

Table of Contents

Preface

On the Birth of GP Zones

A. Guinier 3

Modelling of As-Cast Structures

M. Rappaz, X. Doré, C. Gandin, A. Jacot and T. Jalanti 7

Microstructural Control during Processing of Aluminium Canning Alloys

G.J. Marshall 19

Dynamics of Recovery and Recrystallization

W. Blum and H.J. McQueen 31

Precipitation and Strengthening in Aluminium Alloys

J. Lendvai 43

Strengthening Mechanisms in AL Alloys - an Overview of Natural Limits and Engineering Possibilities

J.D. Embury 57

Characterisation and Modelling of the Plastic Behaviour of Aluminium Alloys

P. Lukáč 71

Recent Advances in the Environment Sensitive Fracture Mechanisms of Aluminium Alloys

T. Magnin 83

Corrosion and Filming Behaviour of Aluminium and its Alloys

G.E. Thompson 95

Modelling as a Tool in Alloy Design for Weldability

Ø. Grong 107

Rational Procedures for Materials and Process Selection in Mechanical Design Applied to Aluminium Alloys

Y. Bréchet, D. Bassetti and P. Pechambert 121

Instantaneous Evaluation of Inclusion Quantity of Liquid Aluminium Alloys

J.L. Roberge and M. Richard 135

Removal of Transition Metal Impurities in Aluminium Melts by Boron Additives

P.S. Cooper and M.A. Kearns 141

Vacuum Degassing of Aluminium Alloys

G. Popescu, I. Gheorghe, F. Dănilă and P. Moldovan 147

Interaction Between Porous Graphite Substrate and Liquid or Semi-Liquid Aluminium Alloys Containing Titanium

N. Sobczak, Z. Gorny, M. Ksiazek, W. Radziwill and P.K. Rohatgi 153

Particle Collisions and Inclusion Removal in Molten Aluminium: A Numerical Simulation

T. Gudmundsson, T.I. Sigfusson, D.G. McCartney, E. Wuilloud and P. Fisher 159

In Situ Study of Liquid Al-Mg Alloys Oxidation

L. Rault, M. Allibert and A. Dubus 165

Rosettes in Al-Cu-Mg-Si Aluminium Alloys

J. Lacaze, G. Lesoult and I. Ansara 171

Eutectic Melting in Al-Cu-Mg-Si Alloys

D.J. Chakrabarti and J.L. Murray 177

Directional Solidification of Al-Si-Cu-Mg Alloys

J.Y. Yao, G.A. Edwards, L. Zheng and D.A. Graham 183

Microstructure of a Rapidly-Solidified Al-12wt%Si Alloy

Y. Birol 189

Peculiarities of Ti Dendritic Segregation in Aluminium Alloys

O.A. Setjukov and I.N. Fridlyander 195

The Effect of Cumulative Alloying Additions on Intermetallic Phase Selection in Alloys Based on Al-0.5 wt.%Fe

I. Todd and H. Jones 201

Al-7Si-0.3Mg Cast Alloy: Formation and Crystal Structure of β -FeSiAl₅ and (Be-Fe)-BeSiFe₂Al₈ Phases

S. Murali, K.S. Raman and K.S.S. Murthy 207

Solidification of Al-7Si-2Ti-2Ce Alloy Ribbons G. Shao, P. Tsakiroopoulos and N. Shen	213
Solidification Processing and Microstructure Analysis of Synthetic Al-Si Alloys O. Madelaine-Dupuich, J. Stolarz, G. Triboulet and K.J. Kurzydowski	219
La Modification de la Structure et les Propriétés Mécaniques des Alliages Al-Si Hipereutectiques par Microalliage à P, à Ti+B ou à Mischmetal C. Gurgu, C. Neagu, G. Jula, C. Popa and V. Secanu	225
Transient Nucleation Effects on Extension of Solid Solubility in Al-Ti and Al-Zr Alloys G. Shao and P. Tsakiroopoulos	229
Modification of Interdendritic Convection by a Magnetic Field P. Lehmann, R. Moreau, D. Camel and R. Bolcato	235
The Study of Some Al-5%Ti and Al-5%Ti-1%B Master Alloys H.O. Jin, T. Sagstad, J. Taftø and P.T. Zagierski	241
Al-Ti-B Grain Refining Alloys from Al, B₂O₃ and TiO₂ A. Hardmann and F.H. Hayes	247
The Grain Refining Action of TiB₂ and TiC Particles Added to Aluminium by a Stir-Casting Method A.E. Karantzalis and A.R. Kennedy	253
The Effect of Grain Refinement on the Fluidity of Aluminium Alloys A.K. Dahle and L. Arnberg	259
Laws of Fluidity Variation for Aluminium Alloys of Al-Cu-Mg - System E.F. Chirkov	265
Influence of Filling Speed and Solidification Pressure on Macrosegregation in Squeeze-Casting J. Doudoux, C. Le Floch, A. Rémy and M. Barthole	271
Solidification of Al-7%Si-0.3%Mg Alloy in Sheared Flow Conditions: Preliminary Experimental Results G. Heiberg and F. Durand	277
Determination of the Solidification Characteristics of the A356.2 Aluminum Alloy S. Jeng and S.W. Chen	283
Optimization of the Compositions of the High Strength Casting Aluminium Alloys E. Tagiev, S. Holeček and N.A. Belov	289
Aluminium Casting Alloys with High Content of Zirconium N.A. Belov	293
Melt Drag Process with Improved and Controlled Cooling System by Forming Belt S. Suzuki, M. Motomura and R. Nakamura	299
Modelling of Thermomechanical Effects during Direct Chill Casting of AA1201 Aluminium Alloy J.M. Drezet, M. Rappaz and Y. Krähenbühl	305
Laminate Made from Rapidly Solidified Foils by The Rotating Drum Method R. Nakamura, M. Motomura and N. Kasahara	311
Multilayer Spray Forming Process and Setup Z.H. Chen, P.Y. Huang, X. Jiang, Y. Wang, C.Q. Peng and Z.M. Sun	317
Rheocast Microstructure of a Usually Wrought Aluminium Alloy G. Bartos-Tausig and K. Xia	323
Thixoforming of Electromagnetically Elaborated Aluminum Alloys Slurries and Semisolid Metal Matrix Composites C. Vivès and F. Adam	329
Interface Study in Electromagnetically Rheocast SiC Reinforced Al-Li Alloy Matrix Composites F. Adam, C. Vivès and F. Moya	335
Effect of Processing on the Microstructure and Tensile Properties of A356/SiC_p MMCs P.A. Karnezis, G. Durrant and B. Cantor	341
Solidification Simulation of Equiaxed Grains in Al - Si Eutectic Alloys N. El Mahallawy, M.A. Taha, A.K. El-Kharbotly, A. Castaldini and I. Svenson	347
Fabrication of Metal Matrix Composite by Spontaneous Infiltration and Subsequent In Situ Reaction Processes T. Choh, M. Kobashi, H. Nakata and H. Kaneda	353

