

APPENDIX

IUPAC Publications on Nomenclature and Symbolism**1.0 Compilations**

1.1 Nomenclature of Organic Chemistry, a 550-page hardcover volume published in 1979, available from Pergamon, Oxford.

- Section A: Hydrocarbons
- Section B: Fundamental heterocyclic systems
- Section C: Characteristic groups containing carbon, hydrogen, oxygen, nitrogen, halogen, sulphur, selenium, and tellurium
- Section D: Organic compounds containing elements not exclusively those referred to in the title of Section C
- Section E: Stereochemistry
- Section F: General principles for the naming of natural products and related compounds
- Section H: Isotopically modified compounds

1.2 Nomenclature of Inorganic Chemistry, a 278-page hardcover volume published in 1990, available from Blackwell Scientific Publications, Oxford.

- Chapter 1: General aims, functions and methods
- Chapter 2: Grammar
- Chapter 3: Elements, atoms, and groups
- Chapter 4: Formulae
- Chapter 5: Names based on stoichiometry
- Chapter 6: Neutral molecular compounds
- Chapter 7: Names for ions, substituent groups and radicals, and salts
- Chapter 8: Oxoacids and derived anions
- Chapter 9: Co-ordination compounds
- Chapter 10: Boron hydrides and related compounds

1.3 Biochemical Nomenclature and Related Documents, a 348-page softcover manual published in 1992 by Portland Press Ltd. for IUBMB, and available from the publisher (59 Portland Place, London W1N 3AJ, UK). The contents are as follows:

- Nomenclature of organic chemistry. Section E: Stereochemistry (1974)
- Nomenclature of organic chemistry. Section F: Natural products and related compounds (1976)
- Isotopically modified compounds
- Recommendations for the presentation of thermodynamic and related data in biology (1985)
- Citation of bibliographic references in biochemical journals (1971)
- Nomenclature and symbolism for amino acids and peptides (1983)
- Abbreviated nomenclature of synthetic polypeptides or polymerized amino acids (1971)
- Abbreviations and symbols for the description of the conformation of polypeptide chains (1969)
- Nomenclature of peptide hormones (1974)
- Nomenclature of glycoproteins, glycopeptides and peptidoglycans (1985)
- Nomenclature of initiation, elongation and termination factors for translation in eukaryotes (1988)
- Nomenclature of multiple forms of enzymes (1976)
- Symbolism and terminology in enzyme kinetics (1981)
- Nomenclature for multienzymes (1989)

Abbreviations and symbols for nucleic acids, polynucleotides and their constituents (1970)

Abbreviations and symbols for the description of the conformations of polynucleotide chains (1982)

Nomenclature for incompletely specified bases in nucleic acid sequences (1984)

Carbohydrate nomenclature. Part I (1969)

Nomenclature of cyclitols (1973)

Numbering of atoms in *myo*-inositol (1988)

Conformational nomenclature for five- and six-membered ring forms of monosaccharides and their derivatives (1980)

Nomenclature of unsaturated monosaccharides (1980)

Nomenclature of branched-chain monosaccharides (1980)

Abbreviated terminology of oligosaccharide chains (1980)

Polysaccharide nomenclature (1980)

Symbols for specifying the conformation of polysaccharide chains (1981)

Nomenclature of lipids (1976)

Nomenclature of steroids (1989)

Nomenclature of quinones with isoprenoid side chains (1973)

Nomenclature of carotenoids (1970) and amendments (1974)

Nomenclature of tocopherols and related compounds (1981)

Nomenclature of vitamin D (1981)

Nomenclature of retinoids (1981)

Prenol nomenclature (1986)

Nomenclature of phosphorus-containing compounds of biochemical importance (1976)

Nomenclature and symbols for folic acids and related compounds (1986)

Nomenclature for vitamins B-6 and related compounds (1973)

Nomenclature of corrinoids (1973)

Nomenclature of tetrapyrroles (1986)

1.4 Compendium of Analytical Nomenclature, a 280-page hardcover volume published in 1987, available from Blackwell Scientific Publications, Oxford. The contents are as follows:

