

Division V Report to Bureau 2016

- I. Highlights and/or Executive Summary:** 1-2 pages. This should identify items for discussion and/or decision by the Bureau and list Division/Committee priorities for the 2016-17 bi-ennium. It should also cover the major points and achievements that the Division President/Standing Committee Chairman wishes to convey to the Bureau and Council, since this is the part that will most likely be read carefully.

Items for discussion:

- a) **Actualization of IUPAC web page and the Division page**
Global dissemination of new Strategic Plan, present IUPAC structure and people, present Division interests, etc.
- b) **IUPAC economy** with respect to an ability of the projects expenses reimbursement in real time; this contributes also to the formation of meaning on the IUPAC among expert chemists (TG members)
- c) **NAO nominations to the Divisions (the model 10 TMs- 6AMs -10 NRs):**
- Number of nominated should be greater than just to cover division committee membership.
 - An agreement of the nominated people should consider their real possibility/wish to participate on the division meetings and work during the biennium. This could avoid cases when the working place/company of the nominated/elected member does not agree with the participation on meetings abroad, there are long-term financing or family problems to attend the meetings, and other reasons for an interruption of the contact/communication with the division.

Division priorities:

- a) **Finalization of the revision of the Orange Book** under the title “Compendium of Terminology in Analytical Chemistry”. At present, about half of its 12 chapters are in a reasonably advanced state and by chapters prepared for going through the PAC recommendations.
- b) **IUPAC projects** selection on issues recognized as emerging ones:
- finalization of quite long list of running projects
 - new projects on the topic of AC and the Subcommittee on Solubility and Equilibrium Data
- c) **Division Committee permanent activity** kept by mutual contact of its members and officers, particularly regarding
- a preparation and review of the Orange Book revised chapters,
 - preparation and progress on individual projects including their planned end date.
- d) **Keeping the IUPAC Strategic Plan within the Division as “living document”**

This will be discussed in details during the Div Committee meeting on 19 to 21 March, 2016.

A starting point can be the fact that the Analytical Chemistry and chemical measurement have a special position within branches of chemistry directly linked to really global tasks, roles and problems of chemistry from the quality of its production to quality of life (health, environment).

- A focus on those aspects of chemistry where global consensus is essential for progress in research, commerce and policy:
This is performed working on the Orange Book re-edition by looking for the terms definition and understanding in consensus with published recommendations from other divisions, Vocabulary of Metrology, and others.
- Respect for its objectivity and scientific excellence, providing access to the highest levels in the scientific, industrial, and policy communities to represent global chemistry:
This continues to be performed by Div V representatives at internal and external bodies, interdivisional interaction and collaboration including chemistry education.
- A worldwide base of volunteers with the best skills and background, recruited by transparent and well-understood processes:
This continues to be performed by checking the projects task group composition considering skill and geography.

II. An overall report of Division/Committee activities and achievements during 2014-2015 biennium and the first part of 2016 organized by the Goals and Objectives laid out in the current IUPAC Strategic Plan (see below). This will provide more details in a format that is common to all Divisions and Operational Committees. It will permit interested Bureau members to see the Division's work in the context of overall IUPAC strategy. *Note that it is neither necessary nor desirable to include accomplishments under each Goal, and there is no problem in referring to an activity under more than one Goal where appropriate.*

The magazine Teamwork is the periodically published product since 2002, where the Division informs on its main activities and key products typically coming to the IUPAC General Assembly, and, at the same time, announces what the Analytical Chemists are doing and thinking about.

The main Division activity today concerns the revision of the Orange Book with twelve chapters being worked on by task groups, some backed by projects. The new edition will be titled "Compendium of Terminology in Analytical Chemistry" and will be a vocabulary of concepts with definitions of terms that are compatible with the Gold Book. About half the chapters are in a reasonably advanced state. It is also expected that going through PAC recommendations will facilitate uptake into the new electronic Gold Book, being worked on by project "IUPAC Color Book Data Management" <http://www.iupac.org/project/2013-052-1-024>.

Subcommittee on Solubility and Equilibrium Data, SSED (Clara M. Magalhães, Chair of SSED and TM of Division V):

Volume 100 of the IUPAC-NIST Solubility Data Series „Rare Earth Metal Fluorides in Water and Aqueous Systems“ was published in March 2014 in the Journal of Physical and Chemical Reference Data. **This achievement is one of the long range IUPAC goals: the international standardization of physical constants.** The members of SSED were responsible for the half day session “The IUPAC Solubility Data Series: 100 volumes of Solubility Data Online” on the 13th August 2014 at 248th ACS National Meeting in San Francisco.