Investigations on the Production of Al-NbAl₃ Composites M.H. Robert and S.L. Urtiga Filho	359
Microstructural Defects in Thin Sheet Twin Roll Cast Aluminium Alloys S.A. Lockyer, M. Yun, J.D. Hunt and D.V. Edmonds	367
Effect of Multipass Hot Deformation on Recrystallisation Kinetics, Strength and Softening of Al-1Mg during Thermomechanical Processing P.L. Orsetti Rossi and C.M. Sellars	373
Static Recrystallisation on Al-1Mg during Thermomechanical Processing P.L. Orsetti Rossi and C.M. Sellars	379
Laboratory Simulation of Breakdown Rolling of AA3104 M. van der Winden and C.M. Sellars	385
Computer Assisted Metallurgy for Non Heat Treatable Aluminum Alloys C. Sigli, H. Vichery and B. Grange	391
Optimisation of Mg₂Si Phase for Extrudability of AA 6063 and AA 6005 Alloys S. Zajac, B. Bengtsson, A. Johansson and L. Gullman	397
Microstructure Control during Extrusion with Respect to Surface Quality K.F. Karhausen, A.L. Dons and T. Aukrust	403
Temperature Measurements in Extrusion Dies M. Lefstad and O. Reiso	409
Considerations about the Plastic Deformation through Warm Extrusion of Al-Li Based Alloy of 2090 Type M. Vasilescu, G. Jula and I. Vasilescu	415
Isotropic Wrought Aluminum-Lithium Plate Development Technology A.K. Hopkins, K.V. Jata and R.J. Rioja	421
Mechanisms of Surface Deformation during Cold Rolling of Aluminium L. Gjønnes and B. Andersson	427
Kinetics and Microstructural Aspects of Recovery in Al, Al-Mg and Al-Mn Alloys M. Verdier, J.A. Sæter, M. Janeček, Y. Bréchet, P. Guyot, D. Duly, E. Nes and R. Ørsund	435
Recrystallization during Hot Deformation of Aluminium S. Gourdet, E.V. Konopleva, H.J. McQueen and F. Montheillet	441
Characterization of Deformation Microstructures in Commercial Purity Aluminium J.A. Sæter and E. Nes	447
Physically-Based Modelling of Strength, Microstructure and Recrystallisation during Thermomechanical Processing of Al-Mg Alloys T. Furu, H.R. Shercliff, C.M. Sellars and M.F. Ashby	453
The Influence of Transient Deformation Conditions on Strength, Microstructure and Recrystallisation during Thermomechanical Processing of an Aluminium Alloy Al-1% Mg G.J. Baxter, T. Furu, J.A. Whiteman and C.M. Sellars	459
Particle Stimulated Nucleation during Continuous Annealing of a Cold Rolled AA 5182 Alloy L. Rabet, P. Ratchev, B. Verlinden and P. van Houtte	465
Recrystallization in a 6000-Series Automotive Sheet Alloy during Solution Heat Treatment Practice G. Burger, A.K. Gupta, L. Sutak and D.J. Lloyd	471
Recrystallization Textures and Plastic Anisotropy in Al-Mg-Si Sheet Alloys O. Engler and J. Hirsch	479
The Effect of Small Particles on Annealed Grain Size and Texture of Al-Mg-Si Alloys L. Zhuang, J. Bottema, P. Kaasenbrood, W.S. Miller and P. De Smet	487
The Deformation and Recrystallization of Particle-Containing Single Crystals M. Ferry and J.F. Humphreys	493
Recrystallization Texture of Al-Fe-Ce Alloys F. Seki, J.P. Yang, N. Ueno and K. Ito	499
Recrystallization of Al-3Mg and Al-3Mg-0.2Sc Alloys Y. Miura, T. Shioyama and D. Hara	505
The Influence of Particle Distribution on the Recrystallization of Al-4% Cu Alloys P. Paillard and J.F. Humphreys	511

