



**IUPAC**  
**Chemistry and Human Health Division**



**IFCC**  
**Scientific Division**

**Committee and Subcommittee on Nomenclature, Properties and Units (SC-C-NPU)**

**Confirmed minutes for the meeting in Uppsala 2008-10-23 – 25**

Prior to the meeting the “Nominal Properties” project Wednesday Oct 22<sup>nd</sup>, 09.00 – 18.00 at EQUALIS meeting room.

Item	Actions
1. The meeting was opened and the present members were welcomed by the chairman October 23 <sup>rd</sup> at 9:00 AM at EQUALIS, Uppsala, Sweden.  Present members: Françoise Pontet, chair (FP), Gunnar Nordin (GN), Gunther Schadow (GS), Ivan Bruunshuus Petersen (IBP), René Dybkær (RD), Ulla Magdal Petersen (UMP), Urban Forsum (UF), and Xavier Fuentes-Arderiu (XFA) and corresponding member Helle Møller Johannessen (HMJ). Daniel Karlsson (DK) that participated on telephone at item 10. Apologies were presented for Jarkko Ihalainen (JI) and for the members of the Silver Book revision project Georges Férard (GF), Clem McDonald (CMD), Gilbert Hill (GH) and Dongchon Kang (KD).	FP
2. The agenda was approved.	
3. The minutes from last committee meeting in Antalya 2008-04-10 – 11 were approved with small editorial corrections. GN distributes the approved minutes to C-SC-NPU, IUPAC and IFCC.	GN
4. Titular and corresponding members of the subcommittee (IUPAC) and committee (IFCC) on NPU.  The IFCC part of NPU contains 5 titular members (TM) for three year periods that can be renewed once and two permanent consultants (UF and RD).  DK, XFA and FP end their first three year terms of services as TM by 2008. DK does not candidate for a second term. IFCC SD has proposed the Executive Board to renew the mandates for a second term for XFA and FP. Call for nomination of TM has been circulated within the IFCC member societies. The currently corresponding member UM is expected to be among the suggested candidates.  Helle Møller Johannessen, Denmark, and Jens Gleditsch, Norway, are welcome as new IFCC corresponding members, as soon as we receive confirmation from Paola Bramati.  Corresponding members are to be suggested by IFCC national representatives and suggestions sent to Paola Bramati.  IUPAC members of SC-NPU are the members of the IUPAC projects.  The current address list of members as compiled by GN was discussed. The status of the active members as titular members (IFCC), corresponding members (IFCC), consultants, and project members (IUPAC) need to be clarified. It was decided also to add the election term to the list.	FP
5. Budget for the meeting:  Danish Board of Health covers the costs for HJ, UM, and IB. IFCC covers the costs for XFA, FP, RD, and UF. IUPAC covers the costs for GS. EQUALIS covers	FP

