

# The Korean Journal of Chemical Engineering

March 2016  
Volume 33, Number 3

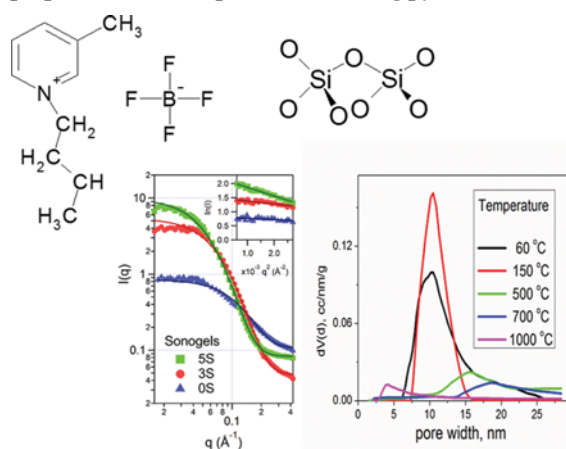
Korean J. Chem. Eng. 33(3) 735-1124  
Print ISSN 0256-1115  
Online ISSN 1975-7220

## INVITED REVIEW PAPER

- Quang Hung Trinh and Young Sun Mok 735 Environmental plasma-catalysis for the energy-efficient treatment of volatile organic compounds

## RAPID COMMUNICATION

- Ana-Maria Putz, Adél Len, Catalin Ianăși, Cecilia Savii, and László Almásy 749 Ultrasonic preparation of mesoporous silica using pyridinium ionic liquid

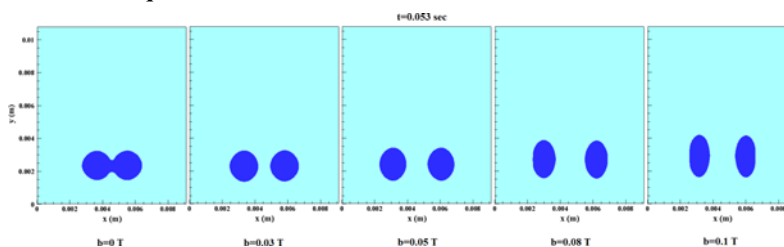


## PROCESS SYSTEMS ENGINEERING, PROCESS SAFETY

- Jin-Kuk Ha and Euy Soo Lee 755 Development of an optimal multifloor layout model for the generic liquefied natural gas liquefaction process
- Se-jin Pak, Ju Woung Yoon, Seojin Kim, Felicia Salim, Jaihyo Lee, and In-Won Kim 764 Case study of surge avoidance design for centrifugal compressor systems during emergency shut-down (ESD)

## TRANSPORT PHENOMENA

- Sadegh Poozesh, Nelson Akafuah, and Kozo Saito 775 New criteria for filament breakup in droplet-on-demand inkjet printing using volume of fluid (VOF) method
- Ji Eun Lee, Hoon Chae Park, Hang Seok Choi, Seung Yeon Cho, Tae Young Jeong, and Sung Cheoul Roh 782 A numerical study on the performance evaluation of ventilation systems for indoor radon reduction
- Amin Hadidi and Davood Jalali-Vahid 795 Effects of uniform magnetic field on the interaction of side-by-side rising bubbles in a viscous liquid



## CATALYSIS, REACTION ENGINEERING

- 
- |   |     |  |
|---|-----|--|
| Su Jin You, Eun Duck Park, and Myung-June Park                                    | 806 | <b>Dehydration of D-xylose over SiO<sub>2</sub>-Al<sub>2</sub>O<sub>3</sub> catalyst: Perspective on the pathways for condensed products</b>         |
| Mitra Gholami, Mehdi Shirzad-Siboni, and Jae-Kyu Yang                             | 812 | <b>Application of Ni-doped ZnO rods for the degradation of an azo dye from aqueous solutions</b>   |
| Jung-Hyun Park and Chae-Ho Shin   | 823 | <b>Influence of phosphorous addition on Bi<sub>3</sub>Mo<sub>2</sub>Fe<sub>1</sub> oxide catalysts for the oxidative dehydrogenation of 1-butene</b> |
| Xiaojing Meng, Huiwen Huang, Qiang Zhang, Minxiu Zhang, Chunyi Li, and Qiukai Cui | 831 | <b>Conversion of methanol into light olefins over ZSM-11 catalyst in a circulating fluidized-bed unit</b>  |
| Dong-Heon Kang, Moon-Il Kim, and Dae-Won Park                                     | 838 | <b>Selective oxidation of H<sub>2</sub>S to sulfur over CeO<sub>2</sub>-TiO<sub>2</sub> catalyst</b>   |
| Duc Ba Nguyen and Won Gyu Lee   | 844 | <b>Process conditions for complete decomposition of CHF<sub>3</sub> in a dielectric barrier discharge reactor</b>                                    |

