Journal of Chemical Technology and Metallurgy • Том 58, Выпуск 2, Страницы 353 - 359 • 2023

Тип документа
Статья

Тип источника
Журнал

ISSN
13147471

Смотреть больше

INVESTIGATION OF THE ADSORPTION OF NONPOLAR ADSORBATE MOLECULES ON THE ILLITE SURFACE

Jumaeva, Dilnoza[a] ; Toirov, Olimjon[b, c]; Okhunjanov, Zuhriddin[d]; Raximov, Umidjon[e]; Akhrorova, Rano[a]
Сохранить всех в список авторов

[a] Institute of General and Inorganic Chemistry of the Academy of Sciences Republic of Uzbekistan, Uzbekistan
[b] Department of Electrical Machines Tashkent State Technical University, Tashkent, Uzbekistan
[c] Institute of Energy Problems of the Academy of Sciences, Uzbekistan
[d] Department of Engineering Computer Graphics Fergana Polytechnic Institute, Uzbekistan
Просмотр дополнительных организаций

Опции полного текста Экспорт

Краткое описание
Ключевые слова автора

Краткое описание

The full thermodynamic characteristics of CO2 and CH3OH adsorption on the mineral illite were obtained using the adsorption - calorimetric method. The crystal chemistry of illite was studied using the polar CH3OH molecule and the quadrupole CO2 molecule as a molecular probe. The mechanism of adsorption of these molecules, the conformation of the resulting ion/molecular complexes, and the thermokinetics of adsorption were revealed. The adsorption isotherms are studied and described by their corresponding equations. The molecular mechanism of CO2 and CH3OH adsorption on illite was studied in the entire filling area. It has been established that under the influence of a polar methanol molecule, K+ migrate to the basal and lateral faces of illite, filling vacant holes with six-dimensional CH3OH/K+ complexes of illite, the state of molecules on the surface is close to liquid - like. The process of migration of cations is completely reversible. It was found that the adsorption of a quadrupole CO2 molecule on illite does not lead to the migration of cations. Adsorption proceeds on K+ cations, which occupy the basal one third of the illite surface.

Ключевые слова автора

adsorbate; adsorption; carbon dioxide; illite; isotherm; methanol; thermodynamics

Пристатейные ссылки (16)

Просмотреть в формате результатов поиска

Все
Экспорт Печать Электронная почта Сохранить в PDF Создать библиографию

1 Sung-Ho, P, Garrison, S.
Structure of water adsorbed on mica Surface
(2002) *Phys. Rev. Lett*, 8, p. 89.
1

2 Sposito, G., Prost, R.
Structure of Water Adsorbed on Smectites
(1982) *Chemical Reviews*, 82 (6), pp. 553-573. Цитировано 412 раз.
doi: 10.1021/cr00052a001
View at Publisher

3 Rosenberg, P.E., Kittrick, J.A., Sass, B.M.
Implications of illite/smectite stability diagrams: a discussion.
(1985) *Clays & Clay Minerals*, 33 (6), pp. 561-562. Цитировано 6 раз.
doi: 10.1346/CCMN.1985.0330613
View at Publisher

4 Beaufort, D.
An interstratified illite/smectite mineral from the hydrothermal deposit in Sibert, Rhone, France.
(1984) *Clays & Clay Minerals*, 32 (2), pp. 154-156.
doi: 10.1346/CCMN.1984.0320210
View at Publisher

5 Cathelineau, M.
Cation site occupancy in chlorites and illites as a function of temperature
(1988) *Clay Minerals*, 23 (4), pp. 471-485. Цитировано 773 раз.
doi: 10.1180/claymin.1988.023.4.13
View at Publisher

Цитирования в о документах

Сообщайте мне, когда этот документ будет цитироваться в Scopus:

Задать оповещение о цитировании

Связанные документы

Energy of adsorption of polar molecules on NaLSX zeolite
Jumaeva, D. , Toirov, O. , Rakhmatullaeva, N.
(2021) E3S Web of Conferences

Study of the Substitution Scheme of the Parameters of a Phase-Rotor Induction Generator
Taniev, M. , Mirkhonov, U. , Rakhmatova, M.
(2022) AIP Conference Proceedings

Method for Calculating Electro-ferro-magnetic Circuits
Rasulov, A.
(2022) AIP Conference Proceedings

Просмотр всех связанных документов исходя из пристатейных ссылок

Найти дополнительные связанные документы в Scopus исходя из следующего параметра:

Авторы Ключевые слова

6 Kim, Y., Kirkpatrick, R.J.
^{23}Na and ^{133}Cs NMR study of cation adsorption on mineral surfaces: Local environments, dynamics, and effects of mixed cations

(1997) *Geochimica et Cosmochimica Acta*, 61 (24), pp. 5199-5208. Цитировано 117 раз.
http://www.journals.elsevier.com/geochimica-et-cosmochimica-acta/
doi: 10.1016/S0016-7037(97)00347-5

View at Publisher

7 Jumayeva, D., Eshmatov, I., Jumabaev, B., Agzamkhodjayev, A.
Carbon adsorbents on the basis of brown coal of angren for cleaning industrial wastewater

(2016) *Journal of Chemical Technology and Metallurgy*, 51 (2), pp. 210-214. Цитировано 7 раз.
http://dl.uctm.edu/journal/node/j2016-2/11-JUMAEVA_210-214.pdf

8 Srodon, J., Morgan, D.J., Eslinger, E.V., Eberl, D.D., Karlinger, M.R.
Chemistry of illite/smectite and end-member illite.

(1986) *Clays & Clay Minerals*, 34 (4), pp. 368-378. Цитировано 132 раз.
doi: 10.1346/CCMN.1986.0340403

View at Publisher

9 Güven, N.
Electron optical observations on marblehead illite

(1972) *Clays and Clay Minerals*, 20 (2), pp. 83-84,IN1,85-88. Цитировано 6 раз.
doi: 10.1346/ccmn.1972.0200206

View at Publisher

10 Odelius, M., Holz, M., Laaksonen, A.
Quadrupolar relaxation of ^{21}Ne, ^{83}Kr, and ^{131}Xe dissolved in acetonitrile. A molecular dynamics study

(1997) *Journal of Physical Chemistry A*, 101 (49), pp. 9537-9544. Цитировано 9 раз.
http://pubs.acs.org/jpca
doi: 10.1021/jp972506i

View at Publisher

11 Hochella, M.F.Jr.
Atomic structure, micro topography, composition, and of mineral surfaces
(1990) *Mineral-water interface geochemistry*, pp. 87-132. Цитировано 293 раз.
11 M.F. Jr. Hochella, A.E. White, ed. Washington, DC: Mineral Soc. Am

12 Jumaeva, D., Abdurakhimov, A., Abdurakhimov, K., Rakhmatullaeva, N., Toirov, O.
Energy of adsorption of an adsorbent in solving environmental problems
(Открытый доступ)

(2021) *E3S Web of Conferences*, 288, art. no. 01082. Цитировано 7 раз.
www.e3s-conferences.org/
doi: 10.1051/e3sconf/202128801082

View at Publisher

13 Jumaeva, D., Toirov, O., Rakhmatullaeva, N., Akhmedov, R., Eshmetov, I.
Energy of adsorption of polar molecules on NaLSX zeolite (Открытый доступ)

(2021) *E3S Web of Conferences*, 288, art. no. 01041. Цитировано 6 раз.
www.e3s-conferences.org/
doi: 10.1051/e3sconf/202128801041

View at Publisher

14 Jumaeva, D.J., Eshmetov, I.D., Agzamkhodjaev, A.A.
Adsorption treatment and mitigation of industrial wastewater by coal adsorbents
(2014) *J. Chem. Industry*, 91 (3), pp. 150-154. Цитировано 3 раз.
14

15 Jumaeva, D.J.
Adsorption energy of polar and quadrupole molecules on muscovite, illite and zeolites
LSX. Diss.
15

16 Juraevna, D.J., Yunusjonovich, U.R., Karimovich, O.E.
STUDYING ON THE ACTIVATED ABSORBENTS DERIVED FROM WASTE OF A GRAPE SEED

(2022) *Journal of Chemical Technology and Metallurgy*, 57 (5), pp. 998-1005.
https://dl.uctm.edu/journal/web/home

Jumaeva, D.; Institute of General and Inorganic Chemistry of the Academy of Sciences Republic of Uzbekistan, Uzbekistan; эл. почта:jumayeva@list.ru

О системе Scopus

Что такое Scopus
Содержание
Блог Scopus
Интерфейсы API Scopus
Вопросы конфиденциальности

Язык

Switch to English
日本語版を表示する
查看简体中文版本
查看繁體中文版本

Служба поддержки

Помощь
Обучающие материалы
Связь с нами