Preface

Solubility is one of the most basic and important of thermodynamic properties, and a property which underlies most industrial processes. This book is a collection of 24 chapters involving recent research works, all related to *Solubility*. The objective is to bring together research from disparate disciplines which have a bearing on *Solubility*. Links between these chapters, we believe, could lead to new ways of solving problems and looking at new and also old *Solubility*-related issues. Underlying this philosophy is our inherent belief that a book is still an important vehicle for the dissemination of knowledge.

Our book, *Developments and Applications in Solubility*, has its origins in committee meetings of the International Association of Chemical Thermodynamics (IACT). It is a project produced under the auspices of the International Union of Pure and Applied Chemistry (IUPAC). In true IUPAC image, the authors, which represent some of the most important names in their respective fields, come from many countries around the world, including: Australia, Austria, Finland, France, Germany, Ireland, The Netherlands, New Zealand, Portugal, Slovenia, South Africa, Switzerland, Poland, United Kingdom and the United States of America.

The book highlights the theory, techniques, interesting and new results, modeling and simulation, and industrial applications related to *Solubility*. It includes chapters on:

- the fundamentals of solubility in terms of thermodynamics,
- data banks,
- solubility of gases in ionic liquids, polymers, molten salts, water and in sea water,
- solubility phenomena related to ''green'' chemicals,
- isotope effects,
- inorganic solids in industry,
- organic solids in industry,
- modelling, predictions and simulation techniques including COSMO-RS, and industrial processes including:
- hydrometallurgical leaching,
- impurities in cryogenic liquids,
- BTEX and acid gases,

- reaction design,
- supercritical systems,
- pharmaceutical and cosmetic industries,
- carbon dioxide in chemical processes
- and solubility issues related to the oil industry.

I wish to record my special thanks to Professor Glenn Hefter, Professor Rubin Battino and Dr Justin Salminen who were part of the task team, to the 46 authors and to the publishers, the Royal Society of Chemistry, who have all helped in producing this useful and informative book on the importance and applications of solubility in our chemical industry.

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