

热力学

## 甲烷在常三柴油-四氢呋喃混合溶剂中高压溶解度的测定

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摘要

为了满足富氢气氛下煤直接液化基础数据的需要, 选择常三柴油、四氢呋喃为混合溶剂, 利用自建的循环法气体高压溶解度测定装置, 测定了甲烷在柴油-四氢呋喃中的高压溶解度数据 (273.45~293.75 K, 2.09~7.97 MPa)。利用n-d-M-LP法以及C-G法计算了柴油的平均结构和特性参数, 利用Peng-Robinson状态方程结合两种混合规则回归实验数据, 得到CH<sub>4</sub>-柴油-四氢呋喃的交互参数, 并估算了同条件下的溶解度数据, 结果表明估算值与实验值吻合较好。

关键词 [甲烷](#) [溶解度](#) [汽液平衡](#) [n-d-M-LP法](#) [C-G法](#)

分类号

## Determination of solubility of methane in mixture of atmospheric No.3 diesel oil - tetrahydrofuran under high pressure

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### Abstract

In order to meet the requirement for basic data of coal direct liquefaction in hydrogen-rich gas, the data of the high-pressure solubility of methane in the mixture of atmospheric No.3 diesel oil and tetrahydrofuran at temperature from 273.45 K to 293.75 K and pressure from 2.09 MPa to 7.97 MPa were collected with a self-established apparatus that measured the solubility in the cyclic way. The average structural parameters and characteristic parameters of diesel oil were calculated with the n-d-M-LP method and Constantinou-Gani method. The regression analysis of binary interactive-parameters of methane-diesel-tetrahydrofuran with the Peng-Robinson cubic equation of state combined by two mixing rules was used to estimate the solubility data under the same condition which well agreed with experimental data.

**Key words** [methane](#) [solubility](#) [gas-liquid equilibrium](#) [n-d-M-LP method](#) [Constantinou-Gani method](#)

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