

Table of Contents

Preface

Mass Transport in Oxides - An Overview J.B. Goodenough	1
Some Recent Advances in the Characterisation of Silicates M.A. Carpenter	19
Neutron Activation Induced Beta Autoradiography as a Technique for Locating Minor Phases in Thin Section: Emulsion Response Characteristics P.J. Potts	35
High Resolution Powder Neutron Diffraction A. Fitch	45
Neutron Scattering Investigation of the Defect Structure of Y_2O_3 - Stabilised ZrO_2 and its Dynamical Behaviour at High Temperatures R. Osborn, N.H. Andersen, K.N. Clausen, M.A. Hackett, W. Hayes, M.T. Hutchings and J.E. MacDonald	55
The Kinetics of Al, Si Ordering in Minerals A. Putnis	63
Time - Temperature - Transformation Curves for Kaolinite F. Onike, G.D. Martin and A.C. Dunham	73
Calcined Natural Magnesite-Influence of Time and Temperature on the Transformation and Resulting Industrial Properties N. Kimyongur and P.W. Scott	83
Kinetics of the Quartz-Cristobalite Transformation in Refractory-Grade Silica Materials H. Schneider, A. Majdic and R. Vasudevan	91
Mechanism and Kinetics of Na,K-Unmixing in Al(Si,Ge)Alkali Feldspars B. Deckers, H. Kroll and H. Pentinghaus	103
Rate Studies on Hydration on and Dehydration of Synthetic Mg-Cordierite P.W. Mirwald, C. Jochum and W.V. Maresch	113
Some Observations Concerning the Growth Kinetics of Biotite During the Thermally-Induced Transformation of White Mica (Phengite) in the Contact Aureole of the Traversella Intrusion (N-Italy) R. Wirth	123
A Mechanism for the Reaction Between Magnesium Oxide and Natural Chromite at 1530°C S.C. Kohn	133
An Application of Kinetic Crystal Growth Models to Trace Element Zoning in Alkali Basaltic Clinopyroxenes A. Duda and N. Shimizu	139
Closure Profiles in Cooling Systems M.H. Dodson	145
Application of Experimental Kinetic Data to some Petrological Problems D.C. Rubie and A.B. Thompson	155
Computer Simulation Studies of Silicates C.R.A. Catlow, M. Doherty, G.D. Price, M.J. Sanders and S.C. Parker	163
Mass Transport in Anion Deficient Fluorite Oxides A.N. Cormack	177
Diffusion Controlled Growth and Dissolution of Spheres of Finite Initial Size M. Cable and J.R. Frade	187
Model Intercalation Studies H.D.B. Jenkins	195
New Techniques for Studying Mass Transport in Oxides J.A. Kilner	205
On the Behaviour of Fayalite and Olivine in Oxygen Potential Gradients R. Weghöft and H. Schmalzried	223

Oxygen Diffusion Studies in Minerals: The Effect of Surface Reaction Processes in Hydrothermal Exchange Experiments S.C. Elphick, P.F. Dennis and C.M. Graham	235
Tracer Diffusion of Cobalt and Silicon in Cobaltous Oxide-Silica Liquid Mixtures J. Kieffer, G. Borchardt, S. Scherrer and S. Weber	243
Cation Diffusion in Natural Silicate Melts P. Henderson, J. Nolan and R.K. Lowry	257
Mineral Dissolution Rates in a Superheated Basalt Melt C.H. Donaldson	267
Electrophoretic Mobility Variations During Feldspar Dissolution M. Tranter and R. Raiswell	275
Application of Mass Transport Studies to Industrial Problems A. Atkinson	287
Model Study of SiF₄ Volatilisation from an Oxide Glass Melt J.M. Parker and G.F. West	297
Mass Transport Processes in the Oxidation of Calcium Doped B'-Sialon F.N. Chukukere and F.L. Riley	307
Thermoelectric Power Studies of Oxides with the Fluorite Structure A.V. Chadwick, E. Hammam and B. Zeqiri	317