Website: a New Tool for Experts in the Development of the International Thermodynamic Databases

I.L. Khodakovsky[C, S]
Chemistry, Geochemistry and Cosmochemistry Department, Dubna International University for Nature, Society and Man, Dubna, Moscow, Russia
igor-kho@yandex.ru

At present reliability and validity of the best thermodynamic data selection for chemical systems do not correspond to up-to-date experimental and theoretical studies of chemical thermodynamics. This is mainly due both to a wealth of those data and to labor consuming consistency procedure (global and local as well). The use of the modern-day information technologies developed in Internet could considerably improve this matter and raise the efficiency of expert work could be made. In this connection, a start has been made on the development of the website "Thermodynamics of natural processes" (www.tnpdata.ru) in 2004 by the "DiaNIK" scientific group at «Dubna» University.

This site maybe considered as the prototype of site which could permit in future to join forces of highly skilled experts on chemical thermodynamics from different countries in order to perform successfully their work. These experts should be the next possibilities:

1. Carry out comfortable and quick search of different thermodynamic information for chemical system of expert interest;
2. A free access to continually renovated bibliographic information for as much as possible number experimentally studied of the chemical systems;
3. To make the comparisons of the recommended values of the thermodynamic properties for the individual substances and aqueous species in the fundamental handbooks;
4. To be informed with the results of the critical evaluations, reliability and consistency of thermodynamic data, carry into in the frameworks of the international and national projects.
5. To make independently the data compilation, analysis and the best values selection for individual substances and chemical reactions, as well as for distinct types of the chemical systems phase diagrams consistent with those values.
6. Using different computer packages to make the consistency procedure: for the individual substance, binary aqueous solution and the individual chemical reaction as well ("local consistency"); for the chemical systems, containing a set of substances (including aqueous species) and reactions ("global consistency").
7. Using different computer packages to calculate the phase and the chemical compositions of the homogeneous and heterogeneous chemical systems of the arbitrary complexity.

The decision of some from the above-mentioned tasks to realized on the website (www.tnpdata.ru) for chemical systems containing radionuclides and toxic elements: Me_pO_q –H_2O and Me-C-N-P- H_2O (Me = U, Th, Pu, Np, Se, As, Pb, Zn, Cd, Hg, Cu, Be).

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