Microstructural Characterization of a 7010 Alloy after hot Deformation and Solution Treatment	
B. Morere, C. Maurice, J.H. Driver and R. Shahani	517
The Motion of High Angle Grain Boundaries in Al and Al-Alloys	
D.A. Molodov, U. Czubyko, G. Gottstein and L.S. Shvindlerman	523
Combined In-Situ Annealing and EBSD of Deformed Aluminium Alloys	
J.F. Humphreys and M. Ferry	529
Anisotropy of Dynamic Grain Growth in a Superplastic Aluminum-Magnesium Alloy	
F. Li and A.K. Ghosh	535
Geometry and Physical Properties of Grain Boundaries and their Effect on Strength of High Purity Aluminium	
K.J. Kurzydowski and M. Janicki	541
The Influence of Deformation Temperature and Strain Rate on the Plane Strain Compression Textures of Al-1%Mn-1%Mg	
C. Maurice and J.H. Driver	547
Texture and Structure Evolution in AlMn and Commercial Purity Aluminium Deformed by Monotonic and Reversed Hot Torsion	
H.E. Vatne, M.G. Mousavi, S. Benum, B. Rønning and E. Nes	553
Texture Variations through the Thickness of AA3004 and its Effect on Earing Behaviour	
A. Oscarsson and P.S. Bate	559
Evolution of Microstructure and Texture in Al 99 / 99 - Foils for High Voltage Electrolytic Capacitors	
J. Hasenclever and G. Scharf	565
Influence of Hot Band Texture on the Development of Cold Rolling and Recrystallization Texture in Aluminium Foils	
M.Y. Huh, J.H. Kim, K. Ha and S. Lee	571
Effect of Hot Rolling Texture on the Formation of the (111) Recrystallization Texture in Al-Mg Alloys	
T. Kamijo, M. Kikuchi and M. Saga	577
Growth of Cube Texture in Nominally Pure Aluminum with Fine Particle Dispersion	
J.R. Li, B.J. Diak, S. Saimoto and J. Shimizu	583
Recrystallization and Texture of AA6060 Extrusions Produced from Billets Containing Feather Crystals	
L. Poizat and R. Shahani	589
Diffraction Imaging of the Grain Structure and Texture of Aluminium Alloys using High Energy Synchrotron X-Rays at the E.S.R.F.	
A. Reeves, F. Le Gouic, J. Pannetier, M. Anne, P. Bordet and J.-. Hodeau	595
Energy Dissipation Efficiency Analysis and Microstructural Mechanisms in Aluminum	
H.J. McQueen, Q.S. Zhu and W. Blum	601
High Temperature Plane Strain Compression of an Al-1%Mg Alloy	
M.C. Theyssier, B. Chenal and J.H. Driver	605
Evolution of Grain Structure in Hot Torsion of Al-5Mg-0.7Mn (AA5083)	
W. Blum, Q.S. Zhu, R. Merkel and H.J. McQueen	611
Measurement of Mean Slip Distance in Aluminum and its Correlation to Ductility	
B.J. Diak, S. Saimoto and R.G. Kamat	617
Microstructural Control by Thermomechanical Processing in Hot Worked Al-Li Alloys	
M.C. Gonçalves	623
Influence of Zr Addition on the Microstructure and Properties of PM Al-8Fe-4Ni Alloy	
P. Keramidias, R. Haag, T. Grosdidier, P. Tsakiroopoulos and F. Wagner	629
On Precipitate-Induced Anisotropy Modeling in Binary Al-Cu Alloys	
F. Barlat, J. Liu and H. Weiland	635
Earing and Texture Evolution in Al Can-Sheet	
J. Hirsch, P. Wagner and H. Schmiedel	641
The Anisotropy and Texture of Al-Li Alloys	
K.V. Jata, A.K. Hopkins and R.J. Rioja	647
Texture and Mechanical Anisotropy of 6082 Al Alloy Samples Subjected to Extrusion and Rolling	
L. Viviani, G. Caglioti, G. Albertini, M. Ceretti, F. Fiori and F. Rustichelli	653

Applications of Thermodynamically Modelled Phase Diagram Data in Mathematical Modelling of Industrial Processes P. Kolby	661
Phase Diagram Calculations for Commercial Al-Alloys N. Saunders	667
Thermodynamics and Precipitation in 8090 (Al-Li-Cu-Mg-Zr) Alloys Studied by DSC and TEM M.J. Starink and P.J. Gregson	673
Nucleation of Phases in Al-Fe-Si Alloys C.M. Allen, K. O'Reilly, B. Cantor and P.V. Evans	679
Diffusion of 3d-Transition Elements in Aluminium B.S. Bokstein	685
APFIM/TEM Observations of a High Strength-Creep Resistant Al-Cu-Mg-Si-Ge Alloy S.P. Ringer, S.P. Swenser, B.C. Muddle, I.J. Polmear and T. Sakurai	689
Tomographic Atom Probe Study of Age Hardening Precipitation in Industrial AlZnMgCu (7050) Alloy A. Bigot, F. Danoix, P. Auger, D. Blavette and A. Reeves	695
Atomic Analysis of Guinier-Preston Zones in Al-1.7 at% Cu B. Jouffrey, M. Karlik and D. François	701
Classification of Metastable Phases in Al-Mg₂Si Alloys by HRTEM K. Matsuda, S. Ikeno, T. Sato and A. Kamio	707
The Composition of Fine-Scale Precipitates in Al-Mg-Si Alloys G.A. Edwards, K. Stiller, G. Dunlop and M.J. Couper	713
Cluster-Based Models for the Crystal Structure of the Hardening Precipitates of Al-Mg-Si Alloys P. Donnadieu and A. Proult	719
δ' Heterogeneous Nucleation on Dislocation Networks in Al-Li Z.M. Wang and G.J. Shiflet	725
Influence de Cd sur la Cinétique de Formation des Zones GP et la Précipitation γ' dans Al-Ag H. Yousfi and K. Mouhyddine	731
Prediction of Time for Solution Heat Treat R.T. Shuey, J.P. Suni, R.D. Doherty and D.J. Chakrabarti	735
The Growth Path of Particles during Steady-State Coarsening H. Grätz	741
Microstructural Reactions Occurring during Homogenisation of AA1050 Alloy D. Sampath, W.S. Miller, R. Van den Broeck and P. De Smet	747
Precipitation in an Al-Cu-Mg Alloy Containing Trace Addition of In A.K. Mukhopadhyay, K.S. Prasad and C.R. Chakravorty	753
Investigation on Phase Transformations during Ageing in an AlCuMgAgZn Alloy M.J. Deakin, C. Massa, P. Mengucci and G. Riontino	759
The Precipitation Behaviour of High-Purity Al-Mn Alloys P.C.M. De Haan, J. Van Rijkom and J.A.H. Söntgerath	765
Precipitation of Excess Silicon during Heat Treatment of Cast Al-7wt%Si-0.4wt%Mg Alloy D.L. Zhang	771
Precipitation and Age-Hardening in Al-Si-Cu-Mg-Fe Casting Alloys J.Y. Yao, G.A. Edwards and D.A. Graham	777
The Effect of Quench Rate on Mechanical Properties of 319 Aluminum Alloy Castings G.E. Byczynski, W.T. Kierkus, D.O. Northwood, D. Penrod and J. Sokolowski	783
Precipitation Strengthening and Mechanical Properties of Hypereutectic P/M Al-Si-Cu-Mg Alloys Containing Fe and Ni R.M. Gomes, T. Sato, H. Tezuka and A. Kamio	789
Precipitation Kinetics of an Al-15% Mg Alloy Studied by Microcalorimetry and TEM M.J. Starink and A.M. Zahra	795
Study of the Precipitation Kinetics in a 6000 Series Automotive Sheet Material A.K. Gupta, P.H. Marois and D.J. Lloyd	801

