

# 5<sup>th</sup> International Conference on Green Chemistry and Technology

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# & 6<sup>th</sup> International Conference on Environmental Chemistry and Engineering

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## Supercritical fluid technology for greener processes

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Supercritical fluid technology is one of the most promising green chemistry-based future technologies which can develop new, better and clean processes and products. In this presentation, recent R&D activities of supercritical fluid technology are briefly discussed with emphasis on the commercialization efforts. Discussion includes the large-scale (3,000 MT of sesame oil/yr) supercritical fluid extraction (SFE) processes of sesame oil in Korea in which sesame oil contains rich antioxidants like sesamin, sesaminol, and sesamolin. Supercritical CO<sub>2</sub> extraction of residual solvent from Active Pharmaceutical Ingredient (Cefpodoxime Proxetil) preventing unwanted agglomeration of particles will be also discussed. A correlation between the agglomeration phenomenon and dimensionless entropy of fusion ( $\Delta S_m/R$ ) was shown on the basis of the hypothesis that CO<sub>2</sub>-induced melting point depression is one of the major factors resulting in agglomerates. Other examples of application of supercritical water to wastewater treatment, nano particle synthesis, and recycling of cross-linked polyethylene will be discussed.

### Biography

Youn-Woo Lee has completed his PhD in 2004 from Rensselaer Polytechnic Institute, USA. He is a Professor of Seoul National University, Korea. He has over 180 publications and 30 patents. He is a member of Korea National Academy of Engineering since 2014. He has been serving as an Organizer at the International Symposium of Supercritical Fluids 2015, and an Editorial Board Member of the *Journal of Supercritical Fluids* and *Journal of CO<sub>2</sub> Utilization* as well as an Associate Editor of *Green Materials* journal.

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