Presentation of the Results of Chemical Analysis

Solution Thermodynamics (activity coefficients, equilibria, pH)

Recommendations for Terminology to be used with Precision Balances

Recommendations for Nomenclature of Thermal Analysis

Recommendations for Nomenclature of Titrimetric Analysis

Electrochemical Analysis

Analytical Separation Processes (precipitation, liquid-liquid distribution, zone melting and fractional crystallisation, chromatography, ion exchange)

Spectrochemical Analysis (radiation sources, general atomic emission spectroscopy, flame spectroscopy, X-ray emission spectroscopy, molecular methods)

Recommendations for Nomenclature of Mass Spectrometry

Recommendations for Nomenclature of Radiochemical Methods

Surface Analysis (including photoelectron spectroscopy)

1.5 Compendium of Macromolecular Nomenclature, a 172-page hardcover volume published in 1991, available from Blackwell Scientific Publications, Oxford. The contents are as follows:

Basic Definitions of Terms Relating to Polymers
Stereochemical Definitions and Notations Relating to Polymers
Definitions of Terms Relating to Individual Macromolecules, their Assemblies, and Dilute Polymer Solutions
Definitions of Terms Relating to Crystalline Polymers
Nomenclature of Regular Single-strand Organic Polymers
Nomenclature for Regular Single-strand and Quasi-single-strand Inorganic and Coordination Polymers
Source-based Nomenclature for Copolymers
A Classification of Linear Single-strand Polymers
Use of Abbreviations for Names of Polymeric Substances

1.6 Compendium of Chemical Terminology: IUPAC Recommendations, a 456-page volume published in 1987, available in hardcover and softcover from Blackwell Scientific Publications, Oxford.

1.7 Quantities, Units, and Symbols in Physical Chemistry, a 134-page hardcover volume published in 1988 by Blackwell Scientific Publications, Oxford (new edition to appear 1993).

2.0 Documents not included in the compilations

2.1 Nomenclature of Elements and Compounds

Boron Compounds

Nomenclature of inorganic boron compounds (*Pure Appl. Chem.*, 1972, **30**, 681).

Delta-Convention

Nomenclature for cyclic organic compounds with contiguous formal double bonds (*Pure Appl. Chem.*, 1988, **60**, 1395).

Elements

Recommendations for the names of elements of atomic number greater than 100 (*Pure Appl. Chem.*, 1979, **51**, 381).

Enzymes

Enzyme Nomenclature (1992), published by Academic Press in hardcover and softcover editions.

Heterocyclic Compounds

Revision of the extended Hantzsch-Widman system of nomenclature for heteromonocycles (*Pure Appl. Chem.*, 1983, **55**, 409).

Hydrogen

Names for hydrogen atoms, ions, and groups, and for reactions involving them (*Pure Appl. Chem.*, 1988, **60**, 1115).

Isotopically Modified Compounds

Nomenclature of inorganic chemistry. Part II. 1. Isotopically modified compounds (*Pure Appl. Chem.*, 1981, **53**, 1887).

Lambda Convention

Treatment of variable valence in organic nomenclature (*Pure Appl. Chem.*, 1984, **56**, 769).

Nitrogen Hydrides

Nomenclature of hydrides of nitrogen and derived cations, anions, and ligands (*Pure Appl. Chem.*, 1982, **54**, 2545).

Numerical Terms

Extension of Rules A-1.1 and A-2.5 concerning numerical terms used in organic chemical nomenclature (*Pure Appl. Chem.*, 1986, **58**, 1693).

Polyanions

Nomenclature of polyanions (*Pure Appl. Chem.*, 1987, **59**, 1529).

Zeolites

Chemical nomenclature and formulation of compositions of synthetic and natural zeolites (*Pure Appl. Chem.*, 1979, **51**, 1091).

2.2 Terminology, Symbols, and Units, and Presentation of Results

General

Glossary of terms used in physical organic chemistry (*Pure Appl. Chem.*, 1983, **55**, 1281).

Glossary of atmospheric chemistry terms (*Pure Appl. Chem.*, 1990, **62**, 2167).

