

Contents

<i>Introduction</i>	XVII
-------------------------------	------

<i>List of Abbreviations</i>	XXI
--	-----

Chapter 1. *National Data Programs and National Committees for CODATA*

1.1. National Data Programs	1
1.1.1. National Standard Reference Data System (NSRDS): U.S.	1
1.1.2. Office for Scientific and Technical Information (OSTI): U.K.	3
1.1.3. The State Service for Standard and Reference Data (GSSSD): U.S.S.R.	3
1.2. National Committees for CODATA	4
1.2.1. The Canadian National Committee for CODATA	4
1.2.2. The German National Committee for CODATA	4
1.2.3. The Japanese National Committee for CODATA	4
1.2.4. The U.K. National Committee for CODATA	5
1.2.5. The U.S. National Committee for CODATA	5
1.2.6. The U.S.S.R. National Committee for CODATA	5

Chapter 2. *Centers Covering a Number of Areas of Science*

2.1. Landolt-Börnstein	6
2.2. Tables de Constantes Sélectionnées	10
2.3. Thermodynamics Research Center	13
2.3.1. The American Petroleum Institute Research Project 44 (API RP 44)	14
2.3.2. The Thermodynamics Research Center (TRC) Data Project	14

Chapter 3. *Continuing Numerical Data Projects and Their Publications*

3.1. Nuclear Properties	16
General Nuclear Properties	16
3.1.1. Nuclear Data Project	16
3.1.2. Nuclear Tables (Tabellen der Atomkerne)	20
3.1.3. Nuclear Constants Group	21
3.1.4. Table of Isotopes	23
3.1.5. Nuclear Radii.	24
3.1.6. Reactor Physics Constants Center	26
Properties of Neutrons	27
3.1.7. National Neutron Cross Section Center	27
3.1.8. IAEA Nuclear Data Unit	29
3.1.9. Neutron Cross Sections for Fast Reactor Materials	31
3.1.10. UKAEA Nuclear Data Library	32
3.1.11. ENEA Neutron Data Compilation Centre	33
3.1.12. U. S. S. R. Nuclear Data Information Centre	34
Properties of Nuclides	34
3.1.13. Charged-Particle Cross Sections	34
3.1.14. Decay Schemes of Radioactive Nuclei	36
3.1.15. Energy Levels of Light Nuclei	38
3.1.16. Energy Levels of $Z = 11\text{--}21$ Nuclei	39
3.1.17. Energy Levels of Nuclei: $\mathcal{A} = 5$ to $\mathcal{A} = 257$	40
3.1.18. Photonuclear Data Center	43
Indexes	44
3.1.19. CINDA (Computer Index of Neutron Data): An Index to the Literature on Microscopic Neutron Data	44
3.2. Atomic and Molecular Properties	46
Atomic Properties Including Spectra	46
3.2.1. Atomic Energy Levels Data and Information Center	46
3.2.2. Atomic Transition Probabilities Data Center	49
3.2.3. X-Ray Wavelengths and X-Ray Atomic Energy Levels	51
3.2.4. M. I. T. Wavelength Tables	52
3.2.5. Atomic Collision Information Center	53

Molecular Properties Including Spectra	55
3.2.6. Diatomic Molecule Spectra and Energy Levels Data Center	55
3.2.7. Données Spectroscopiques concernant les Molécules Diatomiques	56
3.2.8. Atlas des Longueurs d'Onde Caractéristiques des Bandes d'Emission et d'Absorption des Molécules Diatomiques	57
3.2.9. Molecular Spectra and Molecular Structure	58
3.2.10. Tables of Molecular Vibrational Frequencies	59
3.2.11. Atomic and Molecular Processes Information Center	61
3.2.12. Data Center for Atomic and Molecular Ionization Processes	62
3.2.13. Compendium of <i>ab initio</i> Calculations of Molecular Energies and Properties	63
3.2.14. Digest of Literature on Dielectrics	64
3.2.15. Selected Values of Electric Dipole Moments for Molecules in the Gas Phase	66
Infrared and Microwave Spectra	67
3.2.16. Selected Infrared Spectral Data: American Petroleum Institute Research Project 44	67
3.2.17. Selected Infrared Spectral Data: Thermodynamics Research Center Data Project	69
3.2.18. Coblenz Society Infrared Absorption Spectra	70
3.2.19. Documentation of Molecular Spectroscopy	71
3.2.20. The Infrared Data Committee of Japan	74
3.2.21. Infrared Spectra, Sadtler Research Laboratories, Inc.	75
3.2.22. Berkeley Analyses of Molecular Spectra	78
3.2.23. Spectral Data and Physical Constants of Alkaloids	79
3.2.24. Tables of Wavenumbers for the Calibration of Infra-red Spectrometers	81
3.2.25. Microwave Spectral Tables	82
3.2.26. Molecular Constants from Microwave Spectroscopy	85
Raman Spectra	86
3.2.27. Selected Raman Spectral Data: American Petroleum Institute Research Project 44	86
3.2.28. Selected Raman Spectral Data: Thermodynamics Research Center Data Project	87

