

# Korean Chemical Engineering Research

December 2013  
Volume 51, Number 6

Korean Chem. Eng. Res., 51(6) 645-796(2013)  
PISSN 0304-128X, EISSN 2233-9558

## Review

- A Study on the Management of Micropollutants in Water System Considering Climate Change and other Potential Effects  
..... Hojeong Kim, Yongsuk Hong and Jong Ho Ahn 645
- Attachment Energy of Janus Particles at Fluid-Fluid Interfaces  
..... Bum Jun Park 655

## Article

**Industrial Chemistry(Electrochemistry, Analytical Chemistry) · Catalysis/Reaction Engineering · Drug Delivery System ·**

### Functional Coating Technology

- Preparation of High-purity Indium Oxalate Salt from Indium Scrap by Organic Acids  
..... Su-Jin Koo and Chang-Sik Ju 661
- Recovery of Silicon Wafers from the Waste Solar Cells by  $H_3PO_4$ - $NH_4HF_2$ -Chelating Agent Mixed Solution  
..... Su-Jin Koo and Chang-Sik Ju 666
- Characteristics of Poly(arylene ether sulfone) Membrane for Vanadium Redox Flow Battery  
Sung-June Oh, Jae-Hyeon Jeong, Yong-Cheol Shin, Moo-Seok Lee, Dong-Hoon Lee, Cheun-Ho Chu,  
..... Young-Sook Kim and Kwon-Pil Park 671

**Process System Engineering · Plant Design, Transport Phenomena · Process Safety · Plant Engineering**

- Determination of Mixing Ratio of Mixed Refrigerants and Performance Analysis of Natural Gas Liquefaction Processes  
..... Min Jin Kim, Gyeong Beom Yi and Jay Liu 677

**Powder Technology · Fluidization Engineering · Climate Change Technology · Fuel Conversion Technology**

- Optimization of Process Variables for Grinding of Ibuprofen using Response Surface Methodology  
..... Chol-Ho Sim 685
- Kinetic Analysis of Isothermal Pyrolysis of Korean Refuse Plastic Fuel for Application to Circulating Fluidized Bed Boiler  
..... Kyoung-Il Park, Dong-Won Kim, Tae-Hee Lee and Jong-Min Lee 692

**Separation · Technology, Thermodynamics, Membrane Technology, Supercritical Fluid Extraction, Ionic Liquids**

- Study on Oxidation or Reduction Behavior of Cs-Te-O System with Gas Conditions of Voloxidation Process  
..... Byung Heung Park 700

**Biochemical Engineering · Biochip Technology · Biomedical Technology**

- Saccharification and Fermentation Capability of the Waste from Beer Fermentation Broth  
..... MinKyung Kang, Minah Kim, Bowan Yu and Joong Kon Park 709
- Recent Developments and Prospects in the Enzymatic Acylations  
..... Oh-Jin Park 716
- Enhanced Chondrogenic Differentiation of Human Adipose-derived Stem Cells with Inverse Opal Scaffolds  
..... Suk Ho Bhang and Taekyung Yu 727

**Energy/Environment · New Renewable Energy · Waste Treatment/Energy Recovery Technology**

- Electrokinetic Extraction of Metals from Marine Sediment  
..... Kyung-Jo Kim, Jong-Chan Yoo, Jung-Seok Yang and Kitae Baek 733
- Optimal Condition of Torrefaction for the High-density Solid Fuel of Larch (*Larix kaempferi*)  
..... Byeong-Il Na, Byoung-Jun Ahn, Sung-Taig Cho and Jae-Won Lee 739
- Soil Washing and Effluent Treatment for Contaminated Soil with Toxic Metals  
..... Jung-Seok Yang, Jin-Min Hwang, Kitae Baek and Man Jae Kwon 745

**Materials(Inorganics/Organics, Electronics, Semiconductor) · Polymers · Nano Technology · Semiconductor Technology · Microreactor**

- Effects of Ar Addition on the Etch Rates and Etch Profiles of Si Substrates During the Bosch Process  
..... Jung Min Ji, Sung-Woon Cho and Chang-Koo Kim 755
- Lysozyme Crystallization in Droplet-based Microfluidic Device  
..... Kwan-Young Ko and In-Ho Kim 760
- Fabrication and Characterization of Transparent Conductive Film based on Bacterial Cellulose  
..... Eun-Chae Yim, Seong-Jun Kim and Chang-Doo Kee 766
- A Study on Formation of Vertically Aligned ZnO Nanorods Arrays on a Rough FTO Transparent Electrode by the Introduction of  $TiO_2$  Crystalline Nano-sol Blocking Interlayer  
..... Jin Hyuck Heo, Myung Sang You and Sang Hyuk Im 774

## Short Communication

- Structural Characteristics of Low Molecular Weight Laminarin Prepared by Ionizing Irradiation  
..... Jong-il Choi 780