

THERMOCHEMICAL PROPERTIES OF ALKALINE SALTS OF 2,4,6-TRINITROPHLOROGLUCINOL

T. S. Kon'kova, Yu. N. Matyushin, E. A. Miroshnichenko, and A. B. Vorob'ev

N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation

Abstract: Thermochemical properties of trinitrophenol and its alkaline salts — potassium and caesium — have been investigated. Complex use of combustion and dissolution calorimetry methods enables not only to define the basic thermochemical parameters of combustion and formation enthalpies of salts but also to find enthalpies of formation of ions in infinitely diluted aqueous solutions. Besides, these investigations allow improvement of the reliability assessment of calorimetric values by obtaining mutually consistent values of these characteristics.

Keywords: enthalpy of combustion; enthalpy of dissolution; formation enthalpy; ions; infinitely diluted solutions; trinitrophenol

References

1. Inozemtsev, J. O., A. B. Vorob'ev, A. V. Inozemtsev, and Yu. N. Matyushin. 2014. Kalorimetriya energoemkikh soedineniy [Calorimetry of energetic compounds]. *Goren. Vzryv (Mosk.) — Combustion and Explosion* 7:260–270.
2. Cox, J. D., D. D. Wagman, and V. A. Medvedev, eds. 1989. CODATA key values for thermodynamics. New York – Washington – Philadelphia – London: CODATA Task Group on Key Values for Thermodynamics. Final Report.
3. Matyushin, Yu. N., T. C. Kon'kova, and E. A. Miroshnichenko. 2011. Entalpii obrazovaniya ionov perekhodnykh metallov s organicheskimi ligandami [Enthalpies of formation of complex ions of transition metals with organic ligands]. *Goren. Vzryv (Mosk.) — Combustion and Explosion* 4:289–293.
4. Parker, V. B. 1965. Thermal properties of uni-univalent electrolytes. *Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.)* 2:66.
5. Kilday, M. V. 1980. Systematic errors in an isoperibol solution calorimeter measured with standard reference reactions. *J. Res. Nat. Bur. Stand.* 85(6):448–465.
6. Scuratov, C. M., V. P. Kolesov, and A. F. Vorob'ev. 1966. Termokhimiya [Thermochemistry]. Moscow: MGU. 201 p.
7. Matyushin, Yu. N., and T. C. Kon'kova. 2014. Metod otsenki termokhimicheskikh svoystv soedineniy soleyoy struktury [A method for evaluating thermochemical properties of salt compounds]. *Goren. Vzryv (Mosk.) — Combustion and Explosion* 7:277–287.

Received November 17, 2015

Contributors

Kon'kova Tatiana S. (b. 1941) — Doctor of Science in chemistry, chief research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; taskon@mail.ru

Matyushin Yury N. (b. 1940) — Doctor of Science in technology, head of laboratory, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; professor, National Research Nuclear University MEPhI, 31 Kashirskoe Sh., Moscow 115409, Russian Federation; ynm@polymer.chph.ras.ru

Miroshnichenko Eugeny A. (b. 1938) — Doctor of Science in chemistry, chief research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; eamir02@mail.ru

Vorob'ev Alexey B. (b. 1946) — Candidate of Science in chemistry, senior research scientist, N. N. Semenov Institute of Chemical Physics, Russian Academy of Sciences, 4 Kosygin Str., Moscow 119991, Russian Federation; vectr1@yandex.ru