

Prof. Melkon Tatlier

Personal Information

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Education Information

Doctorate, Istanbul Technical University, Kimya-Metalurji Fakültesi, Kimya Mühendisliği Bölümü, Turkey 1996 - 2000

Postgraduate, Istanbul Technical University, Kimya-Metalurji Fakültesi, Turkey 1994 - 1996

Undergraduate, Istanbul Technical University, Kimya-Metalurji Fakültesi, Turkey 1990 - 1994

Foreign Languages

English

Dissertations

Doctorate, Adsorption heat pumps utilizing zeolite coatings grown on metal surfaces, İstanbul Teknik Üniversitesi, Kimya-Metalurji Fakültesi, Kimya Mühendisliği Bölümü, 2000

Postgraduate, Zeolit-su ikilisini kullanan adsorpsiyon ısı pompalarında ısıve kütle iletimini geliştirmek için yeni bir yaklaşım, İstanbul Teknik Üniversitesi, Kimya-Metalurji Fakültesi, 1996

Research Areas

Technical Sciences, Chemical Engineering and Technology, Process and Reactor Design

Academic Titles / Tasks

Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2009 - Continues

Associate Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2006 - 2009

Assistant Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2002 - 2006

Research Assistant, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 1998 - 2001

Academic and Administrative Experience

İstanbul Teknik Üniversitesi, Kimya-Metalurji Fakültesi, Kimya Mühendisliği Bölümü, 2006 - 2009

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Theoretical investigation of performances of zeolite Y and SAPO-34 coatings for adsorption heat pump applications**
Tathier M.
HEAT AND MASS TRANSFER, vol.57, no.6, pp.975-984, 2021 (SCI-Expanded)
- II. **Preparation of zeolite coatings by induction heating of the substrate**
Maraş T., Nerat E. Y., Erdem A., Tathier M.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.98, no.1, pp.54-67, 2021 (SCI-Expanded)
- III. **Effects of structural properties of fillers on performances of Matrimid (R) 5218 mixed matrix membranes**
Atalay-Oral C., Tathier M.
SEPARATION AND PURIFICATION TECHNOLOGY, vol.236, 2020 (SCI-Expanded)
- IV. **Characterization of mixed matrix membranes by adsorption and fractal analysis**
Atalay-Oral Ç., Tathier M.
SEPARATION SCIENCE AND TECHNOLOGY, vol.54, pp.2323-2333, 2019 (SCI-Expanded)
- V. **Estimation of interphase properties of various mixed matrix membranes**
Tathier M., Oral Ç.
Composite Interfaces, vol.26, no.9, pp.825-837, 2019 (SCI-Expanded)
- VI. **Tailoring the reaction mixture composition for preparing zeolite coatings on aluminum supports in alkaline environments**
Tathier M., Rustam L., Munz G.
CHEMICAL ENGINEERING COMMUNICATIONS, vol.206, no.7, pp.953-966, 2019 (SCI-Expanded)
- VII. **Ion exchange of zeolite coatings for adsorption heat pump applications**
Tathier M., Atalay-Oral C.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.91, pp.117-126, 2019 (SCI-Expanded)
- VIII. **Low-methoxyl pectin-zeolite hydrogels controlling drug release promote in vitro wound healing**
Kocaaga B., Kurkcuoglu O., Tathier M., BATIREL S., Güner F. S.
JOURNAL OF APPLIED POLYMER SCIENCE, vol.136, no.24, 2019 (SCI-Expanded)
- IX. **Relation of water adsorption capacities of zeolites with their structural properties**
Tathier M., Munz G., Henninger S. K.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.264, pp.70-75, 2018 (SCI-Expanded)
- X. **Performances of MOF vs. zeolite coatings in adsorption cooling applications**
Tathier M.
APPLIED THERMAL ENGINEERING, vol.113, pp.290-297, 2017 (SCI-Expanded)
- XI. **PREPARATION OF ZEOLITE X COATINGS ON SODA-LIME TYPE GLASS PLATES**
Tathier M., Atalay-Oral C.
BRAZILIAN JOURNAL OF CHEMICAL ENGINEERING, vol.34, no.1, pp.203-210, 2017 (SCI-Expanded)
- XII. **Crystallization of zeolite a coatings from natural zeolite**
Tathier M., Atalay-Oral Ç.
Materials Research, vol.19, no.6, pp.1469-1477, 2016 (SCI-Expanded)
- XIII. **Crystallization of zeolite X coatings on stainless steel by microwave heating**
Tathier M., KUMMER H., HENNINGER S. K.
JOURNAL OF POROUS MATERIALS, vol.22, no.2, pp.347-352, 2015 (SCI-Expanded)
- XIV. **Effects of Using Different Polymers in Post-Synthesis Treatments of Zeolite a Coatings**
Atalay-Oral C., BORA S., TATHIER M.
CHEMICAL ENGINEERING COMMUNICATIONS, vol.202, no.3, pp.375-383, 2015 (SCI-Expanded)
- XV. **Ternary phase diagrams of CdSO₄-NiSO₄-H₂O at 40 degrees C and 80 degrees C**
Ozdugan E., ANDAK B., BULUTCU N., TURDU S., Tathier M.
FLUID PHASE EQUILIBRIA, vol.381, pp.67-70, 2014 (SCI-Expanded)
- XVI. **Effect of zeolite A coating thickness on adsorption kinetics for heat pump applications**
Tathier M., MUNZ G., FUELDNER G., HENNINGER S. K.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.193, pp.115-121, 2014 (SCI-Expanded)