- the local cost for the meeting facilities.
- We are grateful to the Danish Board of Health and to EQUALIS for their contribution to coverage the expenses.
6. Reports from members including reports from JCGM-WG1 (GUM) and WG2 (VIM). All
- From JCGM-WG1 a description of Monte Carlo calculations of uncertainty has been sent out for comments and should be finalized shortly.
- From JCGM WG 2 it was reported that the VIM (ISO/IEC Guide 99) finally is published. The document will be freely available on the BIPM, IFCC and IUPAC web sites as a JCGM document.
- The subset of NPU codes currently in use in Sweden has been published in form of a booklet.
- The presentation on "Description of chemical systems by their properties" by RD at the IUPAC congress in Turin 2007 has been published in PAC 2008, 80(8); 1719-23.
- A paper on "Computers in Clinical Laboratories" by Queraltó et al was published in Chemistry International nr 5, September – October 2008.
7. Report from the Silver Book Revision project. FP
- The project group, including FP (co-chair), GF (co-chair), RD, XFA, CMD, KD (Task Group Members) and GH (expert corresponding member) plan to meet November 17 – 19<sup>th</sup>, and in conjunction with the IUPAC congress Glasgow 2009. So far work items have been divided between the project members.
8. RD works on a revision of his thesis (2004) "An Ontology on Property for physical, chemical, and biological systems" in order to publish the revised version of the book (RD copyright holder). UF has been in contact with Past president Mathias Müller (IFCC) and Executive Director John Jost (IUPAC) for planning the publication on the IFCC and IUPAC websites. RD
9. Date and place of next meeting.
- C-NPU plans for a two day meeting in conjunction with IUPAC 45th General Assembly 31 July - 6 August 2009 Glasgow, UK. The Silver book revision project and Nominal Properties project groups will also meet in Glasgow.
- Considering the long time from now, an additional C-NPU meeting is planned in Copenhagen or Paris, e.g. 26 – 28<sup>th</sup> April.
10. IHTSDO and IFCC-IUPAC (C-NPU) Coordination activities. Mapping of IFCC-IUPAC laboratory coding system to SNOMED CT (IUPAC project 2006-008-1-700). UMP, DK
- DK (connected to the meeting by telephone link) reported that a new concept model for 'observable' is under work within IHTSDO Observables Project Group. The new model will be discussed at a coming meeting in Helsingør, DK, for observable modelling.
- Some concerns were raised why SC-C-NPU was not directly involved in the modelling and that the concepts might not be according to e.g. the VIM (ISO/IEC Guide 99).
- UMP and DK have done some experiments on mapping NPU concepts to corresponding concepts in SNOMED CT and estimate the exact matches to be between 20 and 50%. The rest of the concepts must be treated manually and with due considerations.
- One organisational and one technical team have been constituted by IHTSDO and IFCC - IUPAC. The technical team consists, on behalf of C-NPU, of DK (leader), IBP, UMP, UF, and GN but has not yet met. FP promised to address IHTSDO and IFCC - IUPAC when and how a first meeting should be arranged. The possibilities to arrange a joint meeting also including LOINC was mentioned.

11. Securing and structural updating of information in the NPU coding system and its environment (IUPAC project 2006-012-1-700). UMP

The old Paradox database at the Danish Board of Health will be closed down November 2008 and replaced with the new software 'LabTerm'. The complete data can be exported from the Paradox database into a flat file, to be stored for historical documentation. IFCC and IUPAC will be asked to secure the storage of the data (50 MB zipped).

12. Database promoting (IUPAC project 2006-048-2-700). FP

The abstract for a presentation of the NPU database at the IFCC congress in Fortaleza was refused for reasons not very well understood by SC-C-NPU. The possibility for the promotion of NPU by presentations at other scientific meetings was discussed, e.g. at:

- Euromedlab, that is the 18<sup>th</sup> IFCC - EFCC European Congress of Clinical Chemistry and Laboratory Medicine in Innsbruck, Austria, June 7-11, 2009.
- European Federation for Medical Informatics Conference in Sarajevo, Bosnia and Herzegovina, August 30<sup>th</sup> to September 2<sup>nd</sup> 2009.
- IUPAC congress in Glasgow, UK, August 2009.
- The Congress of Medical Biochemists of Serbia and the 4th EFCC Symposium for the Balkan Region, Macedonia, September 16 – 19<sup>th</sup>. UMP and FP are invited to attend the congress and give lectures.
- AMIA Spring Congress in Orlando, Florida May 2009 or Annual Symposium in San Francisco, California November 2009.

In addition Howard Morris has done some promotion of the system in Australia.

Publications are also needed. Papers on nominal properties, on the use of arbitrary units and a general paper on the concept of NPU for e.g. Annals of Clinical Biochemistry were proposed as work items, as well as a short text in Wikipedia.

All activities were encouraged, although no new decisions were made.

13. On possibilities to quote NPU-codes in the UMLS (left from the Antalya meeting)

The UMLS project links various terminologies, and NPU is probably not of interest for UMLS. If a code exists in UMLS, this could be used as source code for NPU.

