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Philip Dell’Orco, Concepción Jiménez-González, Kien Teik and Steering Team Members

**A unique collaboration to promote sustainability for pharmaceuticals and fine chemicals: the GSK-Singapore Partnership for Green and Sustainable Manufacturing**

DOI 10.1515/greenps-2011-0027
Green Process Synth 1 (2012): 5–9

**Review:** Since its official launch in January 2010, the GSK-Singapore Partnership for Green and Sustainable Manufacturing has had two calls for proposals that have awarded 22 grants in 7 research areas with a total investment of about S$13.5 million.

**Keywords:** pharmaceuticals; sustainable manufacturing; sustainable science and technology.

Peter Koos, Duncan L. Browne and Steven V. Ley

**Continuous stream processing: a prototype magnetic field induced flow mixer**

DOI 10.1515/greenps-2011-0501

**Review:** We report on the development of a new prototype magnetic field induced flow mixer for application to flow equipment in research laboratories.

**Keywords:** continuous flow processing; magnetic field induced flow mixer (MFIFM); prototype.

Thomas K. Houlding and Evgeny V. Rebrov

**Application of alternative energy forms in catalytic reactor engineering**

DOI 10.1515/greenps-2011-0502

**Review:** A combination of radiofrequency heating and flow chemistry provides a safe, economically attracting way for chemical synthesis with minimum energy consumption.

**Keywords:** fine chemicals synthesis; magnetic nanoparticles; magnetic separation; radiofrequency heating.

Binhang Yan, Wei Lu and Yi Cheng

**China goes green: cleaner production of chemicals**

DOI 10.1515/greenps-2011-0024

**Review:** State-of-the-art technical innovations in conventional chlor-alkali/PVC industry are surveyed, involving cleaner processes to produce acetylene, vinyl chloride monomer and chlorinated PVC.

**Keywords:** chlor-alkali industry; clean coal conversion; cleaner production; green chemical engineering; low-carbon technology.

Meena Krishania, Virendra Kumar, Virendra Kumar Vijay and Anushree Malik

**Opportunities for improvement of process technology for biomethanation processes**

DOI 10.1515/greenps-2011-0025

**Review:** Major constraints occurring during the biogas production are solved by using various techniques that help to enhance the biogas production.

**Keywords:** bioenergy; biomass; biomethanation; pretreatment; reactors.
Tianming Xie, Lixiong Zhang and Nanping Xu

Biodiesel synthesis in microreactors

DOI 10.1515/greenps-2011-0004
Green Process Synth 1 (2012): 61-70

Review: Current status of research on biodiesel synthesis in microreactors is reviewed and some issues to be considered for commercialization of this technique are discussed.

Keywords: biodiesel; microreactors; synthesis.

Bernd Ondruschka and Werner Lautenschläger

Development of microwave chemistry through a co-operation between a university and an equipment manufacturer

DOI 10.1515/greenps-2011-0503
Green Process Synth 1 (2012): 71-78

Review: Modern microwave equipments enter into lab-scale daily routine as 21st century “Bunsen burners”, hopefully remaining in use as long as their 19th century counterparts which turned out to be a “lab evergreen”.

Keywords: energy efficiency; microwave chemistry; MW-devices; overview; qualification; validation.

Vimal Kumar and Krishna Deo Prasad Nigam

Process intensification in green synthesis

DOI 10.1515/greenps-2011-0003

Review: A review of technological development in the area of green synthesis, and various techniques for process intensification, e.g., mixers, micro-reactors, spin-disk reactor, oscillated flow reactors, microwave irradiation, ultrasonication, multifunctional membranes and coiled flow inverter, for green synthesis process.

Keywords: green synthesis; microreactors; microwave-assisted synthesis; motionless mixers; process intensification; ultrasound-assisted synthesis.

Galip Akay, Turgay Pekdemir, Abdelmalik M. Shakor and John Vickers

Intensified demulsification and separation of thermal oxide reprocessing interfacial crud (THORP-IFC) simulants

DOI 10.1515/greenps-2011-0510

Original article: Fine structure of highly stable (Oil-in-Water)-in-Oil model multiple emulsion which is developed to simulate radioactive thermal oxide reprocessing interfacial crud. These emulsions are demulsified using sulphonated PolyHIPE Polymer.

Keywords: demulsification; interfacial crud; nuclear reprocessing; oil-water separation; polyHIPE polymer.