



# RECENT ADVANCES IN NOMENCLATURE, PROPERTIES AND UNITS



*International Union of  
Pure and Applied Chemistry*



JOINT COMMITTEE ON NOMENCLATURE, PROPERTIES AND UNITS (C-NPU)  
OF THE IFCC AND IUPAC

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## Introduction

In clinical laboratory sciences, a nomenclature is required to help electronic exchanges, notably for prescription and result transmission [1, 2]. The Committee on Nomenclature, Properties and Units (C-NPU) provides a data base of standardized terms which is set according to ISO [3, 4], IUPAC and IFCC recommendations. This data base has been regularly published in parts [5, 6, 7, 8].

## NPU coding system

C-NPU data base has been freely available for any health professional worldwide in English [9], Danish [10] and Swedish for several years and is currently used in Denmark and in Sweden. It is patient centered, constantly revised according to scientific advances and contains 22 000 terms. All fields of biological sciences are covered : biochemistry, microbiology, allergology, haemostasis, genetics, pharmacology, immunology, virology, parasitology, reproduction and fertility, doping control. Each term has a specific and ready-to-use code.

Standardized request and report of clinical laboratory results have the following syntax :

**System(specification)—Component(specification); kind-of-property(specification)**

The use of the NPU coding system is simple, as all terms are directly provided by the data base for each situation and adapted to it.

The generic English data base is accessible directly on two websites [9, 10], one managed in Sweden, the other in Denmark. The data base access in the Swedish site [9] is summarized on

figures 1 and 2. It is searchable by NPU code (ex : NPU01443 or 01443) as on fig. 1, or by the element as on fig. 2. After introducing the chosen code and pressing on the « Go » button, the result is displayed. To search for properties by element name, enter the name of the chosen element as on Fig. 2, and press the « Go » button. A list of terms can be displayed in both situations. Clicking on one of the links will open the whole definition of the term (fig. 2). The result of queries can be downloaded, as well as the entire data base.

The NPU data base access on the Danish site [10] is shown on figure 3. This site gives access to both versions of the data base : the English and the Danish terminology. After entering the code number or the component name, press the button « Søg ». The result is displayed as on fig. 3 : the Danish name corresponding to the code appears as a link. Clicking on this link will bring up both Danish and English names for the property, with the English name under the heading « Engelsk navn » :

**B—Haemoglobin(Fe); subst.c. = ? mmol/l**

Results of queries, as well as the whole data base can also be downloaded from this site. This site and data base are maintained by the Danish National Board of Health, and also provides the background and the technical literature of the IFCC-IUPAC coding system.

The multilingual aspects of this terminology set are being further extended. Translation of the NPU-data base has been performed into German, French, Portuguese, Spanish and Catalan [11] and the availability of these versions is in preparation.

Ongoing developments of the NPU data base are presented below.

## Search

Search for properties by NPU  
code:

OR Search for properties by element:

Search within results of the previous query

Restrict to certain specialties:

Allerg.  Chem.  Pharm.  IEM.  MolB.  Immuno.  Micro.  Repr.  Thromb

Display format:

[Info](#)

## Result

Plasma—

Calcium(II);

substance concentration

millimole/litre

$M = 40,080 \text{ g/mol}$

Authority: IFCC/C-BGE

NPU01443

P—Calcium(II); subst.c. = ? mmol/l

Figure 1. Searching for properties by NPU code in the generic English data base, on the Swedish site [9].

## Search

Search for properties by NPU code:

OR Search for properties by element:



Search within results of the previous query

Restrict to certain specialties:

Allerg.  Chem.  Pharm.  IEM,  MoIB,  Immuno,  Micro,  Repro,  Thromb

Display format:

[Info](#)

## Result

Search for properties by NPU code:

OR Search for properties by element:



Search within results of the previous query

Restrict to certain specialties:

Allerg.  Chem.  Pharm.  IEM,  MoIB,  Immuno,  Micro,  Repro,  Thromb

Display format:

[Info](#)

Query for: 'acebutolol' [Download results of query](#) (Use Save As...)