High Resolution Transmission Electron Microscope Observation of the Metastable Phase in an Aged Commercial AA6063	809
H. Tanihata, K. Matsuda and S. Ikeno	
Precipitation Behaviour of Al-Mg-Si Ternary Alloys	815
M. Takeda, F. Ohkubo, T. Shirai and K. Fukui	
Effect of Pre-Aging Temperature on the Behavior in the Early Stage of Aging at High Temperature for Al-Mg-Si Alloy	821
M. Saga, Y. Sasaki, M. Kikuchi, Z. Yan and M. Matsuo	
Effect of Cold Rolling and Aging Treatment on Mechanical Property and Precipitation Behavior in a Al-Mg-Si Alloy	827
S.B. Kang, L. Zhen, H.W. Kim and S.T. Lee	
Study of the Mg₂Si Phase in a 6063 Al Commercial Alloy Using Dilatometric Techniques	833
D. Pino, L. Acuña and N.J. Luiggi A.	
Low-Temperature Precipitation of Al-Li-Cu Alloys Containing Additional Elements	839
H. Shoichi, T. Sato, A. Kamio, K. Kobayashi and T. Sakamoto	
The Effect of Scandium on the Structure of Precipitates in AlLiCu Alloys	845
O. Simmich, J. Król, O. Kabisch, J. Dutkiewicz and R. Ciach	
Hydrides Forming in Al-Li Alloys	851
I.N. Fridlyander, V.S. Sandler and T.I. Nickolskaya	
Ageing Behaviour and Tensile Properties of 1460 Alloy	853
L.B. Khokhlatova, I.N. Fridlyander, N.I. Kolobnev and Y.M. Dolzhanski	
Phase Transformations and Heat Treatment Regimes of Commercial Aluminum Alloys	859
V.G. Davydov, L.B. Ber and V.N. Ananiev	
The Influence of Double-Ageing on the Short-Transverse Elongation of AL-Li-CU-ZR Rolled Plate	865
V.N. Ananiev	
TEM Studies of the Precipitation in High Zr Spray Formed Al-Li-Zr	871
H.R. Habibi-Bajguirani, J.W. Martin and B. Cantor	
The Effects of In, Mg, and Impurity Trace Additions on Precipitation, Anisotropy, and Related Properties in an Al-Cu-Li Alloy	877
D.L. Gilmore and E.A.J. Starke	
Precipitation Study in a Commercial 8011 Alloy	883
N.J. Luiggi A.	
Precipitation Processes Controlled by Lattice and Grain Boundary Diffusion in Al-15at.%Ag	889
N.V. Larcher and I.G. Solórzano	
Effects of Si and Ti Additions on the Nucleation and Phase Stability of the L1₂-Type Al₃Zr Phase in Al-Zr Alloys	895
T. Sato, A. Kamio and G.W. Lorimer	
Precipitation of NI in AL-0.02 AT% NI Alloy	901
H. Tsubakino, U. Ishihara and A. Yamamoto	
Accelerated Aging Processes in SiC/7020 Aluminium Composite	907
Z.M. El-Baradie, O.A. El-Shahat and V. Orlov	
Processing of Aluminum Powder Metallurgy Alloys Containing Self-Propagating Reaction Products	913
M.T. Stawovy, A.O. Aning and S.L. Kampe	
Internal Oxidation in Mechanically Alloyed Al-Mg and Al-Li Alloys with Addition of Metal Oxide	919
J. Kaneko, M. Sugamata, D.G. Kim and H. Higuchi	
Microstructure and Mechanical Properties of Three Dispersion Strengthened Aluminium Base Alloys after Extended Holding at Elevated Temperatures	925
R. Hambleton, H. Jones and W.M. Rainforth	
Microstructures during Solutionizing and Aging in a 6061 Aluminium Alloy Matrix reinforced with Alumina Particles	931
S.K. Varma, J. Ponce, S. Andrews, E. Corral and D. Salas	
Analysis of Spatial Arrangement of Particles in thin Foil of Al-Al₄C₃ Composite	937
M. Besteri, I. Saxl, I. Kohútek and K. Sülleiová	