The decision was to drop the subject for further consideration.

14. Species names in biology and names of allergens in the NPU system (left from the Antalya meeting).

Various sources have been used within the database. It is usually not possible to appoint a single authorized source for species names in biology. For microbiology the most authorized source is probably "International Journal of Systematic and Evolutionary Microbiology".

UF will suggest some rules in light of the recent discussions of the terms 'Chlamydia' versus 'Chlamydomphila'.

15. Structure of results from genetic testing - the proposed LOINC model FP et al

LOINC recently suggested a structure for genetic testing results. NPU does not provide any structure for the complete result but only for the observed sequence variation by use of Antonorakis' terminology.

It was discussed shortly if a complete modeling could be part of the work in the project on 'nominal properties'. It seems also to be possible to use a property description as stated by NPU within the LOINC-structure for the complete report.

For the moment C-NPU has no opinion about the proposed LOINC model. EQUALIS group for Molecular Biology and others, e.g. professor Peter Bööm, DK, were mentioned as parties with potential interest in the question.

16. Change of name of the committee to 'SC-NPU-LM' within IUPAC. FP
- The IFCC name of the committee is Committee on Nomenclature, Properties and Units (C-NPU). The same name has been used for the Subcommittee in IUPAC (SC-NPU). Attention has now been paid to the fact that IUPAC has added the words 'in Laboratory Medicine', thus 'SC-NPU-LM', to the name. 'Laboratory Medicine' is a controversial term in some contexts. It is e.g. unclear if it covers activities by both pharmacists and medical doctors, and if it covers measurements outside the laboratory. For this reason the committee cannot see the benefit of the extension with 'LM' to the name. It is also disadvantageous with separate names for the IFCC and IUPAC committees.
- The name of the committee has once changed from 'Committee on Quantities and Units' to 'Committee of Properties and Units'.
- A minor change that could be considered is "Committee - Subcommittee on Nomenclature ~~enfor~~ Properties and Units". The proposal for name of this committee will be raised within the IUPAC and IFCC organizations.
17. Mail from Henrik Olesen (2008-08-29) on the management of the NPU terminology by SC-C-NPU. IBP
- An entry has been created in the database, after an initiative from professor Jens Gleditsch (Norway) for mass concentration of pro-gastrin-releasing peptid(31-98) in plasma. Henrik Olesen reminds the committee that this is in conflict with the principles that concentrations of well defined molecular structures have until now only been described with the kind-of-property 'amount-of-substance concentration'.
- The prevailing policies were summed up. For well defined molecular structures the kind-of-property 'substance concentration' is preferred. For peptide hormones, e.g. parathyrin, the database contains entries with 'mass concentration' and 'amount-of-substance concentrations' for results with SI-units, and with 'arbitrary substance concentration' for results with non-SI International Units.
- Following earlier extensive discussions in C-SC-NPU, entries for proteins as 'mass concentration' have been added in parallel to the entries for 'substance concentrations'.
- Requests for new entries are received continuously, and the database must be updated accordingly also between the meetings. The possibilities to create provisional codes were mentioned, but regional or local codes might serve this purpose.
- A manual for the work with the database has been produced in Danish. The manual need to be translated into English. A short description of rules-of-thumb is also needed to be published.
- UMP and HMJ were given mandate by the SC-C-NPU to create new entries and codes in the database. A report should be given to SC-C-NPU, especially regarding new types of concepts, for regular discussions at the committee meetings.
- At this point, it is suggested and accepted to gather important decisions mentioned in meeting minutes in a specific document, a sort of "law book" for NPU coding system, which would be different from the user's guide.
- The committee thanks Henrik Olesen for the comments given, leading to the above discussion and decisions.
18. Updating of NPU terminology and milestones for a new paper.
- A mechanism need to be established to correct unintentional errors, mistakes, and entries for which a given definition no longer is valid due to changes in the source codes outside the NPU system. After discussion and decisions by SC-C-NPU major changes of the system might be done (see arbitrary units, item 19). General rules on how to retire and correct existing entries in the Database need to be stated. GN promised to draft a foreword and IBP and UMP will give examples of changes. The aim is to submit a paper in time for the IUPAC congress in

Glasgow July 2009. Draft manuscript with core information Jan 15<sup>th</sup> 2009.  
Comments Febr 15<sup>th</sup> Second draft including foreword April 30<sup>th</sup>, Comments May,  
Final draft June.

