

Commission II.2 (Commission on the Nomenclature of Inorganic Chemistry), International Union of Pure and Applied Chemistry.

Final minutes of annual meeting 1999, held at Freie Universität, Berlin (Dahlem), Germany, August 9-11.

Original issue date for this document – 1999-08-31 (C. A. Stewart)

Corrected 2000-07-02 (T. Damhus)

Further corrected by the secretary and the chairman as agreed by the Commission at its annual meeting in August 2000 and finalized in September 2000 by adjustments based on the brief summary of the minutes which appeared in Chemistry International 22 (2000) # 2, p. 56.

Members present for all or part of the meeting:

Titular Members

Prof. N. Connelly

Dr. T. Damhus

Prof. A. Dress

Prof. H. D. Kaesz

Prof. D. Meyerstein

Prof. A. Salzer

Dr. C. A. Stewart

Associate Members

Dr. J. B. Casey

Prof. Y. Yamamoto

National Representatives

Prof. R. Laitinen

Prof. H. Nakazawa

Prof. Ebbe Nordlander

Dr. Piroska Fodor-Csányi

Invited Observers

Profs. W. H. Koppenol, G. J. Leigh

August 9, 1999 Plenary Meeting

The Chair of the commission welcomed all present and presented the agenda below that had been agreed upon by prior exchange of e-mail. The sequence of discussions was left open to general consent and did not necessarily follow in the order presented below.

1. Approval of the Minutes from the Newark Meeting 1998
2. Review and discuss the Radical Nomenclature document
3. Red Book II Update
4. Discussion of the proposed reorganization of IUPAC
5. Organometallic Nomenclature document
6. Proposal for naming of Elements 110 and beyond
7. Muonium nomenclature
8. Status of Red Book I revision and those to participate in the working group
9. Update on the Ligands' Abbreviations document
10. Update the Commission's membership list

Time commitments and meetings over the next three days

- 9 August 18:00 - President's address followed by a member's reception
- 10 August 16:00 - Meeting of the United States' delegates
- 10 August 17:00 - 19:00 - Open meeting of Division II to discuss the reorganization of IUPAC followed by the Division elections.
- 11 August 9:00 [- 10:00] - Joint meeting with Commission for the Nomenclature of Organic Chemistry (CNOC), Henri Favre, [Chair]. Discussions on Computer Nomenclature, Organometallics and possibly Metallacycles.

[Items which follow carry the agenda numbers listed above]

1. 1998 Newark Meeting Minutes

The minutes from the 1998 Newark, Delaware meeting had been circulated by e-mail and revised prior to the Berlin sessions. The Commission approved the revised Minutes without further discussion. The titular members present later ratified this approval.

2. Report on the Radicals Nomenclature Document - W. Koppenol

Koppenol (currently representative of International Society for Free Radical Research) briefly reviewed the history of the Radicals Nomenclature document for the Commission. In 1990 Koppenol wrote a critical review of the Radical chapter contained in Red Book I and in 1992 prepared a full paper. This was followed by several revisions. In 1997 there were no more discussions concerning this paper and it was sent to the Interdivisional Commission on Nomenclature and Symbols (IDCNS) and accepted. In 1998, at the Newark Meeting, this

document was reopened by CNIC and critically evaluated. The present meeting permitted discrepancies and/or misunderstandings to be resolved; specific points follow.

Koppenol presented a list of 11 ligands from the Radical Nomenclature Document, giving originally suggested names together with those proposed after the discussions of last summer. Koppenol suggested that if the ligand is a homopolyatomic species it should end in "ido" and all other types of it should end in "ato".

It was then considered that perhaps all ligand names should end in "ido". It was pointed out that the rules in some cases would lead to an "ato" ending. But others suggested that maybe the "ato" ending should be disregarded for ligands. During these discussions it was noticed that maybe coordination nomenclature was being applied and even extended beyond its original intent.

Koppenol suggested that a very simple, general rule was needed to solve this and that he would come up with one.

It was agreed that Koppenol would finish the document, update those interested in his changes, and submit it to IDCNS. There being no further comments the discussions on the Radicals Document were brought to a close.

3. Red Book II Update - Neil Connelly

Red Book II has been finalized with J. McCleverty and was submitted to Blackwell Scientific Publications at the end of June/early July. At the time of this report it was not known if Blackwell will continue to publish for IUPAC. The alternative being considered is to have the IUPAC Secretariat handle the documents through desk-top publishing.

4. Review of IUPAC Proposals for Reorganization - G. J. Leigh

There has been tremendous pressure to smarten up IUPAC procedures due to the feeling that it is an organization that is inefficient, slow moving and produces materials that are not widely used. As a consequence after the last General Assembly meeting the president set up a committee that came up with generalized reorganization directives. The outcome being that - IUPAC will go to a project driven system and divisions will be reorganized with all commissions to be dissolved after the Brisbane General Assembly meeting.

For the project driven system this means that projects will be funded for ~2 years during which time these projects will be evaluated. Long term projects and their funding have not been completely worked out. The Bureau accepted this new system by a 20 to 0 vote.

A substitute motion to be considered by the General Assembly was prepared by the delegation from the U.K. and distributed for information purposes.]

5. Organometallic Nomenclature document - A. Salzer

A. Salzer reported on his recent interactions with the Commission on Nomenclature of Organic Chemistry (CNOC). Some specific examples of the problems were then illustrated by AS. After final resolution of the remaining issues, it was decided to submit the document to PAC after IDCNS review.

6. The naming of new elements - W. Koppenol

Two parallel documents had been prepared on this subject. [Following the discussions, G.J. Leigh and W. Koppenol brought into concordance the two separate documents that had evolved on the naming of new elements. The manuscript emanating from their discussions was authorized to be submitted to IDCNS and eventual publication. This is a matter of some urgency since it is expected that proposals for naming some of the newer elements might be brought to CNIC in a few months' time.]

