

# The Korean Journal of Chemical Engineering

November 2010  
Volume 27, Number 6

Korean J. Chem. Eng. 27(6) 1621-1950  
Print ISSN 0256-1115  
Online ISSN 1975-7220

## INVITED REVIEW PAPER

- Dae Soo Jung, Seung Bin Park, 1621 Design of particles by spray pyrolysis and recent progress in its application  
and Yun Chan Kang  
(Invited Review Paper)

## PROCESS SYSTEMS ENGINEERING, PROCESS SAFETY

- Behnam Nikkhahi, Mehrzad Shams, 1646 A numerical study of two-phase transonic steam flow through convergence-divergence nozzles with different rates of expansion  
and Masoud Ziabasharhagh
- Jinkyung Kim and Il Moon 1654 Automatic verification of operating schedules for batch processes using symbolic model checking: Latch model vs. real-time
- Tae Chang Park, Tae Young Kim, 1662 Prediction of the melt flow index using partial least squares and support vector regression in high-density polyethylene (HDPE) process  
and Yeong Koo Yeo
- Tae Young Kim and Yeong Koo Yeo 1669 Development of polyethylene melt index inferential model
- Min Han Kim, Yong Su Kim, 1675 Data-driven prediction model of indoor air quality in an underground space  
JungJin Lim, Jeong Tai Kim,  
Su Whan Sung, and ChangKyoo Yoo
- Jun-Hyung Ryu 1681 Modeling supply chain operations as multi-level programming problems and their parametric programming based computation methodology

## CATALYSIS, REACTION ENGINEERING

- Dohwa Jung, Sangchul Beak, 1689 Enhancement of oxygen reduction activity by sequential impregnation of Pt and  
Kee Suk Nahm, and Pil Kim  
Pd on carbon support
- Lina Yang, Ji Bong Joo, 1695 Simple one-pot synthesis of a mesoporous superacidic catalyst for the dehydration  
Nam Dong Kim, Kwang Seop Jung,  
of glycerol to acrolein  
and Jongheop Yi
- Guanjie Mi, Jianwei Li, Jie Zhang, 1700 Reaction kinetics of phenol synthesis through one-step oxidation of benzene with  
and Biaoqua Chen N<sub>2</sub>O over Fe-ZSM-5 zeolite
- Duan Feng, Jin Bao-Sheng, 1707 Research on the main factors for changes in pressure based on turbulent circulating  
Huang Ya-Ji, Li Bin, Sun Yu,  
Wu Yiming, and Zhang Ming-Yao  
fluidized bed coal gasification technology
- Kiseok Kim and Nokuk Park 1715 Effect of non-steam component of steam-hydrogasifier product gas upon sulfidation of zinc oxide sorbent (Rapid Communication)
- Nansuk You, Songhun Yoon, 1718 Design, construction and operation of lab scale cylindrical steam assisted gravity  
Wonkyu Lee, Heung Yeoun Lee,  
drainage model for heavy oil recovery  
Sang-Yeop Park, Jae Heon Shim,  
Jong Soo Kim, and Chul Wee Lee
- Ting Fang, Xiaochun Chen, Nan Li, 1725 Optimization of medium components for D-ribose production by transketolase-deficient *Bacillus subtilis* NJT-1507  
He Song, Jianxin Bai, Jian Xiong,  
and Hanjie Ying
- Dong Woo Kim, Moon Hyeon Kim, 1730 An on-line infrared spectroscopic system with a modified multipath White cell for  
and Sung-Won Ham direct measurements of N<sub>2</sub>O from NH<sub>3</sub>-SCR reaction
- Se Min Park, Gon Seo, Young San Yoo, 1738 IR study on the reduction of NO and NO<sub>2</sub> by hydrazine monohydrate over Fe-BEA  
and Hyun-Sik Han zeolite
- Junliang Zhang, Feng Wang, Wei Wei, 1744 Kinetics studies of dimethyl carbonate synthesis from urea and methanol over ZnO  
Fukui Xiao, and Yuhan Sun catalyst
- Hee-Sik Kim, Wan-Suk Lee, 1750 Kinetic correlation between degradation and dechlorination of perchloroethylene  
Chi-Yong Ahn, Byung-Hyuk Kim,  
in the Fenton reaction  
Jang-Eok Kim, and Hee-Mock Oh

