

The Korean Journal of Chemical Engineering

July 2015
Volume 32, Number 7

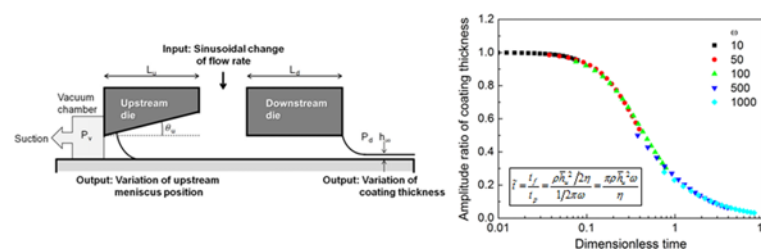
Korean J. Chem. Eng. 32(7) 1207-1446
Print ISSN 0256-1115
Online ISSN 1975-7220

REVIEW PAPER

- Nilanjana Banerjee and Joontaek Park 1207 **Modeling and simulation of biopolymer networks: Classification of the cytoskeleton models according to multiple scales**

RAPID COMMUNICATION

- Won-Gi Ahn, Si Hyung Lee, Jaewook Nam, and Hyun Wook Jung 1218 **Effect of flow rate variation on the frequency response in slot coating process with different upstream sloped die geometries**



Unified frequency response of coating thickness along with dimensionless time for sinusoidal flow rate disturbance

PROCESS SYSTEMS ENGINEERING, PROCESS SAFETY

- Do Yeon Kim and Dae Ryook Yang 1222 **Operation strategy of industrial crystallization for the production of 2,3,4,4'-tetrahydroxybenzophenone**
- Hyun Jun Cho, Sung Ho Choi, Tae Young Kim, Jin-Kuk Kim, and Yeong-Koo Yeo 1229 **Design of a dividing wall column for fractionation of biodiesel**

TRANSPORT PHENOMENA

- Songping Mo, Xueqing Chen, Ying Chen, and Zhen Yang 1243 **Effect of geometric parameters of liquid-gas separator units on phase separation performance**
- Sung Soo Hong, Won Ryoo, Myung-Suk Chun, and Gui-Yung Chung 1249 **Effects of membrane characteristics on performances of pressure retarded osmosis power system**

CATALYSIS, REACTION ENGINEERING

- Parisa Jabbarnezhad, Mohammad Haghghi, and Parisa Taghavinezhad 1258 **Synthesis and physicochemical characterization of ZrO₂-doped NiMo/Al₂O₃ nanocatalyst via precipitation and sequential impregnation methods used in hydrodesulfurization of thiophene**
- Hong-Joo Lee, Gwan Su Shin, and Young-Chul Kim 1267 **Characterization of supported Ni catalysts for aqueous-phase reforming of glycerol**
- Kannan Badri Narayanan and Hyun Ho Park 1273 **Homogeneous catalytic activity of gold nanoparticles synthesized using turnip (*Brassica rapa* L.) leaf extract in the reductive degradation of cationic azo dye**
- Fereshteh Meshkani and Mehran Rezaei 1278 **The effect of preparation factors on the structural and catalytic properties of mesoporous nanocrystalline iron-based catalysts for high temperature water gas shift reaction**
- Milad Komasi, Shohreh Fatemi, and Marjan Razavian 1289 **Hierarchical SAPO-34 catalytic support for superior selectivity toward propylene in propane dehydrogenation process**

ENERGY

- | | | |
|---|------|---|
| Jungsoo Kim, Yongwoon Lee,
Changkook Ryu, Ho Young Park,
and Hyunsoo Lim | 1297 | Low-temperature reactivity of coals for evaluation of spontaneous combustion propensity |
| Napapat Chaisuban,an,
Kejvalee Pruksathorn, Hugues Vergnes,
and Mali Hunsom | 1305 | Effect of the TiO₂ phase and loading on oxygen reduction reaction activity of PtCo/C catalysts in proton exchange membrane fuel cells |