	Electronic Spectra — Ultraviolet (UV) and Visible . . .	88
3.2.29.	Selected Ultraviolet Spectral Data: American Petroleum Institute Research Project 44	88
3.2.30.	Selected Ultraviolet Spectral Data: Thermodynamics Research Center Data Project	90
3.2.31.	Organic Electronic Spectral Data	91
3.2.32.	Ultraviolet Spectra, Sadtler Research Laboratories, Inc.	92
3.2.33.	Absorption Spectra in the Ultraviolet and Visible Region	94
3.2.34.	The UV Atlas of Organic Compounds/UV-Atlas organischer Verbindungen	96
	Mass Spectra	97
3.2.35.	Selected Mass Spectral Data: American Petroleum Institute Research Project 44	97
3.2.36.	Selected Mass Spectral Data: Thermodynamics Research Center Data Project	99
3.2.37.	Compilation of Mass Spectral Data (Index de Spectres de Masse).	101
3.2.38.	Mass Spectrometry Data Centre	102
	Nuclear Magnetic Resonance (NMR) Spectra	103
3.2.39.	Selected Nuclear Magnetic Resonance Spectral Data: American Petroleum Institute Research Project 44	103
3.2.40.	Selected Nuclear Magnetic Resonance Spectral Data: Thermodynamics Research Center Data Project	104
3.2.41.	Nuclear Magnetic Resonance Spectra, Sadtler Research Laboratories, Inc.	106
3.2.42.	High Resolution NMR Spectra Catalog	107
3.2.43.	JEOL High Resolution NMR Spectra	108
	Other Atomic and Molecular Projects	110
3.2.44.	Interatomic Distances and Configurations in Molecules and Ions	110
3.2.45.	Bond Energies, Ionization Potentials, and Electron Affinities	111
3.2.46.	Bond Dissociation Energies in Simple Molecules	112
3.2.47.	X-Ray Attenuation Coefficient Information Center	113
3.2.48.	Data relative to Sesquiterpenoids	114
3.2.49.	Luminescence of Organic Substances	115
3.2.50.	Magnetic Properties of Free Radicals	117

Indexes to Compilations	118
3.2.51. Indexes to Infrared Spectral Data Compilations	118
3.2.52. Indexes to Ultraviolet-Visible Spectral Data Compilations	118
3.2.53. Indexes to Mass Spectral Data Compilations	119
3.3. Solid State, Including Crystallographic, Mineralogical, Electrical and Magnetic, and Related Properties	119
Crystallographic Properties	119
3.3.1. Crystal Data	119
3.3.2. Crystal Structures	122
3.3.3. Powder Diffraction File: Joint Committee on Powder Diffraction Standards	124
3.3.4. Structure Reports	128
3.3.5. A Handbook of Lattice Spacings and Structures of Metals and Alloys	130
3.3.6. International Tables for X-Ray Crystallography	132
3.3.7. International Data Centre for Work on Crystallography	134
3.3.8. The Barker Index of Crystals	135
3.3.9. Elastic, Piezoelectric, Piezooptic and Electrooptic Constants of Crystals	137
Mineralogical Properties	138
3.3.10. Dana's System of Mineralogy	138
3.3.11. Rock-Forming Minerals	140
Electrical and Magnetic Properties	141
3.3.12. Electrical Resistivity of Metals at Low Temperatures	141
3.3.13. Selected Constants relative to Semi-Conductors	142
3.3.14. Magnetic Properties of Coordination and Organo-Metallic Transition Metal Compounds	143
3.3.15. Diamagnétisme et Paramagnétisme, and Relaxation Para- magnétique	145
3.3.16. Pouvoir Rotatoire Magnétique, and Effet Magnéto-Optique de Kerr	146
Other Solid State	146
3.3.17. Superconductive Materials Data Center	146
3.4. Thermodynamic and Transport Properties, Including Solution Properties	147
Thermodynamic Properties	147