## ENERGY

- 
- |   |     |  |
|---|-----|--|
| In Yang, Seong-ho Kim, Moon Sagong, and Gyu-Seong Han                                       | 851 | <b>Fuel characteristics of agropellets fabricated with rice straw and husk</b>                               |
| Kyoungho Kim and Jae-Kwang Kim  | 858 | <b>Organic di-radical rechargeable battery with an ionic liquid-based gel polymer electrolyte</b>            |
| Yulong Zhang, Junfeng Wang, Sheng Xue, Yue Wu, Zhengfeng Li, and Liping Chang               | 862 | <b>Evaluation of the susceptibility of coal to spontaneous combustion by a TG profile subtraction method</b> |
| Weixing Cao, Chen Sun, Jiangping Qiu, Xudong Li, Ronghou Liu, and Le Zhang                  | 873 | <b>Pretreatment of sweet sorghum bagasse by alkaline hydrogen peroxide for enhancing ethanol production</b>  |
| Van Ben Chu, Se Jin Park, Gi Soon Park, Hyo Sang Jeon, Yun Jeong Hwang, and Byoung Koun Min | 880 | <b>Semi-transparent thin film solar cells by a solution process</b>  |

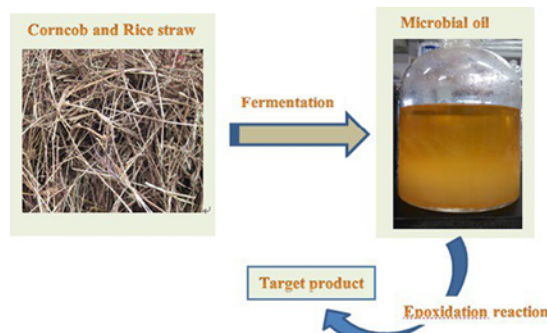
## ENVIRONMENTAL ENGINEERING

- 
- |  |     |   |
|--|-----|---|
| Hyung Suk Oh, Jeong-Jin Kim, and Young-Hun Kim                                   | 885 | <b>Stabilization of hydrogen peroxide using tartaric acids in Fenton and fenton-like oxidation</b>  |
| Jalal Basiri Parsa, Taher Mehdi Panah, and Farideh Nabizadeh Chianeh             | 893 | <b>Removal of ciprofloxacin from aqueous solution by a continuous flow electro-coagulation process</b>                                      |
| Niyaz Mohammad Mahmoodi, Zahra Hosseinabadi-Farahani, and Hooman Chamani         | 902 | <b>Synthesis of nanostructured adsorbent and dye adsorption modeling by an intelligent model for multicomponent systems</b>                 |
| Mohamed R. Lasheen, Azza M. Ashmawy, Hanan S. Ibrahim, and Shima M. Abdel Moniem | 914 | <b>Immobilization technologies for the management of hazardous industrial waste using granite waste (case study)</b>                        |
| Mahboubeh Faryadi, Masoud Rahimi, and Mona Akbari                                | 922 | <b>Process modeling and optimization of Rhodamine B dye ozonation in a novel micro-reactor equipped with high frequency ultrasound wave</b> |
| Boominathan Meenatchi, Velayutham Renuga, and Ayyar Manikandan                   | 934 | <b>Size-controlled synthesis of chalcogen and chalcogenide nanoparticles using protic ionic liquids with imidazolium cation</b>             |

## BIOTECHNOLOGY

- 
- |   |     |   |
|---|-----|---|
| Sung Wook Won, Juan Mao, Gopinathan Sankar, Hyun-Cheol Lee, and Yeoung-Sang Yun     | 945 | <b>Adsorptive characteristics of the polyurethane-immobilized <i>Corynebacterium glutamicum</i> biosorbent for removal of Reactive Yellow 2 from aqueous solution</b> |
| Wang Jing, Ji Zhi Jiang, Shui Zhong He, Yang Yang, Zhao Chun Yan, and Wang Xiao Yan | 952 | <b>The antimicrobial activity of as-prepared silver-loaded phosphate glasses and zirconium phosphate</b>  |

- Moon Young Yoon, Sora Lee, Ji Hoon Choo, Hyeonsoo Jang, Wonwoo Cho, Hoduck Kang, and Jung-Keug Park 958 **Economical synthesis of complex silicon fertilizer by unique technology using loess**
- Dan Yang, Lian Xiong, Bo Wang, Xuefang Chen, Can Wang, Chao Huang, Hairong Zhang, Haijun Guo, and Xinde Chen 964 **Preparation and characterization of epoxidized microbial oil**



- Irisappan Ganesh, Murali kannan Maruthamuthu, and Soon Ho Hong 972 **Engineering a chimeric malate two-component system by introducing a positive feedback loop in *Escherichia coli***

