

**PROTOCOL**  
**of the meeting of the COOMET Technical Committee 1.8 “Physics-Chemistry”**

**REPORT ON ACTIVITIES**  
**from June 2018 to May 2019**  
**WORK PROGRAMME**  
**for June 2019 to May 2020**

**May 22 – 23, 2019**

Meeting of the COOMET Technical Committee 1.8 “Physics-Chemistry” was held in D.I. Mendeleev Institute for Metrology (St. Petersburg, Russia) on May 22—23, 2019.

List of participants

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The meeting was held in accordance with the Work Programme of Technical Committee 1.8 “Physics-Chemistry”, approved by its participants.

### **I. In the course of work of the Technical Committee 1.8 “Physics-Chemistry”:**

1. The Chairman of TC 1.8 “Physics-Chemistry” Leonid A. Konopelko greeted the participants of the meeting.
2. Results of the TC 1.8 work in the period from June 2018 to May 2019 were discussed, including works on the current topics of COOMET comparisons.

#### *VNIIM as the Coordinator:*

- COOMET Project 622/RU/13 (COOMET.QM-S4.2015): Key Comparison “Measurement of C<sub>3</sub>-C<sub>5</sub> content in liquefied hydrocarbons mixtures”. Participants: VNIIM, Belgim, Ukrmetrteststandart. Draft A is prepared.
- COOMET Project 611/RU/13: Pilot comparison “Melamine in milk”. Participants: VNIIM, Ukrmetrteststandart. Draft A is prepared.
- COOMET Project 654/RU/14: Pilot comparison “Cholesterol in human serum”. Participants: VNIIM, VNIIOFI, Center for Standardization and Metrology of the Ministry of Economy of

the Kyrgyz Republic. Draft A is prepared.

- COOMET Project 691/RU/16: Pilot comparison “Determination of polychlorinated dibenzo-p-dioxins and dibenzofurans in fat matrices (pork fat)”. Participants: VNIIM, BVL (Germany), other laboratories. Final report is prepared.
- COOMET 708/RU/16: Pilot comparison “Purity of anthracene (100% minus impurities)”. Participants: VNIIM, UNIIM. Draft B is prepared.
- COOMET Project 772/RU/18: Key Comparison “CO<sub>2</sub> on atmospheric level”. Participants: BelGIM, Ukrmetrteststandart, KazInMetr, HSA (Singapore). Preparation of the samples for comparison.
- COOMET Project 775/RU/19: Pilot comparisons to determine the electrical conductivity of potassium chloride solutions of 25 Cm/m and 10 μm/cm. Participants: UNIIM, GEOSTM, BelGIM, NIM (Moldova), KazInMetr, OOO «Sibprompribor-Analit». Preparation of the samples for comparison.

*NIM of China/VNIIM as the Coordinators:*

COOMET Project XXX/RU/19: Pilot bilateral comparison “Measurement of water content in crude oil”. Participants: NIM and VNIIM. Preparation of the samples for comparison.

*UNIIM as the Coordinator:*

- COOMET Project 672/RU/14: Pilot comparison in the field of measuring the mass fraction of Fe in high purity iron. Participants: UNIIM, Ukrmetrteststandart, VNIIOFI, BelGIM. Final report is prepared.
- COOMET Project 650/RU/14: Pilot comparison in the field of measuring the mass fraction of metals (Cu, Zn, Pb, Al, Ca, Sb, Mg, Au, Ag, As, Ni) smelter slag (Part II). Participants: UNIIM, VNIIOFI, BelGIM, Ukrmetrteststandart, KazInMetr». Final report is prepared.
- COOMET Project 696/RU/16: Pilot comparison in the field of measuring of mass fraction of Au and Ag in gold ore using high-precision methods: inductively coupled plasma mass spectrometry, inductively coupled plasma-atomic emission, etc. Participants: UNIIM, BelGIM, CGL (Mongolia). Final report is prepared.
- COOMET Project 755/RU/18: Pilot comparison in the field of measuring the porosity of aluminum oxide by method of mercury porosimetry. Participants: UNIIM, BAM (Germany). Draft A is prepared.
- COOMET Project 754/RU/18: Pilot comparison in the field of measuring porosity and gas permeability of geological materials. Participants: UNIIM and other laboratories. Measurements are ongoing.
- COOMET Project 756/RU/18: Pilot comparison in the field of measuring mass fraction of oxygen and nitrogen in steel. Participants: UNIIM, BAM (Germany). Measurements are ongoing.
- COOMET Project XXX/RU/19: Pilot bilateral comparison “Measurement of water content in crude oil”. Participants: NIM and VNIIM. Preparation of the samples for comparison.