English-derived abbreviations for experimental techniques in surface science and chemical spectroscopy (*Pure Appl. Chem.*, 1991, **63**, 887).

Analytical

Recommendations for publication of papers on a new analytical method based on ion exchange or ion-exchange chromatography (*Pure Appl. Chem.*, 1980, **52**, 2555).

Recommendations for presentation of data on compleximetric indicators. 1. General (*Pure Appl. Chem.*, 1979, **51**, 1357).

Recommendations for publishing manuscripts on ion-selective electrodes (*Pure Appl. Chem.*, 1981, **53**, 1907).

Recommendations on use of the term amplification reactions (*Pure Appl. Chem.*, 1982, **54**, 2553).

Recommendations for the usage of selective, selectivity, and related terms in analytical chemistry (*Pure Appl. Chem.*, 1983, **55**, 553).

Nomenclature for automated and mechanised analysis (*Pure Appl. Chem.*, 1989, **61**, 1657).

Nomenclature for sampling in analytical chemistry (*Pure Appl. Chem.*, 1990, **62**, 1193).

Biotechnology

Glossary for chemists of terms used in biotechnology (*Pure Appl. Chem.*, 1992, **64**, 143).

Selection of terms, symbols and units related to microbial processes (*Pure Appl. Chem.*, 1992, **64**, 1047).

Clinical

Physicochemical quantities and units in clinical chemistry with special emphasis on activities and activity coefficients (*Pure Appl. Chem.*, 1984, **56**, 567).

Quantities and units in clinical chemistry (*Pure Appl. Chem.*, 1979, **51**, 2451).

Quantities and units in clinical chemistry: nebulizer and flame properties in flame emission and absorption spectrometry (*Pure Appl. Chem.*, 1986, **58**, 1737).

List of quantities in clinical chemistry (*Pure Appl. Chem.*, 1979, **51**, 2481).

Proposals for the description and measurement of carry-over effects in clinical chemistry (*Pure Appl. Chem.*, 1991, **63**, 301).

Colloids and Surface Chemistry

Definitions, terminology, and symbols in colloid and surface chemistry. I (*Pure Appl. Chem.*, 1972, **31**, 577). II, Heterogeneous catalysis (*Pure Appl. Chem.*, 1976, **46**, 71). Part 1.14: Light scattering (provisional) (*Pure Appl. Chem.*, 1983, **55**, 931).

Reporting experimental pressure-area data with film balances (*Pure Appl. Chem.*, 1985, **57**, 621).

Reporting physisorption data for gas/solid systems with special reference to the determination of surface area and porosity (*Pure Appl. Chem.*, 1985, **57**, 603).

Reporting data on adsorption from solution at the solid/solution interface (*Pure Appl. Chem.*, 1986, **58**, 967).

Manual on catalyst characterization (*Pure Appl. Chem.*, 1991, **63**, 1227).

Electrochemistry

Nomenclature for transfer phenomena in electrolytic systems (*Pure Appl. Chem.*, 1981, **53**, 1827).

Electrode reaction orders, transfer coefficients, and rate constants—amplification of definitions and recommendations for publication of parameters (*Pure Appl. Chem.*, 1980, **52**, 233).
Classification and nomenclature of electroanalytical techniques (*Pure Appl. Chem.*, 1976, **45**, 81).

Recommendations for sign conventions and plotting of electrochemical data (*Pure Appl. Chem.*, 1976, **45**, 131).

Electrochemical nomenclature (*Pure Appl. Chem.*, 1974, **37**, 499).
Recommendations on reporting electrode potentials in non-aqueous solvents (*Pure Appl. Chem.*, 1984, **56**, 461).

Definition of pH scales, standard reference values, measurement of pH and related terminology (*Pure Appl. Chem.*, 1985, **57**, 531).
Interphases in systems of conducting phases (*Pure Appl. Chem.*, 1986, **58**, 437).

The absolute electrode potential: an explanatory note (*Pure Appl. Chem.*, 1986, **58**, 955).

