Heat capacity and Joule-Thomson coefficient of selected n-alkanes at 0.1 and 10 MPa in broad temperature ranges

Isobaric heat capacity of six n-alkanes, i.e. n-hexane, n-octane, n-decane, n-dodecane, n-tetradecane and n-hexadecane, was determined with a Calvet type differential heat-flux calorimeter at 0.1 and 10 MPa in a broad temperature range. The measured isobaric heat capacity data were combined with the literature density data for these n-alkanes to determine the corresponding Joule-Thomson coefficients. Four different EoSs, Soave-Redlich-Kwong, Peng-Robinson, Perturbed Chain Statistical Associating Fluid Theory, and Soave-Benedict-Webb-Rubin, were used to model the heat capacities and Joule-Thomson coefficients. Moreover, the Joule-Thomson inversion curves for these n-alkanes were also calculated by the four EoSs.

General information
Publication status: Published
Organisations: Department of Chemistry
Contributors: Regueira Muñiz, T., Varzandeh, F., Stenby, E. H., Yan, W.
Pages: 250-264
Publication date: 2017
Peer-reviewed: Yes

Publication information
Journal: Journal of Chemical Thermodynamics
Volume: 111
ISSN (Print): 0021-9614
Ratings:
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 2.58 SJR 1.067 SNIP 1.111
Web of Science (2017): Impact factor 2.631
Web of Science (2017): Indexed yes
Original language: English
Keywords: n-alkane, Heat capacity, Joule-Thomson coefficient, High pressure, High temperature
Electronic versions:
Heat_capacity_and_Joule_Thomson_coefficient_of_selected_n_alkanes_at_0.1_and_10_MPa_in_broad_temperature_ranges.pdf. Embargo ended: 02/08/2019
DOIs:
10.1016/j.jct.2017.03.034
Source: PublicationPreSubmission
Source ID: 131007722
Research output: Contribution to journal › Journal article – Annual report year: 2017 › Research › peer-review