### SEPARATION TECHNOLOGY, THERMODYNAMICS

- Ruixin Wang, Meina Xie, Hongjing Wang, Xiaohui Shi, and Caiping Lei 976 **Adsorption properties of silica surface-grafted with a salicylhydroxamic acid-functionalized polymer toward lead ions**
- Byung Heung Park, Kyoung-Soo Kang, and Jeong Won Kang 986 **Analysis of thermophysical property data of  $HI_x$  components for  $I_2$  crystallizer design in sulfur-iodine process to produce hydrogen**
- Abdul Latif Ahmad, Abdullah Adnan Abdulkarim, Suzylawati Ismail, and Ooi Boon Seng 997 **Optimization of PES/ZnO mixed matrix membrane preparation using response surface methodology for humic acid removal**
- Kunzan Qiu, Wenhui Hou, Jinsong Zhou, Shuaiqi Meng, and Xiang Gao 1008 **Regeneration mechanism of  $CeO_2$ - $TiO_2$  sorbents for elemental mercury capture from syngas**
- Amira Abdelrasoul, Huu Doan, Ali Lohi, and Chil-Hung Cheng 1014 **Prediction of power consumption and performance in ultrafiltration of simulated latex effluent using non-uniform pore sized membranes**
- Foad Jahangiri, Seyyed Abbas Mousavi, Fathollah Farhadi, Vahid Vatanpour, Behnam Sabzi, and Zeinab Chenari 1028 **Effect of  $CO_2$ -laser irradiation on properties and performance of thin-film composite polyamide reverse osmosis membrane**
- Mahsa Nemati, Sayed Mohsen Hosseini, Ehsan Bagheripour, and Sayed Siavash Madaeni 1037 **Surface modification of cation exchange membranes by graft polymerization of PAA-co-PANI/MWCNTs nanoparticles**
- Sangwon Lee, Minkyu Kim, and Jaeon Chang 1047 **Chemical potential and solid-solid equilibrium of near-spherical Lennard-Jones dumbbell crystal**
- Kyung-Min Kim, Ji-Yeon Song, and Chang-Ha Lee 1059 **Combined operation of outlet streams swing with partial-feed in a simulated moving bed**

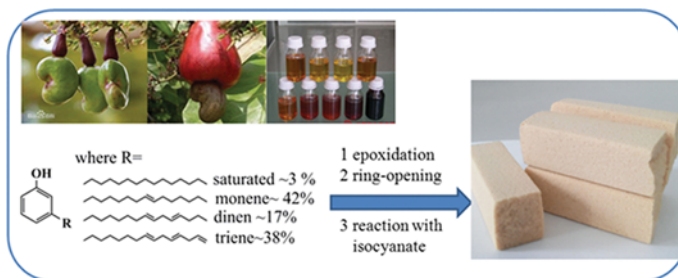
### MATERIALS (Organic, Inorganic, Electronic, Thin Films)

- Se Hee Lim, Seung-Woo Seo, Eun Jung, Heeyeop Chae, and Sung Min Cho 1070 **Enhanced moisture-barrier property and flexibility of zirconium oxide/polymer hybrid structures**
- Seung Han Sun and Sang-Chul Jung 1075 **Facile synthesis of bimetallic Ni-Cu nanoparticles using liquid phase plasma method**

### POLYMER, INDUSTRIAL CHEMISTRY

- Puyou Jia, Meng Zhang, Lihong Hu, and Yonghong Zhou 1080 **Green plasticizers derived from soybean oil for poly(vinyl chloride) as a renewable resource material**

Shuping Huo, Guomin Wu, Jian Chen, 1088 **Constructing polyurethane foams of strong mechanical property and thermostability by two novel environment friendly bio-based polyols**  
 Guifeng Liu, and Zhenwu Kong



Young Seok Lee, Seong Hwan Park, 1095 **Multiwalled carbon nanotubes and fluoroelastomer antistatic nanocomposite for automotive fuel system components**  
 Jong Cheol Lee, and Kiryong Ha

Yan Zhao, Ye Zhang, Zonglin Li, 1104 **Rheology, mechanical properties and crystallization behavior of glycidyl methacrylate grafted poly(ethylene octene) toughened poly(lactic acid) blends**  
 Hongwei Pan, Qinglin Dong, Lijing Han, Huiliang Zhang, and Lisong Dong

#### FLUIDIZATION, PARTICLE TECHNOLOGY

Sharath Sunkavalli, 1115 **Preparation and characterization of docetaxel self-nanoemulsifying powders (SNEPs): A strategy for improved oral delivery**  
 Basanth Babu Eedara,  
 Karthik Yadav Janga, Ashok Velpula,  
 Raju Jukanti, and Suresh Bandari