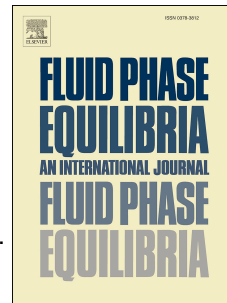


Accepted Manuscript

Measurements of the thermal conductivity of ethene in the supercritical region

B. Le Neindre, G. Lombardi, P.H. Desmarest, M. Kayser, Z.I. Zaripov, F. Gumerov, Y. Garrabos



PII: S0378-3812(17)30436-3

DOI: [10.1016/j.fluid.2017.11.013](https://doi.org/10.1016/j.fluid.2017.11.013)

Reference: FLUID 11648

To appear in: *Fluid Phase Equilibria*

Received Date: 26 September 2017

Revised Date: 5 November 2017

Accepted Date: 7 November 2017

Please cite this article as: B. Le Neindre, G. Lombardi, P.H. Desmarest, M. Kayser, Z.I. Zaripov, F. Gumerov, Y. Garrabos, Measurements of the thermal conductivity of ethene in the supercritical region, *Fluid Phase Equilibria* (2017), doi: 10.1016/j.fluid.2017.11.013.

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.

Measurements of the Thermal Conductivity of Ethene in the Supercritical Region.

B. Le Neindre^{1,*}, G. Lombardi¹, Ph. Desmarest¹, M. Kayser¹, Z.I. Zaripov², F. Gumerov², Y. Garrabos³.

¹ Université Paris 13, Sorbonne Paris Cité, Laboratoire des Sciences des Procédés et des Matériaux, CNRS, (UPR 3407), F-93430, Villetaneuse, France

² Kazan National Research Technological University, 68 K. Marx Street, Kazan, 420015 Tatarstan, Russia.

³ ICMCB-CNRS UPR 9048, Université Bordeaux, 87 Av du Dr A. Schweitzer, F 33608 Pessac Cedex France

ABSTRACT

Measurements of the thermal conductivity of ethene performed for the first time, in a coaxial cylinder cell, operating in steady state conditions are reported. The measurements of the thermal conductivity of ethene were carried out along eight quasi-isotherms above the critical temperature. The present data cover the temperature range from 283.46 K to 425.00 K, and the pressure range 0.1 to 100 MPa. An analysis of the different sources of error leads to an estimated uncertainty (0.95 level of confidence) of ± 3 %. The parameters of a background equation were determined from experimental data in order to analyze the critical enhancement of the thermal conductivity as a function of temperature and density. Based on the measurement of more than 500 experimental points, a phenomenological equation is provided to describe the thermal conductivity of ethene, from 270 K to 425 K and densities up to 500 kg·m⁻³.

KEYWORDS

Critical phenomena; ethene; thermal conductivity; coaxial cylinder; transport properties.

- Corresponding author. E-mail: bernard.leneindre@lspm.cnrs.fr

Download English Version:

<https://daneshyari.com/en/article/6619336>

Download Persian Version:

<https://daneshyari.com/article/6619336>

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