Long Term Thermal Stability of Silicide Dispersoids in Rapidly Solidified Al-Fe-V-Si and Related Alloys	
D.M.J. Wilkes, H. Jones and R.W. Gardiner	943
Characterization of the Non-Linear Elastic Properties of Aluminium Alloys Using Ultrasonic Evaluation under Load	
M. Dubuget, R. El Guerjouma, S. Dubois, J.C. Baboux and A. Vincent	951
Interface Damping Capacity of Al-Li Alloy with Surface Plating Ti	
Z.Q. Zhou and J.B. Wang	957
Kanzaki Forces and Nonuniform Static Displacements in Dilute Aluminium-Carbon Solid Solutions	
D. Fuks and S. Dorfman	963
Thermal Expansion and the Solid to Liquid Transformation of Al-Mg Alloys: A New Approach to its Analysis	
L.A. Acuña and M.R. Betancourt	969
The Effects of Second Phase Particles, Dislocation Density and Grain Boundaries on the Electrical Conductivity of Aluminium Alloys	
J.Y. Barghout, G.W. Lorimer, R. Pilkington and P.B. Prangnell	975
Electrical Conductivity of Aluminium Alloys	
P. Ólafsson, R. Sandström and Å. Karlsson	981
Inhomogeneity of Mechanical and Electrical Properties of Al-Li-Based Alloys Extrusions	
P. Vostrý, V. Očenášek, M. Cieslar, I. Stulíková and P. Pohořely	987
Application of Solution Temperature - calculated Resistivity (T-ρ) Diagram Obtained from Binary Solubility Curves to Al-Zr Alloys	
T. Ikeda, T. Tachikawa, M. Ikeda and S. Komatsu	993
Constitutive Modelling of Alloys Implementing Metallurgical Variables	
Y. Estrin	1001
Microstructure-Based Models of the Plastic Behaviour of 3104 Aluminium Alloy	
J.L. Duval, C. Teodosiu and J. Courbon	1007
An Investigation of the Properties of an Al-Mg-Li-Zr Alloy after Equal-Channel Angular Pressing	
P.B. Berbon, M. Furukawa, Z. Horita, M. Nemoto, N.K. Tsenev, R. Valiev and T.G. Langdon	1013
The Portevin - le Châtelier Effect in an AlZn10 Alloy investigated by the Acoustic Emission Technique	
F. Chmelík, J. Balík, P. Lukáč, E. Pink and M. Čepová	1019
Critical Conditions for Portevin-Le Châtelier Instabilities in Al-4.8%Mg and Al-2.57%Mg Alloys	
R. Král, P. Lukáč and M. Janeček	1025
Formation of Lüders Lines in Al-Mg Alloys	
I.D. Choi, K. Han, I. Park and S.B. Kang	1031
The Effect of Shear Banding on Spatial Arrangement of the Second Phase Particles in the Aluminium Alloy	
K. Piela and A. Korbel	1037
Micromechanism of Serrated Flow in Al-Li Single Crystals	
C.Q. Chen, B.H. Tian, K.G. Wang and Y.G. Zhang	1043
Deformation Instabilities in Al-Li Based Alloys	
M. Cieslar, P. Vostrý and I. Stulíková	1049
Aging Influence on Serrated Flow Behavior in Al-Li Single Crystals	
H.X. Li and J.K. Park	1055
Mechanical Characteristics of A.A. 8090-T8 Plate with Microstructural Gradients	
R. Doglione, S. Spriano and D. Firrao	1061
Microstructural and Thermal Analysis of A.A. 8090 Plate Alloy with Crystallographic Texture Gradient	
S. Spriano, R. Doglione, M. Baricco, L. Battezzati and D. Firrao	1067
Quench Sensitivity and its Effects on Mechanical Properties of 8090 Al-Li Superplastic Sheets	
T.-. Chen, G.-. Peng and J.C. Huang	1073
Effect of Alkali Metal Impurities on the Low Temperature Thermal Stability of 2090 Al-Cu-Li Alloys	
M.J. Kerr, E.D. Sweet, C.G. Bennett and B.C. Muddle	1079

Through Thickness Property Variations in 7050 Plate D.J. Chakrabarti, H. Weiland, B.A. Cheney and J.T. Staley	1085
Particulate Fracture during the thermomechanical Processing of SiC_p/Al Metal Matrix Composite H.B. Xu and E.J. Palmiere	1091
Optimisation of the Thermomechanical Processing Parameters of Al/SiC_p Composites I. Severin and G. Zgură	1097
Strain Rate Dependence in 6061 and 2024 Aluminium Matrix Composites B.Y. Lou and J.C. Huang	1103
Fabrication of Composite Materials by Mechanical Alloying with Cutting-Chip of Al-Mg-Si Alloy and Fine Al₂O₃ Powder K. Tachi and K. Kita	1109
Thermal Residual Stresses and their Effect on Mechanical Properties in SiC_p Reinforced Al Matrix Composites A. Cansun and A. Aran	1115
Finite Element Analysis of Deformation Behavior and Local Damages in Al Matrix-SiC Particulate Composite Microstructures S. Yilmaz and A. Aran	1121
Improvement of Mechanical Properties by RRA Treatment in Al-SiC_w Composite T. Kobayashi and H. Toda	1127
Elevated Temperature Performance of Particulate Reinforced Aluminium Alloys A.J. Shakesheff and P.D. Pitcher	1133
The Effect of Reinforcement Reactions on the Structures of Al-Si Based Metal Matrix Composites N. Setargew, B.A. Parker and M.J. Couper	1139
Influence of Fibre Reinforcement on the Aging Behaviour of AlSi12CuMgNi Alloy J. Bär, H.J. Gudladt, L. Fördös and J. Lendvai	1145
Structure et Propriétés Mécaniques d'un Matériel Composite à Matrice Métallique du Type AlSi7Mg/Al₂O₃ p C. Popa and C. Gurgu	1151
Hot Deformation and Dynamic Recrystallization of SiC_w/AA2124 Composites Y.C. Yoo, J.S. Jeon and B. Ko	1157
High Strain Rate Superplasticity and Mechanical Properties after Superplastic Deformation of Ma 2024Al-SiC Particulate Composites K. Matsuki, H. Kawakami, M. Tokizawa, Y. Murakami and S. Murakami	1163
Deformation Kinetics and Microstructure during Hot Torsion of Al99.9, Al-11Zn, Al-1Mn, Al-5Mg, Al-5Mg-0.6Mn, Al-5Mg-0.6Mn-1Fe Q. Zhu, W. Blum and H.J. McQueen	1169
Effect of Microstructure on the Hot Deformation Characteristics of Aluminium Alloys E. Kovács-Csetényi, N.Q. Chinh and I. Kovács	1175
Effect of Small Amount of Lithium on Hot Ductility of Al-Mg Base Alloys K. Horikawa, H. Okada and M. Kanno	1181
On the Influence of 0.5wt.% of Cu on the Hot Ductility of an AA 5182 Al-Mg-Alloy P. Ratchev, B. Verlinden, P. van Houtte and P. De Smet	1187
Hot Ductility of Some Al-Mg-Si Alloys S. Zajac, L. Gullman, A. Johansson and B. Bengtsson	1193
Hot Working of Heat Resistant Rapidly Solidified Aluminum Alloy 8009 D. Shimansky and H.J. McQueen	1199
High Temperature Deformation Behavior of a 7475 Al Alloy T.K. Ha, Y.N. Kwon and Y.W. Chang	1203
Ductility and Rheology of an Al-4.5% Cu Alloy from Room Temperature to Coherency Temperature B. Magnin, L. Maenner, L. Katgerman and S. Engler	1209
Behaviour of Selected Aluminium Alloys in Cold and Hot Forging L. Janíček and B. Maroš	1215
The Influence of Hot-Working and Ageing on Notched-Strength and Ductility of Aluminium Alloy AA6082 O.R. Myhr, T. Furu and H.R. Shercliff	1221