Koppenol suggested that in the final version of the document there should be strong language that clearly states that CNIC will have the final say on the name of an element forwarded for IUPAC approval, should there be any controversy.

The Chair cautioned against names of [purely administrators at] the discovering laboratories [delete: (i.e. lab directors)] [delete: and would like to avoid the use of names of people in general.] If discovering labs prefer to use names of individuals then the Chair [suggests] honoring past, noteworthy scientists. The Chair also strongly discouraged naming and publishing an element in the open literature by the originating lab prior to its sanction by the IUPAC. [This has the potential of barring that name from any future proposals in the event it is not accepted by IUPAC.] Finally, the question of using Hahnium in the naming of future elements was discussed. The commission also discussed what to do if the name Hahnium (not adopted earlier) were to be proposed again for another element. This would violate the aforementioned rule and was rejected unanimously by the Commission.

7. Muonium nomenclature - W. Koppenol

A document on muonium nomenclature, also by Prof. Koppenol, was revisited and with minor revisions was approved to go forward. It will be submitted to Commission V.7 (Radiochemistry and Nuclear Techniques) for comment before proceeding.

8. Red Book I Revision - N. Connelly

Connelly reported that a project plan was prepared, put forth and funded by the Division for the Red Book I revision (~1,000 pounds for two years). This money will go towards typing fees and

costs associated with bringing Connelly, Damhus, and Laitinen together for discussions related to Red Book I revision.

Connelly reported that Chapters 1, 2, 3, 4 and 10 have been typed. Laitinen is currently reviewing Chapters - 5,7 and part of 8. Connelly suggested going to a break-out session for Red Book I revision due to the number detail questions that needed to be addressed. He is looking to complete this revision by the end of 2000.

H.D. Kaesz reported difficulties in finding anyone to work on the Solid State Chapter. Revision of this document is considered an important part of Red Book I revision. Dr. Norm Herron of Dupont, who attended the Newark Meeting in 1998 as a possible contributor to the solid state chapter, in the end had to decline and nominated Dave Corbin who was then contacted and also declined. The Chair asked for the names of other candidates to work on this chapter. The search for a solid state expert will consist of the following actions -

- Koppenol will use his contacts at the ETRH in Zurich to locate someone,
- Salzer will inquire through the Solid State Division II.3,
- Kaesz will check with Rosenblatt and look through the Editorial board of the Journal of Materials.

Additional discussions concerning Red Book I revision included the Chapter on Boron nomenclature. Boron nomenclature was advanced in Red Book I so it has been included in the revision. However, it now appears not fit in the revision and there were some discussions as to the incorporation of the boron section into the rest of the book. For instance there was a suggestion that it could easily be incorporated into Chapter 7, but others felt it was too specialized to even be in the revised Red Book I.

Chapter 10 of the Red Book I revision was also discussed and it was felt that this section was a real tour de force by D. Busch and T. Sloan. However, the configuration indices do not seem to enjoy popular use and should be dropped or extracted out of that chapter and included as an appendix. Damhus and Casey will collaborate and search the literature to determine if configuration indices are being used to answer this question.

The Chair called for a short break. Afterwards there were breakout sessions and the committee was to reconvene in plenary session by 4:30 PM to report on their activities.

Red Book I Revision Breakout Group - Connelly, Fodor-Csanyi, Damhus, Laitinen, Nakazawa, Stewart

Some of the points discussed -

- phosphane versus phosphine. It was decided to change all to phosphane and add a footnote for PH₅, (λ -5- phosphane).
- Donor atoms first in the formula (i.e. NCM_e).
- The use of a special symbol at the end of a line to denote continuation instead of a hyphen, which is used in nomenclature to denote something other than a line continuation.

- We will continue to use coordination number and oxidation number, but will drop the term 'Stock number'.
- Information contained in a formula should be maximized. For example, denote bridging when needed.
- The terms - Roman and Arabic should be capitalized.
- There were some discussion about the use of bis and di, but a preference between them was not established.
- The substitution of Me for CH₃ and Ph for C₆H₅ was advised to make for a simpler formula.
- There seem to be some inconsistencies regarding the use of (parentheses) and [square brackets]. Connelly will work on making the use of these symbols consistent.

There were some general points made by Connelly and they are as follows.

- There will only be one periodic table.
- There will be only one preface, written by Connelly, and it will discuss some of the history associated with the Red Book.
- There should be a better index (Connelly).
- Table 9 - Structural Prefixes, move to glossary.
- Table 10.5 should be combined with other abbreviations' tables and moved to the appendix.

This was a very constructive session but another session is needed before the end of the conference.

Transfermium Element Nomenclature - Koppenol and Leigh.
The secretary to obtain document from Koppenol.

Three changes in the Commission membership list were implemented at the Berlin meetings as a result of previous discussions and new information.

I. New titular member:

Dr Richard M. Hartshorn
Senior Lecturer in Chemistry
University of Canterbury
Christchurch, New Zealand
Ph (64-3)3642874
Fax (64-3)3642110

II. Convert Dr. Ture Damhus from pool member to titular member in CNIC:

III. New Titular Member (proposed by Dr. A. Salzer as his replacement since Dr. Salzer is not in position to accept re-appointment):

Dr Alan T. Hutton
Department of Chemistry
University of Cape Town
Rondebosch 7701
Republic of South Africa

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The Chair announced that he would be contacting members through e-mail for a suitable meeting time and place for Summer 2000.

The plenary session was then adjourned and meetings continued within the smaller interest groups.

Signed on behalf of the Commission :

Date

Ture Damhus, Commission secretary