

1. Record Nr.	UNINA9910830359103321
Titolo	The experimental determination of solubilities [[electronic resource] /] / edited by G.T. Hefter and R.P.T. Tomkins
Pubbl/distr/stampa	Chichester, West Sussex, England ; ; Hoboken, NJ : , : J. Wiley & Sons, , c2003
ISBN	9786610271825 9780470867839 9780471497080
Descrizione fisica	1 online resource (659 p.)
Collana	Wiley series in solution chemistry ; ; v. 6
Altri autori (Persone)	HefterG. T TomkinsR. P. T (Reginald P. T.)
Disciplina	541.3 541.3/42 541.342
Soggetti	Solubility
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	The Experimental Determination of Solubilities; Contents; List of Contributors; Series Preface; Preface; Acknowledgements; List of Symbols; Quantities, Units and Conversions; 1. Quantities and Units Used to Describe Solubility; 2. Quantities and Units Used to Describe Solubilities of Gases; 3. References; 1 FUNDAMENTALS OF SOLUBILITY; Chapter 1.1 Thermodynamics of Solubility; 1. Introduction; 2. Basic Definitions in Thermodynamics of Solubility; 3. Thermodynamics of Solubility; 4. Solubility of Gases in Liquids; 5. Solubility of Liquids in Liquids; 6. Solubility of Solids in Liquids 7. Concluding Remarks8. References; Appendix A: Some Useful Thermodynamic Concepts and Relations; Appendix B: Numerical and Statistical Procedures in Constructing Fitting Equations; Chapter 1.2 Kinetics and Mechanisms of Crystal Growth and Dissolution; 1. Introduction; 2. Fundamental Concepts; 3. Mechanisms and Rate Expressions for Dissolution and Growth; 4. Comparison of Dissolution and Precipitation Kinetics; 5. Kinetics of Approach to Equilibrium; 6. Summary of Rate-determining Mechanisms; 7. Acknowledgement; 8.

References; 2 GASES; Chapter 2.1 Solubility of Gases in Liquids
1. Introduction 2. Quantities Used as a Measure of Gas Solubility; 3. The Solution Components; 4. Degassing The Solvent; 5. Experimental Methods; 6. Related Experiments that Complement Gas Solubility Data; 7. Treatment of Data; 8. Standards; 9. Summary and Recommendations; 10. References; Chapter 2.2 Solubility of Gases in Polymers; 1. Introduction; 2. Manometric Methods; 3. Gravimetric Methods; 4. Inverse Gas Chromatography; 5. Miscellaneous; 6. Conclusions; 7. References; Chapter 2.3 Solubility of Gases in Molten Salts and Molten Metals; 1. Solubility of Gases in Molten Salts
2. Solubility of Gases in Molten Metals 3. References; Chapter 2.4 Solubility of Gases in Solid Metals; 1. Sieverts Method; 2. Equilibrate-Quench-Analyze Method; 3. Gravimetric Method; 4. Changes of Lattice Parameters and Electrical Resistivity Due to Dissolved Hydrogen in Metals; 5. Determination of Changes of Hydrogen Solubilities from Measurements of Electrode Potential Under Conditions of Controlled Electrolyte Stirring; 6. References; 3 LIQUIDS; Chapter 3 Liquid-Liquid Solubilities; 1. Introduction; 2. The Synthetic Method; 3. The Analytical Method; 4. Miscellaneous Methods
5. Sample Purity 6. Test Systems; 7. References; 4 SOLIDS; Chapter 4.1 Solubility of Solids in Liquids; 1. General Review of Methods; 2. Analytical Methods; 3. Synthetic Methods; 4. 'Combinatorial' Methods; 5. Summary of Experimental Difficulties; 6. References; Chapter 4.2 Solubility of Sparingly Soluble Ionic Solids in Liquids; 1. Introduction; 2. Fundamentals and Applications of Solubility Measurements; 3. The Experimental Determination of Solubilities of Sparingly Soluble Compounds; 4. Summary, Conclusions and Recommendations; 5. References
Chapter 4.3 Solubility of Salt-Water Systems at High Temperatures and Pressures

Sommario/riassunto

This book covers the most useful experimental methods for all types of solubility measurements. The importance of solubility phenomena has been long recognized throughout science. For example, in medicine, the solubility of gases in liquids forms the basis of life itself; in the environment, solubility phenomena influence the weathering of rocks, the creation of soils, the composition of natural water bodies and the behaviour and fate of many chemicals. However, until now, no systematic critical presentation of the methods for obtaining solubilities has been given.