*VNIIFTRI as the Coordinator:*

- COOMET Project 655/RU/15: Pilot comparison on measuring pH of phosphate buffer (pH~7.0). Participants: VNIIFTRI, PTB, TUBITAK, GEOSTM, KazInMetr, BelGIM, VNIIM, NIM (Moldova), Center for Standardization and Metrology of the Ministry of Economy of the Kyrgyz Republic, UNIIM. Final report is prepared.

*VNIIOFI as the Coordinator:*

- COOMET Project 618/RU/13: Pilot comparison in the field of composition of nickel-based alloys. Participants: UNIIM, BELGIM, UNIIM. Draft A is prepared.

3. The following reports were made:

- Deputy Chairman of TC 1.8 Yu.A. Kustikov on participation in the Plenary meeting of the Consultative Committee for Amount of Substance (CCQM),
- M.V. Belyakov on participation in the CCQM Working Group on Inorganic and Organic Analysis,
- E.V. Kulyabina on participation in the CCQM Working Group on Protein Analysis,
- O.V. Efremova on participation in the CCQM Working Group on key Comparisons and Measuring Capabilities and in the Working Group on Gas Analysis;
- Y.K. Chubchenko on participation in the CCQM Working Group on Isotope Analysis,
- M.S. Vonskiy on participation in the CCQM Working Groups on Cell Analysis and Nucleic Acids Analysis.
- S.V. Prokunin on participation in the CCQM Working Group on Electrochemical Analysis,
- M.V. Okrepilov (VNIIM) on results of the 17th Meeting of the COOMET Joint Committee on Measuring Standards and 29th Meeting of the COOMET Committee (April 2–4, 2019, Dresden),
- Chairman of TC 1.12 “Standard Materials” S.V. Medvedevskikh (UNIIM);
- Chairman of TC 1.8/SC 1 “Electrochemistry” V.I. Dobrovolskiy (VNIIFTRI) on activities and proposals for new works,
- Chairman of TC 1.8/SC 3 “Pure inorganic substances” E.P. Sobina on activities and proposals for new works,
- A.M. Smirnov on the status of Key Comparison on determination of electrical conductivity of potassium chloride solutions of 25 Cm/m and 10  $\mu\text{m}/\text{cm}$  (Project 775/RU/19),
- NIM Representative (China) Wang Haifeng on the status of bilateral comparison “Measurement of water content in crude oil” (VNIIM – NIM).

4. Reports of the TC 1.8 Participants from Ukraine, Belarus, Moldova, Kazakhstan, Kyrgyzstan, and Uzbekistan were discussed.

**II. Following the discussion of the reports, participants of the Meeting of COOMET Technical Committee 1.8 “Physics-Chemistry” have decided:**

1. to approve activities of COOMET TC 1.8 “Physics-Chemistry” during the reporting period and results of works in June 2018 – May 2019,
2. to approve activities of TC 1.8/SC 1 “Electrochemistry” during the reporting period,
3. to approve activities of TC 1.8/SC 3 “Pure inorganic substances” during the reporting period,
4. to approve activities of TC 1.8/ SC 2 “Metals and alloys” during the reporting period,
5. to note the great importance of genetic technologies and reference materials development to ensure the traceability of bio analytical measurements,
6. to continue works on the current COOMET topics,

7. to approve the following suggestions:

to transfer the date of reference materials distribution for the following comparisons in 2020:

- xxx/RU/20: Key comparison “Natural gas”, Coordinator: VNIIM, participants: BelGIM, KazInMetr, Ukrmetrteststandart, etc.,
- xxx/RU/20: Supplementary comparison “Ethanol in aqueous solution, 1.2 mg/cm<sup>3</sup>”; Coordinator: VNIIM, participants interested in the comparison: NIM of Moldova,
- xxx/RU/20: Pilot comparison “Ethanol in aqueous solution, mass fraction 40%”; Coordinator: VNIIM; participants interested in the comparison: NIM of Moldova,

to establish new COOMET topics:

- xxx/RU/19: Pilot comparison in the field of pX measurements of sodium ions activity, pNa ~ 1.1; Coordinator: VNIIFTRI,
- xxx/RU/19: Key comparison in the field of pH measurements of buffer solution (pH ~ 1,65). Coordinator: VNIIFTRI; participants interested in the comparison: NIM of Moldova, KazInMetr,
- xxx/RU/19: Pilot comparison in the field of determining biochemical parameters in urine samples. Coordinator: VNIIM,
- xxx/RU/18: Pilot comparison on quantitative determination of human DNA. Coordinator: VNIIM;
- xxx/RU/19: Pilot comparison in the field of measuring water content and protein in grain. Coordinator: VNIIM, participants interested in the comparison: BelGIM, GP “Ukrmetrteststandart”, GP “Odessastandartmetrologia”, Zernoprodukt (Ukraine), KazInMetr, etc.,
- xxx/RU/19: Pilot bilateral comparison “Measurement of sulfur content in crude oil”. Coordinator: VNIIM, participants interested in the comparison: NIM (China).

Participants interested in taking part in those comparisons must send a confirmation to the Coordinators and the Chairman of COOMET TC 1.8 no later than August 31, 2019.

Coordinators must prepare and register COOMET topics no later than December 15, 2019.

8. To schedule the next Meeting of COOMET Technical Committee 1.8 “Physics-Chemistry” in May 2019 at VNIIM (St. Petersburg).

TC 1.8 participants were given the following documents:

- TC 1.8 “Physics-Chemistry” Work Programme
- Draft Protocol of the Meeting of COOMET Technical Committee 1.8 “Physics-Chemistry”

Chairman  
COOMET TC 1.8 “Physics-Chemistry”

Leonid A. Konopelko

**Annex to protocol of the meeting of the COOMET Technical Committee 1.8  
"Physics-Chemistry", 22 -23 may, 2019**

**Agreement of the structure of TC 1.8 "Physics-chemistry" COOMET  
for the period up to 2024**

The Chairman of TC 1.8 "Physics-chemistry" COOMET - Konopelko L. A.

Deputy Chairman of TC 1.8 –Y.A, Kustikov (Deputy Director for international work, VNIIM)

Deputy Chairman of TC 1.8 on the implementation and application of ISO 17034:2016 and ISO/IEC 17025:2017 in the part of evaluation of quality management systems of National Metrological Institutes and Designated Institutes – Okrepilov M.V. (Deputy Director on quality system and educational activities, VNIIM)

Chairs of sub-committees:

TC1.8/SC1 "Electrochemistry" – V. I. Dobrovolsky (Head of the Research Department of physico-chemical and electrical measurements, (NIO-6), VNIIFTRI);

TC1.8/SC2 "Metals and alloys" - Muravskaya N. P. (Head of the State Testing Center, Head of Quality Service, VNIIOFI);

TC1.8/SC3 "Pure inorganic substances" - E. P. Sobina (Deputy Director for Innovations, UNIIM)

TC1.8/SC4 "Gas analysis" – Kolobova A.V. (Deputy Head of the Research Department of State Standards in the field of physical and chemical measurements, VNIIM)

TC1.8/SC5 "Organic and inorganic analysis" – Krylov A.I. (Head of the Research Department of State Standards in the field of organic and inorganic analysis. Analytical center "Arbitrage", VNIIM)

TC 1.8/SC6 "Bioanalysis – Vonsky M. S. (Senior Researcher of the Research Department of State Standards and Reference Materials in the field of electrochemical and medical measurements, VNIIM).