- XVII. **Adsorption kinetics and isotherms of zeolite coatings directly crystallized on fibrous plates for heat pump applications**
ATAKAN A., FUELDNER G., MUNZ G., HENNINGER S., Tatlier M.
APPLIED THERMAL ENGINEERING, vol.58, pp.273-280, 2013 (SCI-Expanded)
- XVIII. **Post-synthesis treatment for improving zeolite coating stability**
Atakan A., ATALAY-ORAL C., TATLIER M., Erciyes T., ERDEM-SENATALAR A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.156, pp.262-269, 2012 (SCI-Expanded)
- XIX. **Artificial neural network predictions of up flow anaerobic sludge blanket UASB reactor performance in the treatment of citrus juice wastewater**
ELNEKAVE M., ÇELİK S., Tatlier M., TÜFEKÇİ N.
POLISH JOURNAL OF ENVIRONMENTAL STUDIES, vol.21, no.1, pp.49-56, 2012 (SCI-Expanded)
- XX. **Artificial Neural Network Methods for the Prediction of Framework Crystal Structures of Zeolites from XRD Data**
Tatlier M.
NEURAL COMPUTING & APPLICATIONS, vol.20, no.3, pp.3165-3171, 2011 (SCI-Expanded)
- XXI. **Adsorption kinetics of zeolite coatings directly crystallized on metal supports for heat pump applications (adsorption kinetics of zeolite coatings)**
Schnabel L., Tatlier M., Schmidt F., Erdem-Senatarlar A.
APPLIED THERMAL ENGINEERING, vol.30, pp.1409-1416, 2010 (SCI-Expanded)
- XXII. **Preparation of Zeolite A Coatings on Copper Plates by Using the Substrate Heating Method**
TEBER S., ELNEKAVE M., Tatlier M.
BRAZILIAN JOURNAL OF CHEMICAL ENGINEERING, vol.27, no.4, pp.619-626, 2010 (SCI-Expanded)
- XXIII. **Adsorption kinetics of zeolite coatings directly crystallized on metal supports for heat pump applications**
Schnabel L., TATLIER M., Schmidt F., Erdem A.
Applied Thermal Engineering, vol.30, pp.1409-1416, 2010 (SCI-Expanded)
- XXIV. **Coatings of Na-aluminosilicate zeolites prepared using predictions from an artificial neural network method**
Tatlier M., Cigizoglu K. B., Cıgızoğlu H. K., ERDEM-SENATALAR A.
JOURNAL OF POROUS MATERIALS, vol.15, no.4, pp.389-395, 2008 (SCI-Expanded)
- XXV. **How fractal is dancing?**
Tatlier M., Suvak R.
CHAOS SOLITONS & FRACTALS, vol.36, no.4, pp.1019-1027, 2008 (SCI-Expanded)
- XXVI. **How Fractal is Dancing**
Tatlier M., ŞUVAK R.
CHAOS SOLITONS & FRACTALS, vol.36, no.4, pp.1019-1027, 2008 (SCI-Expanded)
- XXVII. **Electrochemical Properties of Gel Type Zeolite Synthesis Mixtures**
ELNEKAVE M., Tatlier M.
CHEMICAL ENGINEERING COMMUNICATIONS, vol.195, no.6, pp.661-673, 2008 (SCI-Expanded)
- XXVIII. **Microwave vs conventional synthesis of analcime from clear solutions**
TATLIER M., Cıgızoğlu K. B., Tokay B., Erdem A.
JOURNAL OF CRYSTAL GROWTH, vol.306, no.1, pp.146-151, 2007 (SCI-Expanded)
- XXIX. **Substrate heating method for coating metal surfaces with high silica zeolites ZSM 5 coatings on stainless steel plates**
TATLIER M., Demir M., Tokay B., Erdem A., KiwiMinsker L.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.101, no.3, pp.374-380, 2007 (SCI-Expanded)
- XXX. **In vitro Evaluation of the Use of Zeolites as Biomaterials Effects on Simulated Body Fluid and Two Types of Cells**
CEYHAN T., Tatlier M., AKÇAKAYA H.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE, vol.18, no.8, pp.1557-1562, 2007 (SCI-Expanded)
- XXXI. **Effects of Ultrasound on the Preparation of Zeolite A Coatings**

