

About the “Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences”

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** On behalf of the joint IFCC and IUPAC Committee-Subcommittee on Nomenclature for Properties and Units (C-SC-NPU)*

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BOOK REVIEW

Since the publication of the “Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences” (Silver Book) in 1995, significant development in metrological concepts and terminology has occurred. The second edition of the Silver Book [1], published in 2017 with the joint support of IFCC and IUPAC updates recommendations and technical reports for the clinical laboratory sciences. The book describes a common structure and language for a reliable exchange of person examination data. This format, developed by the IFCC-IUPAC Committee-Subcommittee on Nomenclature for Properties and Units (NPU), applies to multiple disciplines, including clinical allergology, clinical chemistry, clinical haematology, clinical immunology and blood banking, clinical microbiology, clinical pharmacology, molecular biology and genetics, reproduction and fertility, thrombosis and haemostasis, and toxicology. It is adapted both to quantitative and qualitative information (where no magnitude is involved). Concepts and rules in the communication of clinical laboratory information are explained and numerous examples are given to ensure interoperability between the various participants in clinical laboratory sciences.

CONTENTS OF THE REVISED SILVER BOOK

Section 1 - History of recommendations on properties in clinical laboratory sciences

Over the period 1954-2016 section 1 describes the steps to implement in clinical chemistry the recommendations of the IUPAC Commission on Symbols and Physicochemical Terminology and of ISO Technical Committee 12 on Quantities and Units. Preferences were affirmed for amount-of-substance with the acceptance of the mole as a base unit, for the liter in the expression of concentration, for the katal in expressing catalytic activity, for the adoption of the concept 'kind-of-property'. A unified format (NPU format) to express a property of a system was developed under the auspices of IFCC and IUPAC. The listing of dedicated kinds-of-property in an IFCC-IUPAC data bank was another step.

Section 2 - Definitions of some disciplines applied in the clinical laboratory

Forty-five disciplines related to clinical laboratory sciences are defined. They are hierarchically related in a generic concept diagram.

Section 3 - Conventions and instructions for use

Details are given to understand the structure and wording of the text. The primary purpose of this Silver Book is to be a guide towards a structured and uniform way of reporting on examinations from clinical laboratories ensuring interoperability, i.e. the ability of information systems to communicate successfully across organisational and systems boundaries [2].

Section 4 - Fundamental concepts in communication of clinical laboratory information

A set of rules based on the IFCC-IUPAC NPU format is given to obtain and communicate information on the chemical, biochemical, physiological, pathological, and sometimes physical properties

of people. It is based on three main items structured as follows:

System—Component; kind-of-property

The concept of 'property' comprises several types, i.e.: *nominal property, ordinal property, linear differential property, logarithmic differential property, and rational property*. The concept of 'kind-of-property' relates to both quantities and properties of a classificatory nature that are devoid of magnitude. Thus, a NPU format is not limited to measurements, but is generalized to dedicated kinds-of-property without dimensions of the International System of Quantities (ISQ).

Section 5 - Principles and practice of kinds-of-quantity and units

The International System of Units or SI, based on the ISQ, is described with their terms and symbols, including a series of prefixes and their terms and symbols, together with rules for their use. Corresponding examples taken from clinical laboratory practice are given.

Section 6 - Requesting, generating, and transmitting clinical laboratory information

This part is mainly devoted to the recommendations regarding the clinical laboratory report. It is based on the recommendations elaborated by several international organizations. Proposed English-language abbreviations are given for systems in the human body and for kinds-of-property.

Section 7 - Choice and use of kinds-of-property for different examination purposes

This part presents recommendations for the expression of compositional and material kinds-of-quantity. Terminology for kinds-of-quantity related to different measurement principles (optical spectroscopy, centrifugation, electrophoresis and enzymology) are listed with examples.

Section 8 - Kinds-of-quantity of dimension one; SI Unit 1

Ten subsections list numerous types of number, fraction, ratio, relative kinds-of-quantity, derivative kinds-of-quantity, activity, and factors.

Section 9 - Kinds-of-quantity of dimension other than one

Kinds-of-quantity are classified in 110 subsections according to their dimension. Recommendations regarding terms, abbreviation, symbol(s), definition, relevant information, and often example(s) are given.

Section 10 - Kinds-of-property without dimensions of the ISQ

The text concerns nominal and arbitrary kinds-of-quantity that have no dimension and are outside

the ISQ. It presents nominal and arbitrary kinds-of-property with definition, explanatory notes, and examples.

An extensive list of Symbols, Terms and SI Units for Kinds-of-quantity is presented. References to ISO, IEC, CGPM, WHO, and EN standards to IUPAC and IFCC recommendations and technical reports, as well as to some secondary sources are given at the end of each section.

REFERENCES

1. Férard G, Dybkaer R, Fuentes-Arderiu X, Compendium of Terminology and Nomenclature of Properties in Clinical Laboratory Sciences. Recommendations 2016. The Royal Society of Chemistry Publications, 2017 (xxix + 182 pp.).
2. Flatman R, Férard G, Dybkaer R. Understanding the 'Silver Book' – An important reference for standardised nomenclature in clinical laboratory sciences. Clin Chim Acta 2017;467:4-7.