Joongwon Lee, Sunhwan Hwang, Sang-Bong Lee, and In Kyu Song	1755	<b>Production of middle distillate through hydrocracking of paraffin wax over NiMo/ TiO<sub>2</sub>-SiO<sub>2</sub> catalysts</b>
Hye-Won Lim, Hye Jin Jun, Myung-June Park, Hyo-Sik Kim, Jong Wook Bae, Kyoung-Su Ha, Ho-Jeong Chae, and Ki-Won Jun	1760	<b>Optimization of methanol synthesis reaction on Cu/ZnO/Al<sub>2</sub>O<sub>3</sub>/ZrO<sub>2</sub> catalyst using genetic algorithm: Maximization of the synergetic effect by the optimal CO<sub>2</sub> frac- tion</b>
Jong Hwa Park, Hyeon Su Heo, Young-Kwon Park, Kwang-Eun Jeong, Ho-Jeong Chae, Jung Min Sohn, Jong-Ki Jeon, and Seung-Soo Kim	1768	<b>Catalytic degradation of high-density polyethylene over SAPO-34 synthesized with various templates</b>
Hag Geum Kim, Kwang Young Lee, Hoi-Gu Jang, Yo Soon Song, and Gon Seo	1773	<b>Simulation of methanol-to-olefin reaction over SAPO-34 catalysts with different particle sizes: Formation of active sites and deactivation</b>
Hui-Jun Won, Byambatseren Baigalmaa, Jei-Kwon Moon, Chong-Hun Jung, and Kune-Woo Lee	1780	<b>A comparative study on the laser removal of Cs<sup>+</sup> ion from type 304 stainless steel</b>

#### INDUSTRIAL CHEMISTRY

Sung Ho Lee, Choon Ho Cho, Yoon Sang Lee, Han Soo Lee, and Jeong-Guk Kim	1786	<b>Chemical reactivity of oxide materials with uranium and uranium trichloride</b>
--	------	--

#### ENERGY

Ji-Yeon Park, Jin-Suk Lee, Zhong-Ming Wang, and Deog-Keun Kim	1791	<b>Production and characterization of biodiesel from trap grease</b>
---	------	--

#### ENVIRONMENTAL ENGINEERING

Bimlesh Kumar and Achanta Ramakrishna Rao	1796	<b>Performance comparison of batch and continuous flow surface aeration systems</b>
Muthanna Jabbar Ahmed, Abdul Halim Abdul Karim Mohammed, and Abdul Amir Hassan Kadhum	1801	<b>Experimental and theoretical studies of equilibrium isotherms for pure light hydro- carbons adsorption on 4A zeolite</b>
Afshin Maleki, Amir Hossein Mahvi, Roya Ebrahimi, and Yahya Zandsalimi	1805	<b>Study of photochemical and sonochemical processes efficiency for degradation of dyes in aqueous solution</b>
Monoj Kumar Mondal, Sudama Singh, Meka Umareddy, and Betty Dasgupta	1811	<b>Removal of Orange G from aqueous solution by hematite: Isotherm and mass trans- fer studies</b>
Jong Kwang Lee, Woo Jin Lee, Yong-Ju Cho, Doo Hyun Park, Yong-Woo Lee, and Jinwook Chung	1816	<b>Variation of bacterial community immobilized in polyethylene glycol carrier dur- ing mineralization of xenobiotics analyzed by TGGE technique</b>
Jung-Eun Lee and Eun-Man Cho	1822	<b>A study on air jet drying for water content reduction of sludge</b>

