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Authors: Ruslan N. Nagrimanov, Aizat A. Samatov, Aleksey V. Buzyurov, Andrey G. Kurshev, Marat A. Ziganshin, Dzmityr H. Zaitsau, Boris N. Solomonov



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Thermochemical properties of mono- and di-cyano-aromatic compounds at 298.15**K**

Ruslan N. Nagrimanov^{a1}, Aizat A. Samatov^a, Aleksey V. Buzyurov^a, Andrey G.

Kurshev^a, Marat A. Ziganshin^a, Dzmitry H. Zaitsau^b, Boris N. Solomonov^a

^a *Department of Physical Chemistry, Kazan Federal University, Kremlevskaya str. 18, 420008*

Kazan, Russia

^b *Department of Physical Chemistry, University of Rostock, Dr-Lorenz-Weg 2, 18059 Rostock,*

Germany

¹To whom correspondence should be addressed, E-mail: Rnagrimanov@gmail.com (R.N. Nagrimanov)

Highlights

- The new approach of the condensed state enthalpy of formation is proposed and tested.
- Sublimation enthalpies of six CN-aromatic compounds were determined by solution calorimetry.
- Phase transitions enthalpies of CN-naphthalenes were measured by transpiration method.
- Obtained data are in good agreement with the results of the direct experiments.

Abstract

The solution calorimetry approach was applied for the determination of the sublimation enthalpies for cyano-aromatic compounds. According to this approach, the vaporization/sublimation enthalpies were estimated as a difference between solution (cr/l to the solution) and solvation (gas to the solution) enthalpies in acetonitrile as a solvent. The solvation enthalpy of studied compounds was calculated using the previously developed and tested additive scheme. The solution enthalpies of five cyano-aromatic compounds were measured experimentally for the first time by using solution calorimeter.

The new approach of the condensed state enthalpy of formation by using first principles calculations and solution calorimetry technique is proposed. In most cases obtained results are in good agreement with literature values.

Apparatus for determination of vapor pressure by using the transpiration method was developed. The experimental setup was tested by measuring the vapor pressure of pure

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