

PREFACE

Mass transport and related kinetic processes in silicate and oxide systems (including minerals, glasses, composites, melts and liquids) are of considerable interest and importance to fields as diverse as Ceramics, Chemistry, the Earth Sciences, Engineering, Materials Science and Physics. With significant advances in instrumentation, experimental methods, and computer modelling techniques during the last twenty years rapid progress has been made in our understanding of these systems. However, it is becoming increasingly clear that, whilst there has been a regular contact and interchange of ideas between workers in selected subject groups, many problems are fundamental to all disciplines and would benefit from a common approach.

To try and breach the artificial subject boundaries and provide a forum for all workers interested in silicates and oxides a conference was held on KINETICS AND MASS TRANSPORT IN SILICATE AND OXIDE SYSTEM in London in September, 1984. The meeting was sponsored by the Mineralogical Society of Great Britain, the British Ceramic Society (now Institute), the Institute of Physics, and the Polar Solids Discussion Group of the Royal Society of Chemistry. Additional support was provided by I.C.I. plc, the British Ceramic Research Association, Morganite Refractories Ltd., and W. & C. Spicers Ltd. of Cheltenham.

As well as providing a focus for silicate and oxide research, the meeting sought: (i) to review some of the recent developments and achievements in experimental and theoretical techniques for characterising the defect and transport properties; (ii) to illustrate the wide range of problems encountered in the various disciplines in both academic and industrial environments; and (iii) to identify problems of an interdisciplinary nature. A total of 37 papers were presented in oral and poster sessions and most are included in this volume. The contributions represent a wide range of interests, but they are linked by a number of common themes. The overall framework for the volume is provided by the 6 invited review papers which introduced the individual sessions.

Most of the delegates agreed that the conference had demonstrated the potential value of interdisciplinary meetings in this important area of materials science. As conference convenors we were encouraged by the enthusiastic support for the meeting and we hope that the proceedings accurately reflect the current activities and that they stimulate further interest in this exciting and rewarding field.

Finally, we would like to mention that, at the request of the authors, all the papers in this volume have been subject to independent refereeing.

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