19. On 'arbitrary unit', or 'procedure defined unit'.

For quantities with the kind-of-property 'arbitrary substance concentration', the concept 'arbitrary units' has been used in NPU. One type of 'arbitrary unit' is the WHO International Unit, for which reference materials are referred to within a specification of the kind-of-property. How to deal with other 'arbitrary units', not defined within the NPU-database, has been the topic for discussion at several meetings.

The term 'arbitrary unit' is used in the database as a place holder for a unit as defined by e.g. the local laboratory. This is unsatisfactory as it erroneously might indicate comparability of results for properties with the same NPU code, where there is none. This might specially be the case with codes including a factor to the arbitrary unit (e.g.  $10^3$  arbitrary unit/L).

It is not possible to compare "1 arbitrary unit" and " $10^3$  arbitrary unit" without knowledge about how the respective arbitrary units are defined.

It was now decided that the NPU system should contain a maximum of one entry for a property with an 'unknown unit' – and use the term 'procedure defined unit', short form 'p.d.u.' for this. Factor or denominator (for example 'p.d.u./L') will not be used in conjunction with a 'p.d.u'.

Well documented 'non-SI' units, for which consensus exist, should be included in the NPU-system. Criteria for the acceptability of such units have to be stated by SC-C-NPU.

20. The new Danish terminology information system.

Sören  
Tvede

Søren Tvede, from First Impression MyClinic A/S, demonstrated the first version of the software LabTerm, based on the logical model developed by the Danish Board of Health and earlier presented to C-NPU.

The system is not huge but has a high level of complexity. The system is built on Microsoft Dynamics AX ERP platform, and contains Windows clients (for operating the system), a Web portal for publication of the information, and Webservices for electronic communication with LIS. An XML-based data exchange format is included in the system. A tool for mapping to SNOMED CT terms is included, using the SNOMED Subset Mechanism.

The system is built to handle the need for administration of the system for Denmark. The possibility to develop and use the system as a multilingual system was discussed.

All data from the old Paradox database are exported to LabTerm, including the English terms. The system will be running from November 26<sup>th</sup>. At which time the old Paradox system will be withdrawn.

SC-C-NPU was impressed by the functionality in the new system and wish the Danish Board of Health good luck with LabTerm.

21. Possibilities of fund raising for SC-C-NPU.

Sources for funding the NPU system might possibly be found among e.g. the IVD industry, producers of reference materials, of Laboratory Information Systems, of Health Care records, SNOMED CT (ISHSTDO), Corporate members of IFCC, general software companies such as Microsoft. The Danish organisation MedCom might have a list of companies active in this field.

It was decided that the committee members should share with FP their personal lists of companies with potential interest in the standardisation of nomenclature in the field of interest.

