

International Association for the Properties of Water and Steam Russian National Committee (RNC)

Report Second Half-Year of 2015- First Half-Year of 2016

- RNC active participation in organization of next seminars for engineers and technology specialist from Russian power engineering companies:
 1. Cycle chemistry at power plants;
 2. Today technologies for cycle chemistry monitoring systems;
 3. Today experience of water treatment systems operation;
 4. Water treatment and cycle chemistry for combine cycle power plants.
- Three meetings of RNC have been held. Current problems are investigated.

Publications list

1. Akinfiev, N.N., Plyasunov, A.V., Pokrovski, G.S. An equation of state for predicting the thermodynamic properties and vapour-liquid partitioning of aqueous $\text{Ge}(\text{OH})_4$ in a wide range of water densities. *Fluid Phase Equilibria*. Volume 392, 25 April 2015, Pages 74–83
2. Akinfiev, N.N., Zotov, A.V. Solubility of chlorargyrite ($\text{AgCl}(\text{cr./l.})$) in water: New experimental data and a predictive model valid for a wide range of temperatures (273-873 K) and water densities ($0.01\text{-g}\cdot\text{cm}^{-3}$) *Geochimica et Cosmochimica Acta*. *Geochimica et Cosmochimica Acta* 178 · February 2016
3. Akinfiev, N.N., Majer, V., Shvarov, Y.V. Thermodynamic description of $\text{H}_2\text{S}\text{-H}_2\text{O}\text{-NaCl}$ solutions at temperatures to 573 K and pressures to 40 MPa. *Chemical Geology*. Volume 424, 10 April 2016, Pages 1–11
4. Prokof'ev, V.Y., Akinfiev, N.N., Selektor, S.L. Gas mixing with aqueous solution in the ore-forming hydrothermal process: an example of gold. *Geochemistry International* (2016) 54: 403.
5. Petrova, T.I., Dyachenko, F.V., Bogatyreva, Y.V., Borodastov, A.K., Ershova, I.S. Effect of polyamine reagents on exchange capacity in ion exchangers. *Thermal Engineering*. 2016, Vol. 63, No. 5, pp. 379–383.
6. K.V. Gorin, Y.E. Sergeeva, V.V. Butylin, A.V. Komova, V.M. Pojidaev, G.U. Badranova, A.A. Shapovalova, I.A. Konova, P.M. Gotovtsev. Methods coagulation/flocculation and flocculation with ballast agent for effective harvesting of microalgae. *Bioresource Technology* 193 (2015) 178-184.
7. V.M. Pozhidaev, Ya.E. Sergeeva, K.V. Gorin, G.U. Badranova, P.M. Gotovtsev, A.V. Borgolov, R.G. Vasilov. Gas-Chromatographic Determination of the Degree of Conversion of Microbiological Synthesis Products into Biodiesel *Journal of Analytical Chemistry*, 2016, Vol. 71, No. 6, pp. 624–629
8. G.U. Badranova, P.M. Gotovtsev, Y.V. Zubavichus, I.A. Staroselskiy, A.L. Vasiliev, I.N. Trunkin, M.V. Fedorov. Biopolymer-based hydrogels for encapsulation of photocatalytic TiO_2 nanoparticles prepared by the freezing/thawing method. *Journal of Molecular Liquids*. 223 (2016) 16 – 20. doi: 10.1016/j.molliq.2016.07.135
9. Sharko, F.S; Shapovalova, A.A; Tsygankova, S.V; Komova, A.V; Boulygina, E.S; Teslyuk, A.B; Gotovtsev, P.M; Namsaraev, Z.B; Khijniak, T.V; Nedoluzhko, A.V; Vasilov, R.G. Draft Genome Sequence of "*Halomonas chromatireducens*" Strain AGD 8-3, a-Haloalkaliphilic Chromate- and Selenite-Reducing Gammaproteobacterium. *Genome announcements*. 2016 Vol. 4 №:2 DOI:10.1128/genomeA.00160-16

