructures of Mg-Y Alloy	473
M. Suzuki, T. Kimura, J. Koike and K. Maruyama	
Mechanical Properties of Aged Mg-4Y-3RE Alloy	479
M. Mabuchi, Y. Chino, K. Shimojima, H. Hosokawa, Y. Yamada, C.E. Wen and H. Iwasaki	
Effect of Adding La-Rich Mischmetal on the Microstructure and Mechanical Properties of Hot Extruded Mg-8Al Alloys	485
W.G. Yang, C. Koo and W. Hong	
Effect of Al Content and Pressing Temperature on ECAP of Cast Mg Alloys	491
S.Y. Chang, K.S. Lee, S.H. Lee, S.K. Hong, K.T. Park and D.H. Shin	
Using Extrusion and ECAP Processing to Achieve Low Temperature and High Strain Rate Superplasticity	497
K. Matsubara, Y. Miyahara, K. Makii, Z. Horita and T.G. Langdon	
Recrystallization During and Following Hot Working of Magnesium Alloy AZ31	503
M.R. Barnett	

Continuous Dynamic Recrystallization in Magnesium Alloy	509
A. Galiyev, R. Kaibyshev and T. Sakai	
Dynamic Nucleation of New Grains in Magnesium Alloy during Hot Deformation	515
X.Y. Yang, H. Miura and T. Sakai	
Dynamic Recrystallization Based on Twinning in Coarse-Grained Mg	521
O. Sittikov, R. Kaibyshev and T. Sakai	
The Deformation Textures in an AZ31B Magnesium Alloy	527
S.K. Wu, T.S. Chou and J.Y. Wang	
Texture Development of AZ31 Magnesium Alloy during ECAE Processing	533
Y. Yoshida, L. Cisar, S. Kamado, J. Koike and Y. Kojima	
Superplastic Deformation Behavior in the Commercial AZ61 Mg Alloy during Biaxial Gas-Pressure Forming	539
S.W. Chung, W.J. Kim and K. Higashi	
Diffusion Process in AZ61 Magnesium Alloy and their Relation with the Cavitation Growth Rate	545
V.A. Juan, H. Hosokawa and K. Higashi	
Superplastic Properties of Ultrafine-Grained Mg Alloys Processed by Extrusion Plus Equal-Channel Angular Pressing	551
Y. Miyahara, K. Matsubara, K. Neishi, Z. Horita and T.G. Langdon	
Superplastic Behavior of an ECAE Processed ZK60 Magnesium Alloy	557
H. Watanabe, T. Mukai, K. Ishikawa and K. Higashi	
The AMC – CAST Alliance for Advanced Magnesium Research and Development	565
G. Dunlop, D.H. StJohn and M.T. Frost	
Effects of Protective Gases on the Oxidation Behavior of Mg-Ca Base Molten Alloys	575
M.H. Kim, W.W. Park, B.S. You, H. Yanbin and W.C. Kim	
Effect of Al and Y Additions on the Oxidation Behavior of Mg-Ca Base Molten Alloys	581
B.S. You, M.H. Kim, W.W. Park and I.S. Chung	
A Study on the Grain Refining Effects of Carbon Inoculation by C_2Cl_6 addition on AZ31 Magnesium Alloy	587
Q. Jin, J. Eom, S.G. Lim, W.W. Park and B. Yoo	
Effect of Soluble and Insoluble Zirconium on the Grain Refinement of Magnesium Alloys	593
M. Qian, D.H. StJohn and M.T. Frost	
Fabrication of Mg Alloy Strips by Strip Casting	599
S.S. Park, J.G. Lee, Y.S. Park and N.J. Kim	
Continuous Casting of Semisolid Mg-Al-Zn Alloy	605
T. Motegi, E. Yano, N. Wada and Y. Tamura	
Semi-Solid Processing of Magnesium Alloys	611
D.Y. Chang, H.K. Seok, J.C. Lee and K.S. Shin	
THIXOMAGTM, a Competitive Industrial Thixocasting Process for Magnesium Alloys with Semi-Solid Feedstock Billets	617
