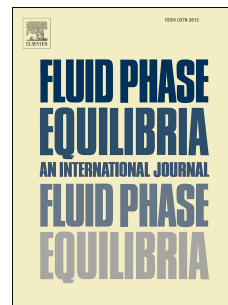


# Accepted Manuscript

Vapor pressures and thermophysical properties of selected ethanolamines

Bruna P. Soares, Vojtěch Štejfa, Olga Ferreira, Simão P. Pinho, Květoslav Růžička, Michal Fulem



PII: S0378-3812(18)30235-8

DOI: [10.1016/j.fluid.2018.05.032](https://doi.org/10.1016/j.fluid.2018.05.032)

Reference: FLUID 11854

To appear in: *Fluid Phase Equilibria*

Received Date: 15 March 2018

Revised Date: 28 May 2018

Accepted Date: 29 May 2018

Please cite this article as: B.P. Soares, Vojtě. Štejfa, O. Ferreira, Simã.P. Pinho, Kvě. Růžička, M. Fulem, Vapor pressures and thermophysical properties of selected ethanolamines, *Fluid Phase Equilibria* (2018), doi: 10.1016/j.fluid.2018.05.032.

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.

# Vapor Pressures and Thermophysical Properties of Selected Ethanolamines

*Bruna P. Soares<sup>1,2</sup>, Vojtěch Štejfa<sup>2</sup>, Olga Ferreira<sup>1,3</sup>, Simão P. Pinho<sup>1,3</sup>, Květoslav  
Růžička<sup>2</sup>, Michal Fulem<sup>2,\*</sup>*

<sup>1</sup>Associate Laboratory LSRE-LCM, Departamento de Tecnologia Química e Biológica, Instituto Politécnico de Bragança, 5300-253 Bragança, Portugal

<sup>2</sup>Department of Physical Chemistry, University of Chemistry and Technology, Prague, Technická 5, CZ-16628, Prague, Czech Republic

<sup>3</sup>Centro de Investigação de Montanha CIMO, Instituto Politécnico de Bragança, Campus de Santa Apolónia, Bragança, Portugal

\*Corresponding author: fulemm@vscht.cz, tel.: +420220444116

## Abstract

A thermodynamic study of three ethanolamines, 2-(diethylamino)ethanol, 2-(ethylamino)ethanol and 2-(isopropylamino)ethanol, reporting the measurements of vapor pressure, liquid phase heat capacities, and phase behavior is presented in this work. The vapor pressures were measured using a static method in the temperature interval 238 to 343 K. After a critical assessment of literature data, selected experimental data were correlated using the Cox equation. The liquid phase heat capacities were measured in the temperature range 265 to 355 K using Tian-Calvet calorimetry and the phase behavior was investigated using differential scanning calorimetry (DSC) starting from 183 K. For 2-(ethylamino)ethanol and 2-(isopropylamino)ethanol, two monotropically related crystalline forms were identified. To our knowledge, vapor pressure and heat capacity for 2-(isopropylamino)ethanol and phase behavior data for 2-(ethylamino)ethanol and 2-(isopropylamino)ethanol are reported for the first time in this work.

**Keywords:** Ethanolamines; Vapor pressure; Heat capacity; Vaporization and sublimation enthalpy; Phase behavior.

Download English Version:

<https://daneshyari.com/en/article/6619084>

Download Persian Version:

<https://daneshyari.com/article/6619084>

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