ENVIRONMENTAL ENGINEERING

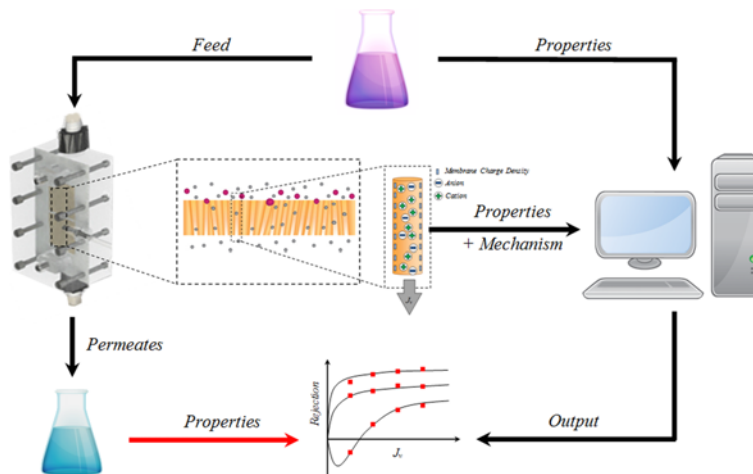
- | | | |
|---|------|---|
| Qian Liu, Bingchao Yang, Lujie Zhang,
and Ruihua Huang | 1314 | Adsorptive removal of Cr(VI) from aqueous solutions by cross-linked chitosan/bentonite composite |
| Yunbo Wang and Deshuai Sun | 1323 | Phosphate removal from aqueous solutions on fly ash with medium calcium content |
| Mojtaba Ahmadi, Pegah Amiri,
and Negar Amiri | 1327 | Combination of TiO₂-photocatalytic process and biological oxidation for the treatment of textile wastewater |
| Fei Tian, Zhansheng Wu, Yujun Yan,
Xinyu Ge, and Yanbin Tong | 1333 | Photodegradation of formaldehyde by activated carbon loading TiO₂ synthesized via microwave irradiation |

BIOTECHNOLOGY

- | | | |
|--|------|---|
| Meghdad Pirsaeheb, Mitra Mohamadi,
Amir Mohammad Mansouri,
Ali Akbar Lorestani Zinatizadeh,
Sethupathi Sumathi, and Kiomars Sharafi | 1340 | Process modeling and optimization of biological removal of carbon, nitrogen and phosphorus from hospital wastewater in a continuous feeding & intermittent discharge (CFID) bioreactor |
| Liang Sun, Fei Shang,
Chang-qing Duan, and Guo-liang Yan | 1354 | Reduction of fatty acid flux at low temperature led to enhancement of β-carotene biosynthesis in recombinant <i>Saccharomyces cerevisiae</i> |

SEPARATION TECHNOLOGY, THERMODYNAMICS

- | | | |
|---|------|--|
| Masoumeh Kiani,
Mohammad Mehdi Papari,
Zahra Nowruzian, and Jalil Moghadasi | 1361 | Application of modified Tao-Mason equation of state to refrigerant mixtures |
| Jing Wang, Wenying Zhang,
Weixing Li, and Weihong Xing | 1369 | Preparation and characterization of chitosan-poly (vinyl alcohol)/polyvinylidene fluoride hollow fiber composite membranes for pervaporation dehydration of isopropanol |
| Seongkyun Kang, Sangwoo Kim,
and Jinwon Lee | 1377 | Optimization of cross flow filtration system for <i>Dunaliella tertiolecta</i> and <i>Tetraselmis</i> sp. microalgae harvest |
| Zhen Wu, Lei Hu, Ning Xu,
Benlin Dai, and Jiaying Xu | 1381 | Adsorption and separation of lignin-based aromatic aldehydes using macroporous resins |
| Vahid Hoshyargar, Farzad Fadaei,
and Seyed Nezameddin Ashrafizadeh | 1388 | Mass transfer simulation of nanofiltration membranes for electrolyte solutions through generalized Maxwell-Stefan approach |



Qiang Zhou, Yufeng Duan, Chun Zhu, 1405 **Adsorption equilibrium, kinetics and mechanism studies of mercury on coal-fired fly ash**
Jun Zhang, Min She, Hongqi Wei,
and Yaguang Hong

Dong-Yoon Shin, Kyung-Ran Hwang, 1414 **Computational fluid dynamics modeling and analysis of Pd-based membrane module for CO₂ capture from H₂/CO₂ binary gas mixture**
Jong-Soo Park, and Myung-June Park

MATERIALS (Organic, Inorganic, Electronic, Thin Films)

Sang Hyuk Im, Su Jin Lee, 1422 **Formation of compositional gradient profiles by using shear-induced polymer migration phenomenon under Couette flow field**
Duck Jong Suh, O Ok Park,
and Moo Hyun Kwon

POLYMER, INDUSTRIAL CHEMISTRY

Yongshan Ma, Xuemei Li, 1427 **Synthesis and properties of amino acid functionalized water-soluble perylene diimides**
Xiaofeng Wei, Tianyi Jiang,
Junsen Wu, and Huixue Ren

Tao Wan, Wenzhong Cheng, 1434 **Influence of crosslinker amount on swelling and gel properties of hectorite/poly (acrylamide/itaconic acid) nanocomposite hydrogels**
Zhiling Zhou, Min Xu, Chuzhang Zou,
and Ruixiang Li

FLUIDIZATION, PARTICLE TECHNOLOGY

Dal-Hee Bae, Minyoung Yun, 1440 **Hydrodynamics of a hybrid circulating fluidized bed reactor with a partitioned loop seal system**
Jong-Ho Moon, Gyoung Tae Jin,
Dowon Shun, Chan Seung Park,
and Joseph M. Norbeck