J. Collot	
Investigation of Rheology of Magnesium Semi-Solid Materials by Using a Slit Rheometer	623
C.C. Yang, Y.C. Fann and H. Peng	
Application of Semi-Solid Forming to Magnesium Alloys with High Al and Zn Contents	629
N. Antara, K. Suzuki, T. Kayuta, S. Kamado and Y. Kojima	
Cost Effective Particle Reinforced Magnesium Composites	635
S.K. Kim, H.H. Jo, G.S. Cho, K.W. Lee and Y.J. Kim	
Effect of Ca and Be Additions on High Temperature Oxidation Behavior of AZ91 Alloys	639
B.H. Choi, I.M. Park, B.S. You and W.W. Park	
Role of Partial Remelting on Thixotropic Structure of AZ91D Mg Alloy in the Semisolid State	645
S.K. Kim and Y.J. Kim	
Electrorefining of Mg in Molten Salt	653
T. Takenaka, S. Isazawa, Y. Kamo, M. Mishina and M. Kawakami	
Recovery of Magnesium from Molten Slag by Bubbling Argon though the Melt at Atmospheric Pressure	659
J.D.T. Capochi	

On-Line Monitoring of Liquid Magnesium using a High Temperature Ultrasonic Probe	665
D. Burhan, I. Ihara, S. Kamado, H. Aso and Y. Kojima	
Recycling of AZ31 Mg Alloy with High Purity Mg Deposition Layer by Hot Working (Solid Recycling)	671
Y. Chino, A. Yamamoto, H. Iwasaki, M. Mabuchi and H. Tsubakino	
Preparation of Mg Alloys by Using Molten Salt	677
T. Takenaka, Y. Naka, T. Noichi and M. Kawakami	
Salt-Heated Furnaces for Refining of Magnesium and Its Alloys: Development of Design and Refining Process	683
I.A. Barannik, I.M. Komelin and I. Sikors'ka	
Vacuum Distillation Refining and Recycling of Magnesium Alloys	691
M. Inoue, M. Iwai, K. Matsuzawa, S. Kamado and Y. Kojima	
Solubility of Iron in Pure Magnesium and Cast Structure of Mg-Fe Alloy	697
T. Haitani, Y. Tamura, T. Motegi, N. Kono and H. Tamehiro	
Manganese-Bearing Particles in Liquid AZ91 Magnesium Alloy	703
Y. Tamura, J. Yagi, T. Motegi, N. Kono and H. Tamehiro	
Development of High Strength Magnesium Alloys by Rapid Solidification	709
Y. Kawamura and A. Inoue	
Electron Microscopy Study of Microstructure Modifications in RS P/M Mg₉₇Zn₁Y₂ Alloy	715
M. Nishida, T. Yamamuro, M. Nagano, Y. Morizono and Y. Kawamura	
Microstructure of High Strength Mg₉₇Zn₁Y₂ Alloys Prepared by Extrusion of Gas-Atomized Powder	721
T. Itoi, T. Seimiya, Y. Kawamura and M. Hirohashi	
Microstructure of a High-Strength Nanocrystalline Mg-1at.%Zn-2at.%Y Alloy Studied by Atomic-Resolution Z-Contrast STEM	727
E. Abe, Y. Kawamura and A. Inoue	
Structure and Properties of Rapidly Solidified Mg-Ag-X Ternary Alloys	733
K. Hondo, J. Kaneko, M. Sugamata and M. Kubota	
Development of High Strength Mg Alloys by MA-HDH P/M Process	739
M. Matsuda, S. Yoshimoto, Y. Kawamura, K. Ishikawa and M. Nishida	
Solid-State Synthesis of Mg₂Si Intermetallic Compound via Powder Metallurgy Process	745
K. Kondoh, E. Yuasa and T. Aizawa	
Structure and Mechanical Properties of Rapidly Solidified Mg₉₇Zn₁RE₂ Alloys	751
Y. Kawamura, T. Morisaka and M. Yamasaki	