[\[NPU01001\] U—Acebutolol; arb.c.\(IOC Screen: 0 1\) = ?](#)

[\[NPU01002\] U—Acebutolol; arb.c.\(IOC Confirm: 0 1\) = ?](#)

[\[NPU01003\] U—Acebutolol; subst.c. = ? µmol/l](#)

[\[NPU04576\] U—Acebutolol; arb.c.\(proc.\) = ?](#)

1-4 of 4 Page:

Click

Urine—  
Acebutolol;  
arbitrary concentration(procedure)  
M = 336,43 g/mol  
NPU04576  
U—Acebutolol; arb.c.(proc.) = ?

Figure 2. Searching for properties by element in the generic English data base, on the Swedish site [9].

## IFCC-IUPAC

- Nyhedsbrev
- > Søg
- Download

## Kompendium 2000

- Søg
- Forfattere

## Labinfo

- Nyheder
- Forum
- Links
- Kontakt os

## Administration

## English

## Home

info@labinfo.dk

## Kode

02319 

## System

## Præfiks

## Komponent, Synonym, Søgeord,

Forskæl på (A/a)

 Ja  
 Nej

## Vælg evt. yderligere søgekriterier:

## Vis

- Alle poster  
 Kun aktive poster  
 Kun udgåede poster

## Søg også i

- Uforkortet navn  
 (Definition)  
 for teksten i feltet  
 System  
 Komponent, el.

## Synonym

Vis :  Alle specialer

- Biokemi  
 Genetik

 Kun markerede

- Mikrobiologi  
 Farmakologi

- Allergologi  
 Immunologi

- Thrombose og hæmostase  
 Reproduktion og fertilitet

## Oprettet el. sidst ændret

Fra dato Til dato   
(YYYY.MM.DD)

1 poster fundet.

| 1-1 |

[NPU02319 B - Hæmoglobin\(Fe\): stofk. = 7 mmol/L](#)

Figure 3. Searching for properties by NPU code in the English and Danish data base on the Danish site [10].

# IUPAC Projects: Improving the NPU coding system technically and terminologically

## FROM PROJECT TO PRODUCTION

### Securing and structural updating of information in the NPU (IFCC-IUPAC) coding system and its environment

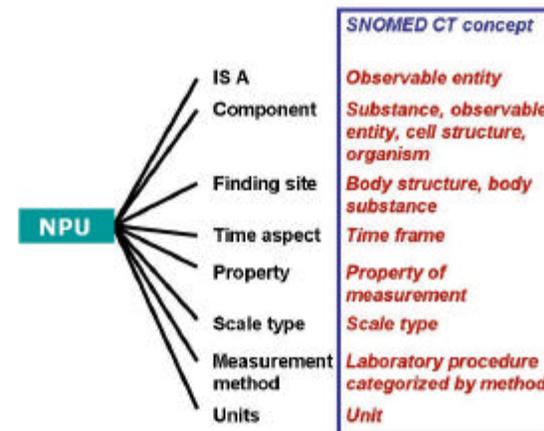
The NPU database was designed and established 10 years ago. Successful nationwide use of the system in Denmark and Sweden has demonstrated a need for adjustment in the way information is stored and managed. The project aims to

- describe future needs for information storage
- extract and restructure information implicitly present in already stored data, making it accessible to users
- develop a Users' Guide for use by both users and managers of national versions of the coding system

## JOINING HEALTH TERMINOLOGIES

### Mapping of the NPU(IFCC-IUPAC) laboratory coding system to SNOMED CT®

Using information embedded in the structure and definitions of the NPU coding system the project aims to develop tables for systematic coordination between the NPU codes and a set of SNOMED CT® concepts.



## Conclusion

Using the C-NPU coding system brings a considerable progress in the electronic communications of clinical laboratory sciences. It allows a direct coding for analysis prescriptions and reports. As it exists in several languages, laboratories in various countries can use their own language. Its access is free through several websites. Results are formatted in SI units. It is regularly updated and future developments will provide complementary information for a better use of this database.

## References

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