Influence of Strain Path and Initial Microstructure on the Work Hardening Behaviour of a Al-Mg-Mn Alloy D. Duly, J. Courbon and J.D. Embury	1227
Effects of Pre-Stretching and Aging Process on Tensile Properties of 2195 Al-Cu-Li Alloy Z. Li and R. Mirshams	1233
Effect of Trace Ag and Mg Additions on Mechanical Properties and Microstructures of 2195 Alloy B.P. Huang, Z.Q. Zheng, D.F. Yin and Z.M. Mo	1239
Microstructural Stability under Creep Conditions of Two Al-Cu-Mg-Ag Alloys B. Skrotzki, H. Hargarter and E.A.J. Starke	1245
Effects of Si Additions on the Precipitation Hardening Response in Al-Cu-Mg(-Ag) Alloys X. Gao, J.F. Nie and B.C. Muddle	1251
The Effect of Precipitate Shape and Orientation on Dispersion Strengthening in High Strength Aluminium Alloys J.F. Nie, B.C. Muddle and I.J. Polmear	1257
Precipitation Kinetics and Strengthening in AlMgZnCu Alloys L. Cottignies and P. Guyot	1263
Precipitation Behaviors of β-Phase and Changes in Mechanical Properties of AL-MG System Alloys Y. Nakayama, T. Takaai and D. Jin	1269
Effect of Precipitation Structure on the Work Hardening Process in a Medium Strength AlZnMg Alloy I. Kovács, J. Lendvai and G. Vörös	1275
Effect of Process Parameters on the Ageing of an Al-6% Zn-2.3% Mg Alloy A. Deschamps, Y. Bréchet, F. Livet and P. Gomiero	1281
The Effect of Deformation Prior to Artificial Ageing on the Ageing Characteristics of a 7475 Aluminum Alloy W.J. Poole and H.R. Shercliff	1287
Precipitation and Work Hardening in High Strength AlZnMg(Cu,Zr) Alloys N.Q. Chinh, Z. Kovács, L. Reich, F. Székely, J. Illy and J. Lendvai	1293
Retrogression and Reageing Treatment of an Al-8Zn-2.2Mg-2.2Cu Alloy Z.M. Mo, Z.Q. Zheng, D.F. Yin and B.P. Huang	1299
Some Aspects of Precipitation Hardening in Aluminum Alloy 6056 T6 - T.E.M. Experiments - M. Vivas, P. Lours, C. Levallant, A. Couret, M.-. Casanove and A. Coujou	1305
Strengthening Behavior of Al-Li-Mg Single Crystals J.K. Park and S.M. Jeon	1311
Embrittlement in Recrystallised and Unrecrystallised Al-Li Binary Alloys B. Noble, S.J. Harris, K. Dinsdale and P.D. Pitcher	1317
Influence of Ce on the Microstructure and Properties of Al - Li Alloy Y.X. Wang and L. Xu	1323
Improvement of Physical Properties for Al-1.1 % Mn Alloy with Taguchi Method T.Y. Tseng, J.R. Su, J.H. Tsai and C.J. Chou	1329
Formability of Aluminium Sheets in Pulsatory Straining D. Banabic	1335
Fatigue of Eutectic Al-Si Alloys O. Madelaine-Dupuich and J. Stolarz	1343
Inhomogeneity of Mechanical and Fatigue Properties of Al-Li Alloys Extrusions V. Očenášek, K. Šperlink, I.N. Fridlyander and L.N. Leshiner	1349
Fatigue Deformation Characteristics of Aged Aluminium Lithium Alloys at Elevated Temperature S.C. Sharma, R. Kamath, B.M. Girish and B.R. Vinai Babu	1355
Low-Cycle Fatigue Behaviour of the Model Al-Li-Zr and Al-Li-Cu-Zr Alloys M. Lewandowska, J. Mizera and J.W. Wyrzykowski	1359
Fracture and Fatigue Crack Growth Resistance of Recrystallized AL-LI Alloys E.S. Balmuth and A. Cho	1365

Effects of Delamination on the Transient Fatigue Crack Growth Behaviour Following Overloads in 8090-T8 Al-Li Alloys S. Kumai and Y. Higo	1371
Non-Propagating Fatigue Crack Behaviour in Al 2024-T351 A. Plumtree and A. Varvani-Farahani	1377
Dynamic Fracture Characteristics in Aluminum Casting Alloy T. Kobayashi and I. Yamamoto	1383
Influence of Surface Quality on Fatigue Behavior of Al-Si7Mg Type Alloys M. Stucky and M. Richard	1389
Effects of Fe and Ca on Usual and Impact Fatigue Characteristics of AC2B - T6 Aluminum Casting Alloy H.J. Kim, T. Kobayashi and T. Ito	1395
Modeling of Fatigue Damage Mechanisms of 7010 Aluminum Alloy G. Petton, Y. Bréchet, G. Lormand and R. Fougères	1401
A Review of Fatigue of Aluminium Matrix Reinforced by Particles or Short Fibers C. Bathias	1407
Use of Internal Variable Models to Predict the High Temperature Behaviour of a 6xxx Industrial Alloy H. Gehanno, Y. Bréchet, D. Bechet and F. Louchet	1413
Creep - Fatigue of Dispersion Strengthened Aluminum Al - Al₄C₃ J. Zrník, M. Besterčí, L. Kováč and P. Horňák	1419
Assessment of the Creep Response of New Powder Metallurgy - Rapid Solidification Al-Si-Ni-Cr and Al-Si-Cu-Fe Alloys E. Evangelista, L. Kloc, S. Spigarelli and E. Cerri	1423
Short Crack Growth in 1441 and 1450 Al-Li Alloys J. Polák, P. Liškutín, K. Šperlink and V. Očenášek	1429
Microstructure and Damage Mechanisms in A356-T6 Alloy R. Doglione, J.L. Douziet, C. Berdin and D. François	1435
Modelling of Damage due to Particles and Grain Boundaries G.R. Canova, S. Favier, R.A. Lebensohn and B. Baudelet	1441
Microstructural Aspects of the Damage Mechanisms of Cast Al-7Si-Mg Alloys C. Verdu, H. Cercueil, S. Communal, P. Sainfort and R. Fougères	1449
The Stabilizing Effect of Strain Hardening during Superplastic Deformation N.Q. Chinh, G. Kapovics, P. Szommer and I. Kovács	1455
Evaluation of Damage in MMC's by Acoustic Emission Technique E. Gariboldi, C. Santulli, F. Stivali and M. Vedani	1461
Effect of Impurity Hydrogen on the Void Formation Prior to Fracture in Aluminum K. Koyama, G. Itoh, H. Okada and M. Kanno	1467
Effect of Processing on the Fracture Characteristics of A 6092 Al Composite Reinforced with SiCp P. Dutta and B.S. Majumdar	1473
Cavity Nucleation and Fracture in an Al-Si-Ge Alloy H.J. Koenigsmann and E.A.J. Starke	1479
A Model to Predict the Fractal Dimension of Fractured Surfaces of 7075 Aluminium Alloys Based on Koch's Fractal Curve and Mechanical Properties O.A. Hilders, N. Peña and O.A. Roa	1485
Extrinsic Toughness Mechanisms of Al-Li Alloys 2090 and 2090+Ce L. Xu and Y.X. Wang	1491
Effect of Stress Triaxiality on Fracture Behaviour of Al-Li System Alloy H.J. Kim, T. Kobayashi, M. Niinomi, T. Hagiwara and T. Sakamoto	1499
The Tensile Strength and Fracture Behavior of Partially Solidified Aluminum Alloys M.G. Chu and D.A. Granger	1505
STM Observation of Grain Boundaries in Al-Mg₂Si Base Alloy Deformed at Room Temperature Y. Uetani, T. Katayama, K. Matsuda and S. Ikeno	1511
Effect of Constituents and Dispersoids Morphology on Fracture Toughness and Fatigue Crack Propagation Rate in 2024 Aluminum Alloys N. Manabu and T. Eto	1517