Electrochemical corrosion nomenclature (*Pure Appl. Chem.*, 1989, **61**, 19).

Terminology in semiconductor electrochemistry and photoelectrochemical energy conversion (*Pure Appl. Chem.*, 1991, **63**, 569).

Nomenclature, symbols, definitions and measurements for electrified interfaces in aqueous dispersions of solids (*Pure Appl. Chem.*, 1991, **63**, 895).

Kinetics

Symbolism and terminology in chemical kinetics (provisional) (*Pure Appl. Chem.*, 1981, **53**, 753).

Photochemistry

Recommended standards for reporting photochemical data (*Pure Appl. Chem.*, 1984, **56**, 939).

Glossary of terms used in photochemistry (*Pure Appl. Chem.*, 1988, **60**, 1055).

Quantum Chemistry

Expression of results in quantum chemistry (*Pure Appl. Chem.*, 1978, **50**, 75).

Reactions

Nomenclature for organic chemical transformations (*Pure Appl. Chem.*, 1989, **61**, 725).

System for symbolic representation of reaction mechanisms (*Pure Appl. Chem.*, 1989, **61**, 23).

Detailed linear representation of reaction mechanisms (*Pure Appl. Chem.*, 1989, **61**, 57).

Rheological Properties

Selected definitions, terminology, and symbols for rheological properties (*Pure Appl. Chem.*, 1979, **51**, 1215).

Spectroscopy

Recommendations for publication of papers on methods of molecular absorption spectrophotometry in solution (*Pure Appl. Chem.*, 1978, **50**, 237).

Recommendations for the presentation of infrared absorption spectra in data collections. A, Condensed phases (*Pure Appl. Chem.*, 1978, **50**, 231).

Definition and symbolism of molecular force constants (*Pure Appl. Chem.*, 1978, **50**, 1709).

Nomenclature and conventions for reporting Mössbauer spectroscopic data (*Pure Appl. Chem.*, 1976, **45**, 211).

Recommendations for the presentation of NMR data for publication in chemical journals. A, Proton spectra (*Pure Appl. Chem.*, 1972, **29**, 625). B, Spectra from nuclei other than protons (*Pure Appl. Chem.*, 1976, **45**, 217).

Presentation of Raman spectra in data collections (*Pure Appl. Chem.*, 1981, **53**, 1879).

Names, symbols, definitions and units of quantities in optical spectroscopy (*Pure Appl. Chem.*, 1985, **57**, 105).

A descriptive classification of the electron spectroscopies (*Pure Appl. Chem.*, 1987, **59**, 1343).

Presentation of molecular parameter values for IR and Raman intensity (*Pure Appl. Chem.*, 1988, **60**, 1385).

Recommendations for EPR/ESR nomenclature and conventions for presenting experimental data in publications (*Pure Appl. Chem.*, 1989, **61**, 2195).

Nomenclature, symbols, units and their usage in spectrochemical analysis. VII. Molecular absorption spectroscopy, UV and visible (*Pure Appl. Chem.*, 1988, **60**, 1449); VIII. Nomenclature system for X-ray spectroscopy (*Pure Appl. Chem.*, 1991, **63**, 735); X. Preparation of materials for analytical atomic spectroscopy (*Pure Appl. Chem.*, 1988, **60**, 1461); XII. Terms related to electrothermal atomization (*Pure Appl. Chem.*, 1992, **64**, 253); XIII. Terms related to chemical vapour generation (*Pure Appl. Chem.*, 1992, **64**, 261).

Recommendations for nomenclature and symbolism for mass spectroscopy (*Pure Appl. Chem.*, 1991, **63**, 1541).

Thermodynamics

A guide to procedures for the publication of thermodynamic data (*Pure Appl. Chem.*, 1972, **39**, 395).

Assignment and presentation of uncertainties of the numerical results of thermodynamic measurements (*Pure Appl. Chem.*, 1981, **53**, 1805).

Notation for states and processes; significance of the word 'standard' in chemical thermodynamics and remarks on commonly tabulated forms of thermodynamic functions (*Pure Appl. Chem.*, 1982, **54**, 1239).