#### BIOTECHNOLOGY

Xiangting Wu, Linmei Tang, Yinming Du, and Zhinan Xu	1829	<b>Improving glutathione extraction from crude yeast extracts by optimizing aque- ous two-phase system composition and operation conditions</b>
Zheng Wang, Liyang Zhang, and Tianwei Tan	1836	<b>High cell density fermentation of <i>Saccharomyces cerevisiae</i> GS2 for selenium- enriched yeast production</b>
Xiaoyan Chen, Zhimin Ou, and Guoqing Ying	1841	<b>Kinetic model of asymmetric reduction of 3-oxo-3-phenylpropionic acid ethyl ester using <i>Saccharomyces cerevisiae</i> CGMCC No.2266</b>
Na Shao, Dahui Wang, Gongyuan Wei, Qianpeng Zhang, Xiaoguang Ge, and Min Nie	1847	<b>Screening of <i>Candida utilis</i> and medium optimization for co-production of S-ade- nosylmethionine and glutathione</b>
Yu Hong Jia, Ji Youn Choi, Jae Hun Ryu, Cho Hui Kim, Woo Kyung Lee, Hung Thuan Tran, Rui Hong Zhang, and Dae Hee Ahn	1854	<b>Hydrogen production from wastewater using a microbial electrolysis cell</b>

Young-Cheol Chang, 1860 **Influence of disinfection on bacterial regrowth in pilot distribution system**  
Andrew Andy Randall, OnYou Choi,  
DuBok Choi, Hoon Cho,  
and Shintaro Kikuchi

#### SEPARATION TECHNOLOGY

- 
- Mohd Azlan Hussain, 1864 **Hybrid neural network for prediction of CO<sub>2</sub> solubility in monoethanolamine and diethanolamine solutions**  
Mohamed Kheireddine Aroua,  
Chun-Yang Yin, Ramzalina Abd Rahman,  
and Noor Asriah Ramli
- Young-Son Choe, Kwang-Joong Oh, 1868 **Chemical absorption of carbon dioxide into phenyl glycidyl ether solution containing THA-CP-MS41 catalyst**  
Min-Chul Kim, and Sang-Wook Park  
Mahdi Pourafshari Chenar,  
Houman Savoji,  
Mohammad Soltanieh,  
Takeshi Matsuura, and Shahram Tabe
- Keun Sig Yoon and Seung Kon Ryu 1882 **Removal of NO using surface modified activated carbon fiber (ACF) by impregnation and heat-treatment of propellant waste**
- Seol A Kim, Ki-Pung Yoo, 1887 **High pressure isothermal vapor-liquid equilibria for the binary system of carbon dioxide (CO<sub>2</sub>)+1,1,1-trifluoroethane (R-143a)**  
and Jong Sung Lim

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

- 
- Seung Hyun Hur 1892 **Optimization of single-walled carbon nanotube growth and study of the hysteresis of random network carbon nanotube thin film transistors**  
Jinkyu Roh, Eun-Jung Park, 1897 **Fast preparation of citrate-stabilized silver nanoplates and its nanotoxicity**  
Kwang sik Park, Jongheop Yi,  
and Younghun Kim
- Sun-Jae Kim, Seong-Gyu Seo, 1901 **Preparation of high purity nano silica particles from blast-furnace slag**  
and Sang-Chul Jung
- Chin Sung Cho, Taek Hwan Shin, 1906 **Stability-enhanced solid dispersion formulation of amorphous raloxifene hydrochloride (Rapid Communication)**  
Jong Lae Lim, Ki Young Moon,  
Duk Ki Kim, and Young Wook Choi

#### POLYMER, FLUIDIZATION, PARTICLE TECHNOLOGY

- 
- Tao Zhu, Seil Yang, Dae Ki Choi, 1910 **Adsorption of carbon dioxide using polyethyleneimine modified silica gel**  
and Kyung Ho Row
- Moonchul Cho and Yeong-Beom Lee 1916 **Effects of exposure wavelength and surface preparation conditions on the generation of blister defects in organic insulator layer**
- Hulya Kursun and Ayten Ates 1922 **Adsorption and column flotation studies on talc using anionic and cationic collectors**