Effect of Recrystallization in Al-Mg-Li-Cu Alloy Sheets N.I. Kolobnev, L.B. Khokhlatova and L.V. Latushkina	1523
Embrittlement Phenomena in the HAZ of Al-Zn-Mg Weldments B. Bjørneklett, Ø. Grong, A.O. Kluken and O. Jensrud	1527
Anisotropy of Mechanical Properties in 7010 Aluminium Thick Plates D. Solas, G.R. Canova, Y. Bréchet and P. Sainfort	1533
Microstructural Modelling of Fracture Toughness of Al Alloys J. Ehrström, P. Achon, J.F. Hébert and A. Pineau	1539
In Situ Investigation of Crevice Corrosion by Electrochemical Noise Analysis M. Schneider, K. Nocke, H. Pohl and E. Kock	1547
A Ten-Step Mechanism for the Pitting Corrosion of Aluminium M.C. Reboul, T. Warner, H. Mayet and B. Baroux	1553
Susceptibility to Pitting Corrosion of Pure Aluminium, 2024 Alloy and 6056 Alloy in Chloride-Containing Sulphate Solutions C. Blanc, B. Lavelle and G. Mankowski	1559
Electrochemical AC Etching of Aluminum Foils in Hydrochloric Acid Electrolytes J.H. Jeong, S.S. Kim, H.G. Kim, C.H. Choi and D.N. Lee	1565
Corrosion Behaviour of Aluminium Matrix Composites Containing Silicon Carbide Particles S.J. Harris, B. Noble and A.J. Trowsdale	1571
Evaluation of Corrosion Resistance of Aluminium-Copper-Graphite Particulate Composites S.C. Sharma, G.S.K. Rao, M. Nagarajan, B.M. Girish and R. Kamath	1577
From Microstructural Information to the Prediction of Environmental Cracking P.R. Roberge	1581
Corrosion and Stress-Corrosion of 7XXX-W Products J.T. Staley, S.C. Byrne, E.L. Colvin and K.P. Kinnear	1587
Mechanical Properties and Corrosion Behavior of Extrusions for Aircraft Applications Made by Discontinuously Silicon-Carbide-Reinforced Aluminum Matrix Composites L. Pinto and E. Zschech	1593
Effect of Frequency on Fatigue Crack Propagation Behavior of the Aluminum Alloy 6013 in Corrosive Environment I. Trockels, G. Lütjering and A. Gysler	1599
Comparison of Crack Growth Behaviour Between Spray-Formed and Commercial Plate Al-Zn-Mg-Cu Alloy 7150 A.D.B. Gingell and J.E. King	1605
Liquid Metal Induced Degradation of Alloy 7010 J. Barralis and V. Traskine	1611
The Influence of Constituent Particles on the Quality of Hard Anodic Coatings on Fully Heat Treated AA 7075 Extrusion Products A.K. Mukhopadhyay, V.V. Rama Rao and C.R. Chakravorty	1617
Infrared Radiation Properties of Anodized Aluminum S. Kohara and Y. Niimi	1623
Effect of Degreasing Treatments on the Passivity of Pure Aluminium Sheet F. Sato, T. Sakurai and K. Hoshino	1629
Effects of Cold Working and Thermal Exposure on the SCC Behaviour of AA5182 Alloy Sheet R. Braun and T. Hack	1635
Cerium Pretreatments to Prevent Filiform Corrosion of Painted Aluminium Alloys V. Poulain and J.P. Petitjean	1641
Water Atomized Powders of Aluminium and its Alloys O.D. Neikov and A.V. Krajnikov	1649
Wear Resistant Surface-Modified Aluminum Alloy K. Nakata, T. Hashimoto, K.C. Lee and F. Matsuda	1655
Surface Modification of Aluminum Matrix Composites by Electrical Discharge Alloying Y. Tsunekawa, M. Okumiya, N. Mohri and E. Kuribe	1661
Structure and Chemical Composition of Lamellae in Sputtered AlSn20 Films P. Schattschneider, H. Bangert, P. Pongratz, A. Bergauer, P.B. Barna and F. Hofer	1667