IUPAC-sponsored *16th International Symposium on Solubility Phenomena and Related Equilibrium Processes*, Karlsruhe, Germany, 21 to 26 July, 2014 together with the 13th Annual meeting of SSED on 20 July, 2014.

Division V Committee meeting in Bratislava, March 2016

As usual, the Division starts the biennium by the Committee meeting in early spring time to **discuss its new aims reflecting emerging issues and current IUPAC plans** for the two years period. The Meeting this year is accompanied with **a workshop entitled „Advances in Analytical chemistry“** to ensure as many participants on the meeting as possible and to disseminate the Division activities and products.

The membership to the Committee for the biennium 2016-2017 is understood as a duty of everybody to participate on the Division work first of all **keeping permanent mutual contact**, particularly by email informations with the officers.

- III. Plans and priorities for the 2016-17 biennium, and beyond.** Provide some detail regarding your intentions for your Division/Committee and the context within which that work will be done. For example, you might want to describe the overall strategy of your Division / Committee, and to include a short section on the activities of specific bodies if that seems desirable. You may want to provide a summary of the number and general types of projects. You may wish to highlight some interdisciplinary activities within IUPAC or with outside groups if these were not covered in part II. You may want to comment on particular organizational or operational aspects that you think should be brought to the attention of Council. In short, part III is free-form; you can put into it whatever you wish, preferably without duplication of information from other parts.

The main task of the Division continues to be the new edition of the **Orange Book**. Brynn Hibbert, the Editor, has summarized the present state of its chapters recently (drafts available on Dropbox) and the progress will be discussed on the Committee meeting in Bratislava in March 2016.

The Division is fortunate to have active **subcommittees** which contribute significantly to its visible products. **New projects** should more cover recognized emerging issues of Analytical Chemistry. It should be particularly a task of new titular members (selected according to their topics of research interests).

Division Membership

ACD members on internal and external committees

Body/ Committee/ Organisation	Membership
Internal	
Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS)	Attila Felinger
Committee on Chemical Education (CCE)	Maria Filomena Camoes
Committee on Chemical Industry (COCI)	Jan Labuda
Committee on Publications and Cheminformatics Data Standards (CPCDS)	Brynn Hibbert
Committee on Chemistry Research Funding (CCRF)	Jan Labuda
Pure and Applied Chemistry Editorial Advisory Board (PAC-EAB)	Zoltan Mester
External	
International Committee on Weights and Measures/Consultative Committee on the Amount of Substance (CIPM/CCQM)	Zoltan Mester
ISO-Committee on Reference Materials (ISO/REMCO)	Aleš Fajgelj
Joint Committee for Guides in Metrology (JCGM)	Paul De Bièvre
Joint Committee for Guides in Metrology Working Group1 (JCGM WG1)	Steven Ellison (UK), Juris Meija (Canada)
Joint Committee for Guides in Metrology Working Group 2 (JCGM WG2)	Paul De Bièvre, Gunnar Nordin (Sweden)
Inter-Agency Meeting (IAM)	Zoltán Mester
EUCHEMS	Slavica Razic and Jan Labuda
African analytical network	Nelson Torto
CITAC	Ilya Kuselman/ Aleš Fajgelj

IV. Tabular material. *This should include a list of publications.* It might also include a list or summary of conferences and symposia organized by the Division or its component bodies. It should include a list of all current Division projects. Again, this part is open-ended.

Articles in Chemistry International

D. Brynn Hibbert

Twitter in Chemical Education, and IUPAC
2015, Vol. 37, Issue 3, p. 10–11

Marcus Altmaier
Solubility Phenomena and Related Equilibrium Processes
2015, Vol. 37, Issue 2, pp. 30-31

David Shaw
100 volumes of IUPAC's Solubility Data Series
2015, Vol. 37, Issue 1, p. 30

Kipton J. Powell, Paul L. Brown, Robert H. Byrne, Tamás Gajda, Glenn Hefter, Ann-Kathrin Leuz, Staffan Sjöberg and Hans Wanner
Chemical Speciation of Environmentally Significant Metals
2015, Vol.37, Issue 1, pp. 15-19

William E. Acree
Solubility of Nonsteroidal Anti-inflammatory Drugs (NSAIDs) in Neat Organic Solvents and Organic Solvent Mixtures
2014, Vol. 36, Issue 5, p. 21

Tomasz Mioduski, Cezary Gumiński and Dewen Zeng
Rare Earth Metal Fluorides in Water and Aqueous Systems
2014, Vol. 36, Issue 4, p. 20

