

Accepted Manuscript

An experimental investigation of n-hexane at high temperature and pressure

Erwei Qiao, Haifei Zheng



PII: S1386-1425(18)30492-X
DOI: doi:[10.1016/j.saa.2018.05.093](https://doi.org/10.1016/j.saa.2018.05.093)
Reference: SAA 16127

To appear in: *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*

Received date: 2 March 2018
Revised date: 24 May 2018
Accepted date: 27 May 2018

Please cite this article as: Erwei Qiao, Haifei Zheng , An experimental investigation of n-hexane at high temperature and pressure. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*(2017), doi:[10.1016/j.saa.2018.05.093](https://doi.org/10.1016/j.saa.2018.05.093)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

An experimental investigation of *n*-hexane at high temperature and pressure

Erwei Qiao ^{a,*}, and Haifei Zheng ^b

^aKey Laboratory of Neotectonic Movement and Geohazard, Ministry of Land and Resources,
Institute of Geomechanics, Chinese Academy of Geological Sciences, Beijing 100081, China

^bLaboratory of Orogenic Belts and Crustal Evolution, Ministry of Education, School of Earth and Space
Sciences, Peking University, Beijing, 100871, China

Abstract At present, no high temperature experiments on phase change are reported. In this study, we have measured the Raman bands $\nu_s(\text{CH}_3)$, $\nu_s(\text{CH}_2)$, $\nu_{as}(\text{CH}_3)$, and $\nu_{as}(\text{CH}_2)$ of *n*-hexane in a hydrothermal diamond cell up to 588 K. We determined that the liquid–solid phase transition pressure of *n*-hexane is 1.17 GPa, and we also gave a number of high temperatures and pressures data on phase change which are not reported previously. In addition, we defined the solidus of *n*-hexane which can be represented by the equation $P = 8.581T - 1550.16$, and the relation $dP/dT = 8.581$ which can be used to calculate the thermodynamic parameters for *n*-hexane in the liquid–solid phase transition. For all we know, the above two equations are presented here for the first time. Furthermore, it is the first report here in a graphic way on high-temperature phase change in *n*-hexane, and it is also the first to be shown in the 3-D figure.

Keywords *n*-Hexane; Phase diagram; High temperature; Thermodynamic parameter; Hydrothermal diamond anvil cell; Raman spectroscopy

* Corresponding author. Tel.: +86 10 88815638.
E-mail address: qewzq@163.com (E. Qiao).

Download English Version:

<https://daneshyari.com/en/article/7667943>

Download Persian Version:

<https://daneshyari.com/article/7667943>

[Daneshyari.com](https://daneshyari.com)