La Fabrication et les Propriétés Tribologiques des Composites des AlSi-Pb_(particules) Z. Konopka and J. Braszczynski	1673
Laser Welding of Aluminium-Magnesium Alloys Sheets Process Optimization and Welds Characterization C. Mayer, F. Fouquet and M. Robin	1679
Weldability of commercial AL-CU-LI Alloys J.C. Lippold and W.M. Lin	1685
Nondentritic Equiaxed Zone Formation in Aluminum-Lithium Welds A. Gutierrez, J.C. Lippold and W.G. Lin	1691
Joining Efficiency of Superplastic 8090 Al-Li Thin Sheets Using Electron or Laser Beam Welding J.C. Huang, S.C. Chen, M.F. Lee and Y.D. Shen	1697
Mechanistic Studies of Brazing in Clad Aluminium Alloys M. Nylén, U. Gustavsson, W.B. Hutchinson and A. Örtén	1703
Development in Microstructure during Brazing of 6013 Alloy E. LECTARD, O. Scheffler and E. Zschech	1709
Development and Properties of Thixotropic Brazing Alloys Based on the Al-Ge System M. Suéry, F. Saint-Antonin, P. Meneses, G. Chaumat, G. Le Marois and F. Moret	1715
The Effect of Microstructure on Flow Behaviour of Braze Clad Material J.A.H. Söntgerath, N.D.A. Kooij, K. Vieregge and A. Haszler	1721
Fatigue Properties of Welded T-Joints in Thin-Walled Aluminium Profiles J. Hagström and R. Sandström	1727
Crushing Behaviour of Aluminium Square and Rectangular Tubes M. AVALLE, G. Belingardi, A. Gugliotta and R. Vadori	1733
Welding Distortion of Aluminium Structural Members L. Goglio, A. Gugliotta and D. Pasquino	1739
Features of AL Laminate Behaviour At Fatigue Loading O.G. Senatorova, L.I. Anihovskaya, V.V. Sidelnikov, V.S. Sandler, I.P. Zhegina, I.N. Fridlyander and A.A. Filimonov	1745
Development of High Strength Al-Mg-Si-Cu Alloy with Corrosion Resistance H. Uchida, H. Yoshida, H. Hira and T. Amano	1753
After Concorde: Evaluation of an Al-Cu-Mg-Ag Alloy for Use in the Proposed European SST I.J. Polmear, G. Pons, H. Octor, C. Sanchez, A.J. Morton, W. Borbidge and S. Rogers	1759
The Effect of Cu and Mg Content on Mechanical Properties of Al-Cu-Mg Alloys with and without Ag Additions W.A. Cassada and M.F. Bartholomeusz	1765
High Strength Damage Tolerant Al-Cu-Mg-Ag Forging Alloy for Use at Elevated Temperatures R. Mächler, L. Eschbach, C. Gerdes, C. Solenthaler and M.O. Speidel	1771
Comparison of the Thermal-Mechanical Stability of Three Al-Cu-Mg-X Alloys M.A. Cantrell, T.D. Bayha, D.J. Chellman and D.L. Yaney	1777
Influence of Excess Si on Strength and Toughness in Al-Mg-Si Alloys R.K. Wyss and L.W. Blazek	1783
Properties of Bake Hardenable Al-Mg-Cu Alloy Sheets Y. Suzuki, M. Matsuo, M. Saga and M. Kikuchi	1789
X6030, A New Lead-Free Machining Alloy S.C. Sircar	1795
The New Aluminum Alloy AA 6069 S.C. Bergsma and M.E. Kassner	1801
The Development of Aluminium Alloy AA7032 for High Pressure Gas Cylinders W. Hepples, M.R. Clinch, D.M. Banks and N.J.H. Holroyd	1807
Development and Application of High-Strength Al-Zn-Mg-Cu Alloys I.N. Fridlyander and O.G. Senatorova	1813
The Properties and Structure of High-Strength Aluminium 1933 Alloy Forgings E.A. Tkachenko, V.J. Valkov, V.I. Baratov and I.N. Fridlyander	1819
Development of Super-High Strength Al-Zn-Mg-Cu P/M Alloys J. Kusui, K. Fujii, K. Yokoe, T. Yokota, K. Osamura, O. Kubota and H. Okuda	1823

Mesoscopic Structure of Super-High Strength P/M Al-Zn-Mg-Cu Alloys K. Osamura, K. Kohno, H. Okuda, S. Ochiai, J. Kusui, K. Fujii, K. Yokoe, T. Yokota and K. Hono	1829
Correlation between Microstructure and Mechanical Properties of Al-Mg Alloys without and with Scandium O. Roder, O. Schauerte, G. Lütjering and A. Gysler	1835
On Prospects of Application of New 01570 High-Strength Weldable Al-Mg-Sc Alloy in Aircraft Industry V.G. Davydov, V.I. Yelagin, V.V. Zakharov and Y. Filatov	1841
Alloying Components Optimization of Weldable Al-Li-Mg Alloy I.N. Fridlyander, N.I. Kolobnev, O.E. Grushko, L.M. Sheveleva, L.B. Khokhlatova, W.S. Miller and P.D. Couch	1847
Production of Hypereutectic Al-Si Alloys by P/M Route M. Yilmaz and S. Altıntaş	1853
P/M MMC's Base Aluminum Reinforced with Ni₃Al Intermetallic Made by Mechanical Alloying Route C.E.d. Costa, W.C. Zapata, J.M. Torralba, J.M. Ruiz Prieto and V. Amigó	1859
Processing-Microstructure-Mechanical Properties of an Al-Cu/SiC Metal Matrix Composite Synthesized using Disintegrated Melt Deposition Technique M. Gupta, M.O. Lai and C.Y. Soo	1865
Mechanical Property Evaluation of Aluminium-Copper-Graphite Particulate Composites S.C. Sharma, G.S.K. Rao, M. Nagarajan, B.M. Girish and R. Kamath	1871
Ain Dispersion Reinforced Aluminum Matrix Composite C. Troadec, R. Fillit, P. Goeuriot, P. Verdier, Y. Laurent, J. Vicens, G. Boitier, J. Chermant and B.L. Mordike	1877
Mechanical Properties of Particle Stabilized Aluminum Foam L.D. Kenny	1883
Microstructures and Mechanical Properties of Mechanically Alloyed Al-Al₃Ti Alloys Y.C. Cheng, S.H. Wang, P.W. Kao and C.P. Chang	1891