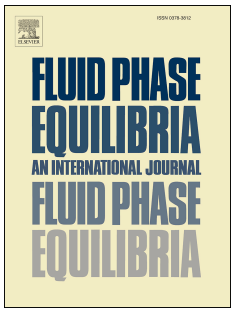

Experimental measurement and thermodynamic modeling of equilibrium condition for natural gas hydrate in MEG aqueous solution

Amir Saberi, Abdolmohammad Alamdari, Alireza Shariati, Amir H. Mohammadi

PII: S0378-3812(17)30472-7

DOI: 10.1016/j.fluid.2017.11.034

Reference: FLUID 11669

To appear in: *Fluid Phase Equilibria*

Received Date: 15 August 2017

Revised Date: 24 November 2017

Accepted Date: 28 November 2017

Please cite this article as: A. Saberi, A. Alamdari, A. Shariati, A.H. Mohammadi, Experimental measurement and thermodynamic modeling of equilibrium condition for natural gas hydrate in MEG aqueous solution, *Fluid Phase Equilibria* (2017), doi: 10.1016/j.fluid.2017.11.034.

Experimental Measurement and Thermodynamic Modeling of Equilibrium Condition for Natural Gas Hydrate in MEG Aqueous Solution

Amir Saberi [1], Abdolmohammad Alamdari [1*], Alireza Shariati [2], Amir H. Mohammadi[3,4,5]

[1] Department of Chemical Engineering, School of Chemical and Petroleum Engineering, Shiraz University, Shiraz, 71346-51154, Iran

[2] Natural Gas Engineering Department, School of Chemical and Petroleum Engineering, Shiraz University, Shiraz, 71346-51154, Iran

[3] Institut de Recherche en Génie Chimique et Pétrolier (IRGCP), Paris Cedex, France

[4] Département de Génie des Mines, de la Métallurgie et des Matériaux, Faculté des Sciences et de Génie, Université Laval, Québec, QC G1V 0A6, Canada

[5] Discipline of Chemical Engineering, School of Engineering, University of KwaZulu-Natal, Howard College Campus, King George V Avenue, Durban 4041, South Africa

* Corresponding author, Tel: +98 7136133712. *Email address*: Alamdari@Shirazu.ac.ir

Abstract - Comprehensive information about the hydrate formation and dissociation conditions is necessary for design and operation of different processes in the petroleum industry. This study investigated the natural gas hydrate equilibrium conditions in the presence of mono ethylene glycol aqueous solution as a widely used thermodynamic hydrate inhibitor in the oil and gas industries. Stepwise heating method was used for the hydrate formation and dissociation tests in a 250 cm^3 stainless steel equilibrium cell. To validate and verify the performance of the apparatus and the method used, methane hydrate equilibrium data were measured and compared to a number of selected experimental data in the literature. This verification showed that both the apparatus and the procedure were accurate. The