- Andaç Ö., Telli Ş. M., TATLIER M., Erdem A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.88, pp.72-76, 2006 (SCI-Expanded)
- XXXII. **Effects of ultrasound on zeolite A synthesis**
Andac O., Tatlier M., Sirkecioglu A., Ece I., ERDEM-SENATALAR A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.79, pp.225-233, 2005 (SCI-Expanded)
- XXXIII. **Artificial Neural Network Methods for the Estimation of Zeolite Molar Compositions that Form from Different Reaction Mixtures**
TATLIER M., Çıgızoğlu H. K., Erdem A.
COMPUTERS & CHEMICAL ENGINEERING, vol.30, no.1, pp.137-146, 2005 (SCI-Expanded)
- XXXIV. **Artificial neural network methods guiding the search of new clear solution compositions for preparing zeolite coatings**
TATLIER M., Erdem A., Çıgızoğlu H. K.
Studies in Surface Science and Catalysis, vol.158, pp.359-366, 2005 (SCI-Expanded)
- XXXV. **Effects of Ultrasound on Zeolite A Synthesis**
ANDAÇ Ö., Tatlier M., SİRKECİOĞLU A., ECE I., ERDEM A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.79, pp.225-233, 2005 (SCI-Expanded)
- XXXVI. **Catalytic Activity of FeZSM 5 Zeolites in Benzene Hydroxylation by N₂O The Role of Geometry Characterized by Fractal Dimensions**
Tatlier M., KIWI MINSKER L.
CATALYSIS COMMUNICATIONS, vol.6, no.11, pp.731-736, 2005 (SCI-Expanded)
- XXXVII. **Electrochemical Monitoring of Zeolite Synthesis**
Tatlier M., ELNEKAVE M.
MATERIALS CHEMISTRY AND PHYSICS, vol.91, no.1, pp.99-103, 2005 (SCI-Expanded)
- XXXVIII. **Wet ball milling of zeolite HY**
Akcaay K., Sirkecioglu A., TATLIER M., SAVASCI O., ERDEM-SENATALAR A.
POWDER TECHNOLOGY, vol.142, pp.121-128, 2004 (SCI-Expanded)
- XXXIX. **Polymeric Heat Exchangers to Increase the COP Values of Adsorption Heat Pumps Utilizing Zeolite Coatings**
TATLIER M., Erdem A.
APPLIED THERMAL ENGINEERING, vol.24, no.1, pp.69-78, 2004 (SCI-Expanded)
- XL. **Searching for Clear Solution Compositions by Using the Substrate Heating Method**
Erdem A., Öner K., TATLIER M.
Studies in Surface Science and Catalysis, vol.154, pp.667-670, 2004 (SCI-Expanded)
- XLI. **Estimation of the Effective Diffusion Coefficients in Open Zeolite Coatings**
TATLIER M., Erdem A.
CHEMICAL ENGINEERING JOURNAL, vol.102, no.3, pp.209-216, 2004 (SCI-Expanded)
- XLII. **Simulation of the Formation of Thin Zeolite Coatings by Direct Synthesis from Clear Solutions**
TATLIER M., Erdem A.
Studies in Surface Science and Catalysis, vol.154, pp.606-611, 2004 (SCI-Expanded)
- XLIII. **Questioning the validity of present models for estimating the performances of zeolite-polymer mixed matrix membranes**
Erdem-Senatalar A., TATLIER M., TANTEKIN-ERSOLMAZ S.
CHEMICAL ENGINEERING COMMUNICATIONS, vol.190, pp.677-692, 2003 (SCI-Expanded)
- XLIV. **Fractal Growth of Zeolite Coatings Prepared by the Substrate Heating Method**
Tatlier M.
FRACTALS-COMPLEX GEOMETRY PATTERNS AND SCALING IN NATURE AND SOCIETY, vol.11, no.1, pp.77-85, 2003 (SCI-Expanded)
- XLV. **Effects of low-temperature gel aging on the synthesis of zeolite Y at different alkalinities**
Jülide Köroğlu H., Sarioğlu A., Tatlier M., Erdem-Senatalar A., Tunç Savaşçı Ö.
Journal of Crystal Growth, vol.241, no.4, pp.481-488, 2002 (SCI-Expanded)
- XLVI. **Effects of Low Temperature Gel Aging on the Synthesis of Zeolite Y at Different Alkalinities**