FP will then consider the proper way to address the companies

22. Revision of the Urinary calculi manuscript. Properties and units for urinary calculi GN

- (IUPAC project 2001-070-1-700).
- Within the NPU system are today 28 codes for calculi in the urinary tract. The main remaining issues are how and to which extent the anatomical location of a calculus should be specified. The problem recruiting the experts in order to finalize the manuscript remains. GN is interested to be informed about possible specialists.
23. Properties and units for function examinations (IUPAC project 2001-067-1-700). GN
- IBP has provided the project with a list of the stimulation and other function tests already included in the system. The challenge for this project is that the quantities defined often are context dependent, and the results are only possible to interpret together with other results within the same examination procedure. This has not yet been developed in the NPU model.
24. Project proposals from other IUPAC Division VII SC: "Update of Glossary of Terms used in Medicinal Chemistry" IUPAC project 2008-010-1 and "Analoge-based Drug discovery" IUPAC project 2008-013-1. FP
- These projects have been accepted by IUPAC.
25. Nomenclature of CD antigens. XFA, JI
- A draft manuscript has been produced by XFA. UF promised to contact International Union of Immunological Societies (IUIS). GN will contact a Swedish expert within the field, for review and comment to the manuscript.
26. Kind-of-properties for Histological Examinations. A possible project as discussed in Antalya.
- Results in morphology are often presented either as text results or as nominal scale results. It is certainly of interest to develop the NPU system within this field. It is however not possible to start a project without experts. GS mentioned also an ongoing project at Regenstrief Institute to structure results in histology.
- C-NPU concluded that Histology Examinations is a possible work when experts are available.
27. Internationally agreed terminology for examinations in scientific communication (IUPAC project 2004-023-1-700). Report from the project meeting. FP
- A project meeting was organized in Uppsala October 22<sup>nd</sup>. A list of 100 items has been shared between the project group members. It was decided that the structure of the document needs not necessarily follow the VIM structure. The working title is changed to "Vocabulary for Nominal Examinations". A proper term corresponding to 'metrology' for nominal examinations is searched for. A draft manuscript will be presented at the Glasgow meeting.
28. A description and code for the property often named 'T3 uptake test'. IBP
- The formal definition of the property has been discussed before in the committee, without any conclusions. A local Danish code has now been created, and currently there seem to be no need for a global NPU code.
29. Unit for HbA2. FP
- Andrea Mosca, IFCC WG on standardization of HbA2 measurement, has addressed C-NPU with a question about the preferred unit for HbA2-results. The quantity is expressed as an 'amount-of-substance fraction' (in parallel with HbA1c) for which the unit 1 or the redundant unit 'mmol/mol' are applicable. '%' or 'per million' are not recommended.
30. Clinical physiology IUPAC project proposal. No activity to report since last meeting. DK
- The committee agreed that the field is still of interest to be covered by NPU. The further work with SNOMED CT is expected to reveal the needs in more detail.
- Persons with knowledge and interest in the field have to be called for.

31. Estimated average glucose. GN
- The formal description of the concept “estimated average glucose concentration in plasma” with NPU terminology was discussed. Among various alternatives it was agreed that the most proper description was:
- “Plasma—Glucose; substance concentration (average; HbA1c) = ? mmol/L”
- in which the procedure term ‘HbA1c’ was added for informative reason.
32. Discussions with IUPAC Committee on Chemistry Education (CCE). FP
- GN has been in contact with the secretary of Chemistry Education Committee (Eva Åkesson) to investigate possible interest of collaboration between CCE and SC-NPU. Much of the CCE work is currently focused on the International Year of Chemistry 2011. It was discussed how activities could apply to SC-NPU? The topic could be how to present results of measurements in the field of chemistry. FP will continue to explore the possibilities.
33. Miscellany.
- The transfer of the generic Database and publication of NPU-codes on the IFCC and IUPAC servers: no progress to report.
- Both IFCC and IUPAC web sites are under reconstruction. We should keep an eye on the outcome and check that no data will disappear or change.
- It was informed that the committee can apply for participation in the ‘IUPAC forum’ on the IUPAC web page.
34. The C-NPU meeting closed on October 25<sup>th</sup> 15:00.
- FP thanked all for the valuable contributions and summarised the important conclusions made. As closing remarks FP suggested the following priority of the work items to be focused on:
- Vocabulary for Nominal Examinations
  - Milestone for a paper on how entries in the database are retired or changed
  - Cooperation between SC-S-NPU and IHSTDO on incorporation or linking of NPU-codes SNOMED CT and NPU
  - Securing and structural updating of information in the NPU coding system and its environment
  - The Silver book revision