10. Ustyuzhanin, E.E., Ochkov, V.F., Shishakov, V.V., Rykov, A.V. Extrapolation of IAPWS-IF97 data: The saturation pressure of H₂O in the critical region. *Journal of Physics: Conference Series* 653 (2015) 012109
11. Ochkov, V.F., Ustyuzhanin, E.E., Ko, C.K., Shishakov, V.V. Thermophysical databases: From tables to interactive internet resources and cloud templates *High Temperature*. (2015) 53: 515.
12. Ochkov, V.F., Orlov, K.A., Aleksandrov, A.A., Ochkov, A.V. Properties of water and steam: Network, open, and interactive IT-resources. *Thermal Engineering (English translation of Teploenergetika)* (2015) 62: 378.
13. Egoshina, O.V., Voronov, V.N., Makarishcheva, N.A., Latt, A.M., Rogov, A.S. Experimental investigation of dynamic properties of chemical control analyzers. *Thermal Engineering (English translation of Teploenergetika)* (2015) 62: 370.
14. Kondrateva, M.A., Lobanova, O.N., Orlov, K.A., Panteleev, A.A., Khoruzhiy, O.V. Use of membrane technology for producing electrical energy. *Thermal Engineering (English translation of Teploenergetika)* (2015) 62: 678.
15. Hans-Joachim Kretzschmar, Rainer Feistel, Wolfgang Wagner, Kiyoshi Miyagawa, Allan H. Harvey, Jeff R. Cooper, Michael Hiegemann, Francisco L. Blangetti, Konstantin A. Orlov, Ingo Weber, Anurag Singh, and Sebastian Herrmann. The IAPWS industrial formulation for the thermodynamic properties of seawater *Desalination and Water Treatment Vol. 55 , Iss. 5, 2015*
16. *Thermal Engineering Studies with Excel, Mathcad and Internet*. Authors: Ochkov, Valery, Orlov, Konstantin, Voloshchuk, Volodymyr. Editor: Rogalev, Nikolay (Ed.). Springer, 2016
17. Voronov V.N., Egoshina O.V., Yarovoy V.O., Bolshakova N.A., Latt A.M. Application of cycle chemistry monitoring for improvement of cycle chemistry at modern power plants. *Power Engineer*. 2016 (2) 41-44 (*Russian*)
18. Egoshina O.V., Latt A.M., Nazarenko M.P., Tabakov I.A., Shumilov Yu.L. Experience in application of automated sample preparation system in chemistry control system. *Power Engineer*. 2015 (7) 48-52 (*Russian*)
19. Namsaraev Z.B., Gotovtsev P.M., Komova A.V., Borgolov A.V., Sergeeva Ya.E., Vasilov R.G. Russian Federation resource base for heat and energy production from biomass. *Ovchinnikov bulletin of biotechnology and physical and chemical biology* 2015 (11) №4, 41-46 (*Russian*)
20. Ochkov, V.F., Orlov, K.A., Dorohov E.V., Lavigin V.M. Thermal technique: computations with measuring units. *Bulletin of Ivanovo Power Engineering Institute*. 2016 (1) 10-18 (*Russian*)
21. Ochkov, V.F., Orlov, K.A., Ochkov, A.V., Ilina I.P. Thermal technique computations with water and steam properties “cloud” functions. *Powerplants*. 2015 (7) 21-26 (*Russian*)
22. A.N. Reshetilov, A.E. Kitova, P.M. Gotovtsev, R.G. Vasilov and M.A. Gutorov. Converter-based accumulation of electric energy generated by a microwatt microbial fuel cell. *Euroanalysis XVII*. 6-10 September 2015 - Bourdeaux, France
23. Ustyuzhanin E.E., Ochkov V.F., Shishakov V.V., Rykov A.V. Extrapolation of IAPWS-IF97 data: The saturation pressure of H₂O in the critical region // XXX International Conference on Interaction of Intense Energy Fluxes with Matter. March 1-6, 2015, Elbrus, Kabardino-Balkaria, Russia
24. Ochkov V. New generation of computer-aided tools for thermal calculation // *Proceedings of the conference “Power System Engineering, Thermodynamics and Fluid Flow”*. 9-10 June 2016. Pilsen. Czech Republic

25. G.U. Badranova, I.A. Staroselsky, N.A. Pronina, P.M. Gotovtsev. Synthesis and investigation of polymer hydrogels with integrated TiO₂ nanoparticles. Synchrotron and neutron researches – SynNANO 2015. P. 17-18 (*Russian*)
26. Borgolov A.V., Gotovtsev P.M., Vasilov R.G. Development of biodiesel production technology in flow bioreactor with immobilization of yeast cells on polyakrilamide. V International conference “Marine and food biotechnology” Kaliningrad 2016 p. 16-18. (*Russian*)