Rapidly Solidified Mg-(Ag, Sc)-X Alloys with High Strength	757
K. Inoue, Y. Kawamura and M. Nishida	
Development of High Strength Mg Alloys by Mechanical Alloying	763
S. Yoshimoto, M. Matsuda, M. Yamasaki and Y. Kawamura	
Quality Improvement of Rapidly Solidified Magnesium Alloy by Plastic Processing	769
M. Yoshikawa, M. Kohzu, H. Watanabe and K. Higashi	
Mechanical Properties and Microstructure of Al₁₈B₄O₃₃ / Magnesium Alloy Composites Prepared by Compo-Casting	777
G. Sasaki, M. Yoshida, O. Yanagisawa, N. Fuyama and T. Fujii	
In-situ Solid-State Synthesis of Mg₂Si/MgO/Mg Composites	783
W. Du, K. Kondoh, E. Yuasa, R. Tsuzuki and T. Aizawa	
Effect of Extrusion Conditions on Properties of Hot Extruded Mg Composite with Mg₂Si Dispersions via Solid-State Synthesis	789
R. Tsuzuki, K. Kondoh, W. Du, T. Aizawa and E. Yuasa	
Interfacial Microstructure and Fracture Behavior of SiC Whisker Reinforced Magnesium Matrix Composites	795
M.Y. Zheng, K. Wu, C.K. Yao, S. Kamado and Y. Kojima	
Tribological Property of Mg Composites via Powder Metallurgy Process	801
H. Muramatsu, K. Kondoh, T. Aizawa and E. Yuasa	
Creep Behaviour of Magnesium Monolithic Alloys and Composites	805
V. Sklenička, M. Pahutová, K. Kuchařová, M. Svoboda and K.U. Kainer	
Stress Relaxation in Mg-Al-Alloy AZ31 Reinforced by Ceramic Foam	811
F. Breutinger, Y.Y. Li, J. Zeschky, J.S.H. Lo and W. Blum	

Deformation Processes in Mg-Li-Al Base Composites	817
Z. Trojanová, Z. Drozd, P. Lukáč and S. Kudela	
Machining of Fibre Reinforced Magnesium	823
K. Weinert and M. Lange	
Mechanical Alloying of Magnesium and Mg-Al Alloy with Addition of MnO₂ and Fe₂O₃	829
A. Yamazaki, J. Kaneko, M. Sugamata and L. Błaz	
Some Studies on Mg Alloy Reinforced with Ceramic Discontinuous Phases	837
S.K. Thakur, B. Dhindaw, N. Hort and K.U. Kainer	
Electrochemical Corrosion Studies of Thixomolded AZ91D Alloy in Sodium Chloride Solution	845
I. Nakatsugawa, H. Takayasu, K. Araki and T. Tsukeda	
Effect of Mg₁₇Al₁₂ Precipitate on Corrosion Behavior of AZ91D Magnesium Alloy	851
Y.J. Ko, D.Y. Chang, J.D. Lim and K.S. Shin	
Effect of Second Phases on the Corrosion Behavior of Magnesium Alloys	857
D. Eliezer, P. Uzan and E. Aghion	
Corrosion Behaviour of Magnesium Alloys with RE Additions in Sodium Chloride Solutions	867
E.D. Morales, E. Ghali, N. Hort, W. Dietzel and K.U. Kainer	
Development of a Knowledge-Based System for the Design of Magnesium Components	873
T. Muster, I. Cole, Y. Durandet, W. Ganther and W. Song	
Corrosion and Protection of Magnesium Alloy AZ31D by a New Conversion Coating	879
E.H. Han, W.Q. Zhou, D.Y. Shan and W. Ke	
Permanganate Conversion Coatings for Magnesium Alloys	883
H. Umehara, M. Takaya and S. Terauchi	
Corrosion Resistance of Polymer-Plated Magnesium Alloys	889
K. Mori, Z.X. Kang, J. Oravec and Y. Oishi	
Anodic Films Growth on Magnesium and Magnesium Alloys in Fluoride Solutions	897
S. Ono and N. Masuko	
