

Table of Contents

Interdiffusion Data in Multicomponent Alloys as a Source of Quantitative Fundamental Diffusion Information I.V. Belova and G.E. Murch	1
Diffusion and Phase Transformations in Multi-Component Systems G. Inden	11
From Phase Equilibria to Transformation Dynamics T. Mohri, M. Ohno and Y. Chen	21
Metastable Phase Formation in Multi-Component Aluminium Alloys A.P. Miodownik, N. Saunders, J.P. Schille and Z.L. Guo	31
Atomic Migration in Bulk and Thin Film L1₀ Alloys: Experiments and Molecular Dynamics Simulations V. Pierron-Bohnes, R.V.P. Montsouka, C. Goyhenex, T. Mehaddene, L. Messad, H. Bouzar, H. Numakura, K. Tanaka and B. Hennion	41
Self-Diffusion in Covalent Amorphous Solids – A Comparative Study Using Neutron Reflectometry and SIMS H. Schmidt, M. Gupta, U. Geckle and M. Bruns	51
Spatially Periodic Formation of Nanoparticles in Metal-Doped Glasses Y.S. Kaganovsky, A.A. Lipovskii, M. Rosenbluh and V. Zhurikhina	57
Atomic Motion and Diffusion Mechanism of Hydrogen in Amorphous Ceramics of the System Si-B-C-N W. Gruber, G. Borchardt and H. Schmidt	63
NGR Investigation of Grain-Boundary Diffusion in Poly- and Nanocrystalline Nb V.V. Popov, V.N. Kaigorodov, E.N. Popova and A.V. Stolbovsky	69
Interfacial Interaction and Diffusion in Binary Systems V.I. Dybkov	75
Collective and Tracer Diffusion via a Defect Cluster in LSGM I.V. Belova, G.E. Murch, D. Samuelis and M. Martin	81
Mechanism and Kinetics of Plasma Nitriding of the Nb-Alloyed PM Tool Steel P. Novák, D. Vojtech, J. Šerák, M. Novák and B. Bártošová	87
Effect of Fe Addition on Ordering Kinetics in Ni₃Al_{1-x}Fe_x System. Monte Carlo Simulation E. Partyka and R. Abdank-Kozubski	93
The Thermodynamic Database for the Development of Modern Lead-Free Solders A. Kroupa and J. Vízdal	99
Thermodynamic Properties of Liquid Binary Transition-Metal Alloys in the Bretonnet-Silbert Model N.E. Dubinin, L.D. Son and N.A. Vatolin	105
Steam Oxidation Behaviour of Ni-Based Single Crystalline Superalloy for the Advanced Gas Turbine H. Fujikawa, T. Murakumo, S. Newcomb and H. Harada	111
The Effect of Oxide Cracks on Hydrogen Ingress in ZrO₂ H.L. Li, Q. Wen and J.A. Szpunar	117
Kinetic and Thermodynamic Aspects of High-Temperature Oxidation of Selected Ti-Based Alloys D. Vojtech, M. Mort'ániková and P. Novák	123
The BFS Method Combined with Chemical Cluster Interactions for the Study of Order-Disorder Transitions M. Schurmans, J. Luyten and C. Creemers	129
Thermodynamic Aspects of Diffusion Paths in Ternary Systems T. Laas, Ü. Ugaste and J. Priimets	135
The Influence of Thermodynamic Properties of Alloys on Effective Interdiffusion Coefficients in Ternary Systems Ü. Ugaste, T. Laas and T. Škled-Gorbatšova	141
Iron-Based Nanocomposite Synthesised by Microwave Plasma Decomposition of Iron Pentacarbonyl B. David, N. Pizúrová, O. Schneeweiss, T. Hoder, V. Kudrle and J. Janča	147

Diffusion of Carbon and Manganese in Fe-C-Mn L. Král, B. Million and J. Čermák	153
Tracer Diffusion of Molybdenum in Crystallized $\text{Fe}_{79-y}\text{Mo}_8\text{Cu}_1\text{B}_{12+y}$ Alloy J. Čermák and I. Stloukal	159
Zn Diffusion in Binary Base of Light Mg-Al Alloys J. Čermák and I. Stloukal	165
Simulation of Precipitates Evolution in Steels V.V. Popov and I. Gorbachev	171
Surface Diffusion and Island Growth R. Reitingner, B. Pfau, L.M. Stadler, S. Stankov, M. Zajac, N. Spiridis, B. Sepiol, F. Zontone and J. Korecki	177
Diffusional Growth Kinetics of Boride Layers at the 13% Cr Steel Interface with Amorphous Boron V.I. Dybkov	183
Diffusion of Zinc in Two-Phase Mg-Al Alloy I. Stloukal and J. Čermák	189
Microstructural Stability of Dissimilar Weld Joint of Creep-Resistant Steels with Increased Nitrogen Content at 500 – 900 °C B. Zlámal, R. Foret, J. Buršík and M. Svoboda	195
Diffusion in the Presence of Twin Boundaries V. Rothová	201
Grain Boundary Self-Diffusion in Nickel V. Rothová, J. Buršík, M. Svoboda and J. Čermák	207
Study of Kirkendall Effect in Ni/Ni₃Al Welded Joint after the High Temperature Annealing M. Losertová, K. Čech Barabaszová, J. Drápala and M. Kursá	213
Diffusion in Transition Metal Diborides - An Overview H. Schmidt, G. Borchardt, S. Weber and H. Scherrer	219
Carbon and Nitrogen Activities of Materials of Weld Joints Z. Hodis and J. Sopoušek	225
Study of Reaction Diffusivity in the Copper–Indium–Tin Ternary System J. Drápala, P. Kubíček, J. Vřešťál and M. Losertová	231
Analysis of the Rate of Oxidation of the Arema Steel at High-Temperature K. Adamaszek and Z. Jurasz	237