Marian Góral, David G. Shaw, Andrzej Maczyński, Barbara Wiśniewska-Goćłowska, and Paweł Oracz
Alcohols + hydrocarbons + water
2014, Vol. 36, Issue 4, p. 18

Paul De Bièvre
Metrological Traceability of Measurement Results in Chemistry: basic concepts required for intercontinental communication of results
2014, Vol. 36, Issue 4, pp. 16–17

Paul De Bièvre
Chemistry Conference for Young Scientists
2014, Vol. 36, Issue 4, p. 32

Analytical Chemistry (13-15 January 2015, Tel Aviv, Israel)
2014, Vol. 36, Issue 4, p. 34

Maria F. Camões
pH Measurement in Seawater
2014, Vol. 36, Issue 3, p. 13

Solubility Phenomena
2014, Vol.36, Issue 2, p. 33

Roberto Marquardt
On the New Definition of the Mole
2013, Vol. 35, Issue 6, p. 29

Dewen Zeng
Solubility Phenomena
2013, Vol. 35, Issue 3, pp.32-33

IUPAC Recommendations and Technical Reports published in Pure and Applied Chemistry

Kipton J. Powell, Paul L. Brown, Robert H. Byrne, Tamás Gajda, Glenn Hefter, Ann-Kathrin Leuz, Staffan Sjöberg and Hans Wanner

Chemical speciation of environmentally significant metals with inorganic ligands. Part 5: The $Zn^{2+} + OH^{-}$, Cl^{-} , CO_3^{2-} , SO_4^{2-} , and PO_4^{3-} systems (IUPAC Technical Report)
2013, Vol. 85, Issue 12, pp. 2249-2311

Ute Resch-Genger and Knut Rurack

Determination of the photoluminescence quantum yield of dilute dye solutions (IUPAC Technical Report)
2013, Vol. 85, Issue 10, pp. 2005-2013

Kermit K. Murray, Robert K. Boyd, Marcos N. Eberlin, G. John Langley, Liang Li and Yasuhide Naito

Definitions of terms relating to mass spectrometry (IUPAC Recommendations 2013)
2013, Vol. 85, Issue 7, pp. 1515-1609

Jörg Enderlein

Fluorescence correlation spectroscopy (IUPAC Technical Report)
2013, Vol. 85, Issue 5, pp. 999-1016

Reşat Apak, Shela Gorinstein, Volker Böhm, Karen M. Schaich, Mustafa Özyürek and Kubilay Güçlü

Methods of measurement and evaluation of natural antioxidant capacity/activity (IUPAC Technical Report)
2013, Vol. 85, Issue 5, pp. 957-998

Antonio Doménech-Carbó, Jan Labuda and Fritz Scholz

Electroanalytical chemistry for the analysis of solids: Characterization and classification (IUPAC Technical Report)
2013, Vol. 85, Issue 3, pp. 609-631

Marcel Ameloot, Martin vandeVen, A. Ulises Acuña and Bernard Valeur

Fluorescence anisotropy measurements in solution: Methods and reference materials (IUPAC Technical Report)
2013, Vol. 85, Issue 3, pp. 589-608

International Workshop on Determining Antioxidants as Reactive Species Scavengers, Istanbul, 27 to 28 October, 2014

The workshop was organized jointly by the Istanbul University and the Analytical Chemistry Division of IUPAC with Prof. Dr. Reşat Apak (Istanbul University).

Workshop on Human Errors and Out-of-Specification Test Results,

organized by Prof. Ilya Kuselman as part of projects, 2012-021-1-500 and 2014-027-1-500 and as part of the conference Isranalytica 2013 and 2015.

Running projects

According to the document **Final Project Report by 31 Dec 2015**, the Division has 32 running projects with 4 special projects, including those of the Subcommittee on Solubility and Equilibrium Data, the Interdivisional Working Party for Harmonization of Quality Assurance and interdivisional projects. **The division focuses its human and financial resources on the updating of the Orange Book**, some chapters are backed by special projects. The division feels that the projects are running reasonably well.

New project under the consideration:

2015- 020_Leito: Critical compilation of acid pKa values in polar aprotic solvents

2015-051_Voigt: Solubility of Alkaline Earth Metal Chlorides in Water

2015-044_Bendova: Critical evaluation of data on solubility and liquid-liquid equilibria in binary mixtures of (1-alkyl-3-methylimidazolium based ionic liquid and molecular solvent)

2016-003_Atanassova Petrova: Critical evaluation of equilibrium constants of 4f-metal mixed complexes with acidic chelate and organophosphorus O-donor ligands

2016-004_Filella: Solubility in energy and waste issues of emerging concern

2015-005_D. Kirk Nordstrom: Calcium sulfate in water