A New Technique for Surface Modification in Magnesium Alloys by Applying Magnesium Oxide Coating	903
A. Yamamoto and H. Tsubakino	
Effect of Aluminum Coatings on Corrosion Properties of AZ31 Magnesium Alloy	909
L.H. Chiu, H.A. Lin, C.C. Chen, C.F. Yang, C.H. Chang and J. Wu	
Corrosion Resistance in Magnesium Alloys and Deposition Coated Magnesium Alloy	915
H. Tsubakino, A. Yamamoto, K. Sugahara and S. Fukumoto	
Direct Adhesion of PPS to Polymer-Plated Magnesium Alloys	921
K. Mori, Z.X. Kang, J. Oravec and Y. Oishi	
Cold Coating of Magnesium Base Alloy Films by Ion Beam Sputtering	927
A. Mitsuo and T. Aizawa	
Microstructural Evolution of the Surface of Mg-Al-Based Alloy by Hydrogen Treatment	931
A. Kamegawa, T. Miyashita, H. Ogasawara, H. Takamura and M. Okada	
Corrosion Behavior of Rapidly Solidified Mg-Zn-Y Alloy Ribbons	937
M. Yamasaki, K. Nyu and Y. Kawamura	
Molecular Dynamics Simulation of Triazine Dithiol / MgO Interface	943
N. Hamada, T. Uesugi, H. Torii and K. Higashi	
Technical Outline of None Chrome Treatment System (Ca-Mn Phosphating) for Magnesium Alloy	949
T. Matsumura and S. Namba	
Anodizing of Magnesium in Amine - Ethylene Glycol Electrolyte	957
H. Asoh and S. Ono	
Lining of Magnesium Alloys with Foils Using Shot Peening	963
Y. Harada, H. Kosugi, S. Maki, M. Umemura and E. Nagashima	
Surface Modification of Magnesium Alloys by Laser Alloying Using Si Powder	969
K. Murayama, A. Suzuki, T. Takagi, S. Kamado, Y. Kojima and H. Hiraga	
Machinability of Magnesium Alloy in Ultra-Precision Diamond Cutting	975
K. Okuda, T. Tanaka and M. Nunobiki	
High-Pressure Synthesis of Novel Hydrides in Mg-RE Systems and Their Hydrogen Content (RE = Y, La)	983
H. Takamura, Y. Goto, A. Kamegawa and M. Okada	

Solid State Synthesis of Non-Equilibrium Mg₂Co via Bulk Mechanical Alloying	989
T. Aizawa and K. Hasehira	
Synthesis of MgB₂ from Gas Atomized Mg Alloy Powders and its Superconductivity	995
K. Matsuzaki, K. Hanada, K. Hatsukano and T. Shimizu	
Porous Bioresorbable Magnesium as Bone Substitute	1001
C.E. Wen, Y. Yamada, K. Shimojima, Y. Chino, H. Hosokawa and M. Mabuchi	
Behavior of Magnesium in Hank's Solution Aimed to Trabecular Pattern of Natural Bone	1007
H. Kuwahara, N. Mazaki, M. Mabuchi, C. Wein and T. Aizawa	
Processing and Mechanical Properties of Open-Cell Mg Alloys	1013
Y. Yamada, C.E. Wen, Y. Chino, K. Shimojima, H. Hosokawa and M. Mabuchi	
Manufacturing of Porous Magnesium Alloy by Pulse Electric Current Sintering Process and Their Compressive Properties	1019
H. Okumura, K. Watanabe, S. Kamado and Y. Kojima	
Microstructures and Protium Absorption/Desorption Characteristics of Interface-Controlled Mg-LaNi₅ Composite	1025
Y. Funayama, S. Yamagawa, H. Okumura, S. Kamado and Y. Kojima	
Fatigue Crack Propagation in Magnesium Single Crystals	1031
S. Ando and H. Tonda	
Influence of Lithium on hcp Magnesium Alloys	1037
F.W. Bach, M. Schaper and C. Jaschik	