Köroğlu H., Sarioğlu A., TATLIER M., Erdem A., Savaşçı Ö.

JOURNAL OF CRYSTAL GROWTH, vol.241, no.4, pp.481-488, 2002 (SCI-Expanded)

- XLVII. **When Do Thin Zeolite Layers and a Large Void Volume in the Adsorber Limit the Performance of Adsorption Heat Pumps**

TATLIER M., Erdem A.

MICROPOROUS AND MESOPOROUS MATERIALS, vol.54, pp.89-96, 2002 (SCI-Expanded)

- XLVIII. **Inorganic Adsorbates Classified by Fractal Analysis**

Tatlier M.

SEPARATION AND PURIFICATION TECHNOLOGY, vol.29, no.3, pp.265-270, 2002 (SCI-Expanded)

- XLIX. **Lower temperatures for the preparation of thinner zeolite A coatings**

CETIN T., Tatlier M., Erdem-Senatalar A., DEMIRLER U., Urgen M. K.

MICROPOROUS AND MESOPOROUS MATERIALS, vol.47, no.1, pp.1-14, 2001 (SCI-Expanded)

- L. **n-Pentane/i-pentane separation by using zeolite-PDMS mixed matrix membranes**

Tantekin-Ersolmaz S., SENORKYAN L., KALAONRA N., TATLIER M., ERDEM-SENATALAR A.

JOURNAL OF MEMBRANE SCIENCE, vol.189, no.1, pp.59-67, 2001 (SCI-Expanded)

- LI. **Power-law scaling behavior of membranes**

Tatlier M., Tantekin-Ersolmaz S., Atalay-Oral C., Erdem-Senatalar A.

JOURNAL OF MEMBRANE SCIENCE, vol.182, pp.183-193, 2001 (SCI-Expanded)

- LII. **Fractal Dimension of Zeolite Surfaces by Calculation**

TATLIER M., Erdem A.

CHAOS SOLITONS & FRACTALS, vol.12, no.6, pp.1145-1155, 2001 (SCI-Expanded)

- LIII. **Estimation of the temperature effect on the adsorption capacities of zeolites**

TATLIER M., Sirkecioğlu A., ERDEM A.

COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS, vol.193, pp.139-144, 2001 (SCI-Expanded)

- LIV. **Effect of zeolite particle size on the performance of polymer-zeolite mixed matrix membranes**

Tantekin-Ersolmaz S., ATALAY-ORAL C., Tatlier M., ERDEM-SENATALAR A., SCHOEMAN B., STERTE J.

JOURNAL OF MEMBRANE SCIENCE, vol.175, no.2, pp.285-288, 2000 (SCI-Expanded)

- LV. **The Performance Analysis of a Solar Adsorption Heat Pump Utilizing Zeolite Coatings on Metal Supports**

TATLIER M., Erdem A.