Contents

3.4.1.	Selected Values of Chemical Thermodynamic Properties . . .	147
3.4.2.	Selected Values of Properties of Hydrocarbons and Related Compounds	150
3.4.3.	Selected Values of Properties of Chemical Compounds . . .	152
3.4.4.	JANAF Thermochemical Tables	154
3.4.5.	Contributions to the Data on Theoretical Metallurgy	156
3.4.6.	Thermodynamic Properties of Chemical Substances	158
3.4.7.	Thermodynamic Constants of Substances	160
3.4.8.	Chemical Thermodynamics in Nonferrous Metallurgy	161
3.4.9.	Selected Values for the Thermodynamic Properties of Metals and Alloys	163
3.4.10.	Thermochemistry for Steelmaking	165
3.4.11.	Binary Metal and Metalloid Constitution Data Center	167
3.4.12.	Phase Diagrams for Ceramists	168
3.4.13.	High Temperature Behavior of Inorganic Salts	170
3.4.14.	Low Temperature Specific Heats Data Center	172
3.4.15.	The Thermodynamic Tables Project of the International Union of Pure and Applied Chemistry	173
3.4.16.	International Conference on the Properties of Steam	174
3.4.17.	Thermodynamic Functions of Gases	178
3.4.18.	Thermodynamic Properties of Ammonia	180
3.4.19.	Thermodynamic Functions of Air	180
	Transport (including Thermophysical) Properties	182
3.4.20.	Thermophysical Properties Research Center	182
3.4.21.	Cryogenic Data Center	187
3.4.22.	Molten Salts Data Center	189
	Solution Properties	191
3.4.23.	Seidell's Solubilities of Inorganic, Metal-Organic, and Organic Compounds	191
3.4.24.	Stability Constants of Metal-Ion Complexes	193
3.4.25.	Dissociation Constants of Acids and Bases	194
3.4.26.	Potentiels d'Oxydo-Réduction	196
	Indexes to Compilations	197
3.4.27.	Consolidated Index of Selected Property Values: Physical Chemistry and Thermodynamics	197

3.5.	Properties Relating to Chemical Reaction Rates	197
	Chemical Kinetics	197
3.5.1.	Chemical Kinetics Information Center	197
3.5.2.	Tables of Bimolecular Gas Reactions	198
3.5.3.	Hydrogenation of Ethylene on Metallic Catalysts	199
3.5.4.	Radiolytic Yields	200
3.5.5.	Gas Phase Reaction Kinetics of Neutral Oxygen Species . .	201
3.6.	Miscellaneous Projects and Their Publications	202
	Gas Chromatographic Data	202
3.6.1.	Gas Chromatographic Data Committee of Japan	202
3.6.2.	Gas Chromatographic Data Compilation	203
	Optical Properties	204
3.6.3.	Optical Rotatory Power, I. a—Steroids	204
3.6.4.	Optical Rotatory Power, II.—Triterpenes	205
3.6.5.	Optical Rotatory Power, III.—Amino-acids	206
3.6.6.	Optical Rotatory Power, IV.—Alkaloids	207
	Other Properties	208
3.6.7.	Handbook of the Physicochemical Properties of the Elements	208

Chapter 4. *New and Secondary Centers*

4.1.	Secondary Nuclear Data Centers	210
4.1.1.	The Nuclear Codes Center	210
4.1.2.	The Central Bureau of Nuclear Measurements	210
4.1.3.	The Swedish A. B. Atomenergi and the Research Institute of National Defense	211
4.1.4.	Mainz—Amsterdam	211
4.1.5.	Japan Nuclear Data Committee (JNDC)	211
4.2.	Colloid and Surface Properties	211
4.2.1.	Electrical Properties of Interfaces	211
4.2.2.	Surface Tension Data of Pure Liquids	212
4.2.3.	Data for the Field of Critical Micelle Concentrations	212
4.2.4.	Light Scattering Critical Data Center	213

Contents

4.3. Other Specialized Centers	213
4.3.1. High Pressure Data Center (U.S.)	213
4.3.2. High Pressure Data Center of Japan	214
4.3.3. Radiation Chemistry Data Center	214
4.3.4. The Groth Institute	215
4.3.5. Diffusion in Metals and Alloys Data Center	215
4.3.6. Alloy Data Center	215
4.3.7. Equilibrium Constants of Molten Steel (JAPAN)	217
4.3.8. Molecular Weights of Polymers (JAPAN).	217
4.3.9. Properties of Electrolyte Solutions	217

Chapter 5. *Handbooks and Other Sources of Useful Tabular Data*

5.1. Comprehensive Multi-volume Handbooks	218
5.2. Desk Handbooks for Broad Fields of Science	219
Chemistry and Physics	219
Biology	220
Earth Sciences	220
5.3. Handbooks for Special Areas of Science	221
Nuclear Properties	221
Spectroscopic Properties	222
Solid State Properties; Including Crystallographic, Mineralogical, and Electrical and Magnetic	223
Thermodynamic and Transport Properties; Including Solution Properties	224
5.4. Handbooks for Special Substance Categories	227
5.5. Handbooks for Analytical Chemistry	228

Chapter 6. *Physical Quantities, Units and Symbols; Basic Physical Constants; Nomenclature; and Related Matters*

6.1. Organizations (CIPM, ISO, ICSU Unions)	230
6.2. Physical Quantities, Units, and Symbols; and Basic Physical Constants	232

6.3. Nomenclature 236

6.4. Recommendations on the Publication of Numerical Property
 Values 240

Author Index 241

Subject Index 249

Country Index 293

International Projects—International Unions Index . . . 295