

Foreword

In 2002, the International Association of Chemical Thermodynamics (IACT) was established, and since then it has enthusiastically and effectively continued the role of former International Union of Pure and Applied Chemistry (IUPAC) Commission I.2 on chemical thermodynamics in promoting worldwide activities in the field of thermodynamics. In particular, the importance of thermodynamics in basic research, industrial application and teaching has been highlighted by a series of key publications initiated by IUPAC and continued by IACT: “Chemical Thermodynamics” in 1999, “Chemical Thermodynamics for Industry” in 2004, and “Developments and Applications in Solubility”, scheduled to appear in 2006. Contributions originating from IACT are not routine activities: they are fuelled by our intent to show the scientific and engineering community the major role played by thermodynamics in the applied sciences.

Solubility is an extraordinarily wide field, which, therefore, needs a large variety of tools for scientific investigation. This area of physical chemistry encompasses experimental measuring techniques, theory, modelling and simulation, and (industrial) application. With the solubility of solids, liquids and gases in other media themselves being solid, liquid or gaseous, a large range of specialized experimental equipments/methods can be found; most of them are reported in the present book. In general, instrumentation has benefited from the tremendous progress in electronics, micromechanics, informatics *etc.*, which has yielded new sophisticated sensors, detectors and controllers. On the other hand, modelling and *ab initio* calculations are also expanding rapidly. While these computational predictive methods tend to substitute measurements, one must realize that they can never fully replace them.

Science without recognizable application is becoming less important these days. With solubility, this danger does not exist: solubility phenomena are abundant in ordinary, everyday life, in small or large-scale industrial processes, and in the biological field. Key topics are, for instance, the solubility of gases in aqueous systems including biological fluids, the use of supercritical fluids for extraction or separation, or its use as a medium for chemical reactions.

This new book entitled “Developments and Applications of Solubility” assembles 24 chapters authored by renowned specialists. It continues the tradition of its two predecessors by offering high-quality contributions covering

great parts of the topic indicated in the title. As President of IACT, I have the pleasure and honour to thank the editor, Professor Trevor M. Letcher, for his strong involvement in this enterprise, and the authors, whose liberally contributed expertise made it possible and will guarantee success.

Jean-Pierre E. Grolier
President of IACT