CHEMICAL ENGINEERING COMMUNICATIONS, vol.180, pp.169-185, 2000 (SCI-Expanded)

- LVI. **Optimization of the Cycle Durations of Adsorption Heat Pumps Employing Zeolite Coatings Synthesized on Metal Supports**

TATLIER M., Erdem A.

MICROPOROUS AND MESOPOROUS MATERIALS, vol.34, no.1, pp.23-30, 2000 (SCI-Expanded)

- LVII. **Effects of Metal Mass on the Performance of Adsorption Heat Pumps Utilizing Zeolite 4A Coatings Synthesized on Heat Exchanger Tubes**

TATLIER M., Erdem A.

International Journal of Refrigeration, vol.23, no.4, pp.260-268, 2000 (SCI-Expanded)

- LVIII. **Effects of Fractality on the Accessible Surface Area Values of Zeolite Adsorbents**

Erdem A., TATLIER M.

CHAOS SOLITONS & FRACTALS, vol.11, no.6, pp.953-960, 2000 (SCI-Expanded)

- LIX. **Preparation of zeolite coatings by direct heating of the substrates**

Erdem-Senatalar A., TATLIER M., Urgen M. K.

MICROPOROUS AND MESOPOROUS MATERIALS, vol.32, no.3, pp.331-343, 1999 (SCI-Expanded)

- LX. **The Effects of Thermal Gradients in a Solar Adsorption Heat Pump Utilizing the Zeolite Water Pair**

TATLIER M., Erdem A.

APPLIED THERMAL ENGINEERING, vol.19, no.11, pp.1157-1172, 1999 (SCI-Expanded)

- LXI. **Effects of Thermal and Mass Diffusivities on the Performance of Adsorption Heat Pumps Employing Zeolite Synthesized on Metal Supports**

- TATLIER M., Erdem A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.28, no.1, pp.195-203, 1999 (SCI-Expanded)
- LXII. **The stability of zeolite coatings grown on metal supports for heat pump applications**
TATLIER M., Erdem A.
Studies in Surface Science and Catalysis, vol.125, pp.101-108, 1999 (SCI-Expanded)
- LXIII. **A novel approach to enhance heat and mass transfer in adsorption heat pumps using the zeolite-water pair**
Tatlier M., Tantekin-Ersolmaz B., ERDEM-SENATALAR A.
MICROPOROUS AND MESOPOROUS MATERIALS, vol.27, no.1, pp.1-10, 1999 (SCI-Expanded)
- LXIV. **Method to Evaluate the Fractal Dimensions of Solid Adsorbents**
TATLIER M., Erdem A.
JOURNAL OF PHYSICAL CHEMISTRY A, vol.103, no.21, pp.4360-4365, 1999 (SCI-Expanded)
- LXV. **Fractal Dimension as a Tool To Guide Zeolite Synthesis**
TATLIER M., Erdem A.
Chaos, Solitons and Fractals, vol.9, no.11, pp.1803-1812, 1998 (SCI-Expanded)

Supported Projects

Oral Ç., Tatlier M., Project Supported by Higher Education Institutions, Adsorpsiyon Isı Pompalarında Kullanılabilecek Zeolit NaX Kaplamalarının Farklı İyon Formlarına Dönüştürülerek Geliştirilmesi ve AdsorpsiyonDesorpsiyon Performanslarının Belirlenmesi, 2017 - 2019

Tatlier M., Project Supported by Higher Education Institutions, Metal organik kafes yapıları ve zeolit kaplamalarının adsorpsiyonlu soğutma uygulamalarındaki performanslarının karşılaştırılması, 2016 - 2018

Tatlier M., Project Supported by Higher Education Institutions, Yapay Sinir Ağları Yöntemi ile Zeolit Kristal Yapılarının X-Işını Kırınımı Verilerinden Tahmin Edilmesi, 2009 - 2018

Tatlier M., Project Supported by Higher Education Institutions, Adsorpsiyon Isı Pompaları Uygulamaları İçin Geniş Metal Yüzeylerinde Zeolit Kaplamalarının Hazırlanması, 2007 - 2018

Metrics

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