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B.S. Chemical Engineering, National Taiwan University 1990

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Research Interests:

Our research interests are mainly focused on various applications and properties of surfactants, colloid science, enhanced drug delivery using emulsion formulations and environmental engineering.

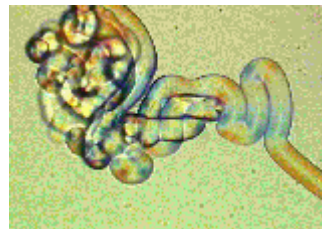
I Phase Behavior of Surfactants and Its Associated Applications



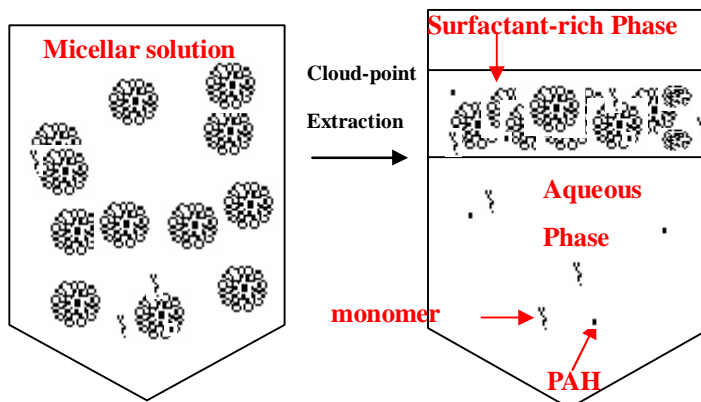
Typical Aqueous Phase Sequence of Surfactant



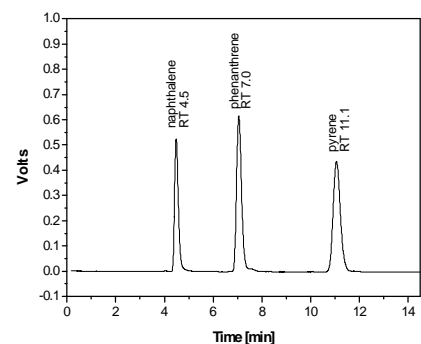
Liquid Crystalline La Phase (Myelins)



Ü Application in Microanalysis and Preconcentration

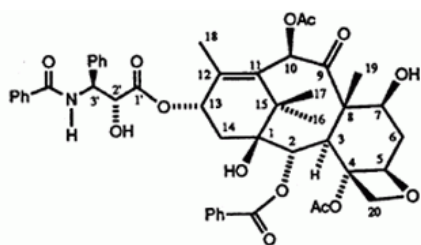


Cloud-point Extraction (CPE)



Chromatograms of PAH mixtures obtained by the injection of surfactant-rich phases of 3 wt% Tergitol 15-S-7

Ü Applications in Enhanced Drug Delivery using Emulsion Formulations

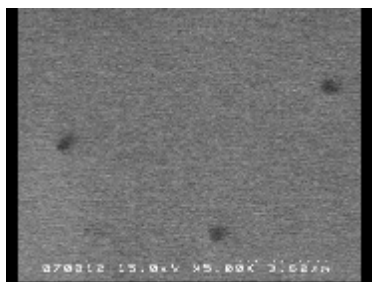


Taxol (paclitaxel) as model drug

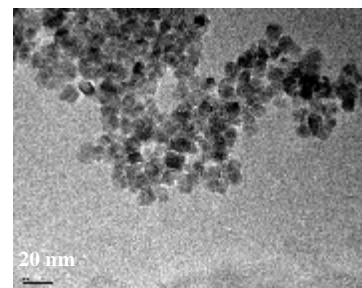
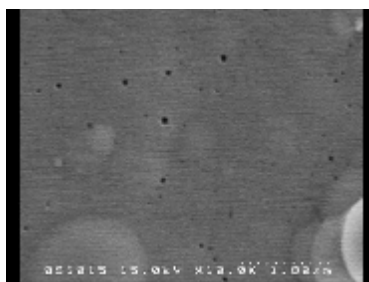


Good shelf stability, over 10 months, containing Taxol of 1000 ppm in O/W emulsions was obtained using food-grade surfactants and lipids.

Ü Applications in Electroless Deposition of Thin Metal Films and Nanoparticle Formation

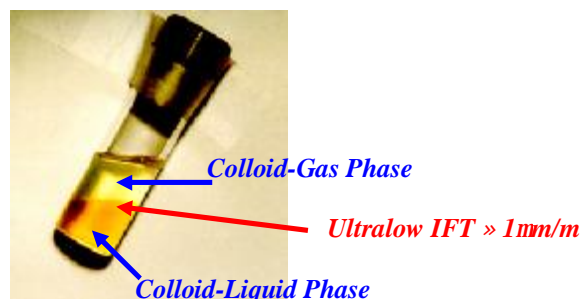
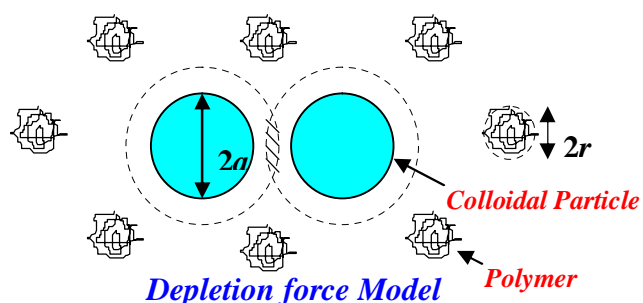


Surfactant can reduce void (pit) formation on Ni-P thin films.



Synthesis of SnO₂

I Critical Phenomena in Colloidal System



34.40 wt% C₁₈-g-SiO₂ (20nm)+ 1.1wt% PDMS (MW=96000) in Cyclohexane

Selected Publications:

- (1) J.-L. Li, R. Bai, B.-H. Chen, "Preconcentration of Phenanthrene from Aqueous Solution by a Slightly Hydrophobic Nonionic Surfactant", *Langmuir*, **20**(14), 6068–6070 (2004).
- (2) C.Y. Sin, B.-H. Chen, W.L. Loh, J. Yu, P. Yelehanka, A. See and L. Chan, "Effect of Halogen in High-density Oxygen Plasmas on Photoresist Trimming", *AIChE Journal*, **50**(7), 1578–1588 (2004).
- (3) X. Yin, L. Hong, B.-H. Chen, "The Role of Pb²⁺ Stabilizer in Electroless Nickel Plating System – A Theoretical Exploration", *The Journal of Physical Chemistry B*, **108**(30), 10919 – 10929 (2004).
- (4) J.-L. Li, and B.-H. Chen, "Review of CO₂ Absorption Using Chemical Solvents in Hollow Fiber Membrane Contactors", *Separation & Purification Technology*, **41**(2), 109–122 (2005).
- (5) D. Bai, Cho Cho Khin, S.B. Chen, C.-C. Tsai, B.-H. Chen, "Interaction between a Nonionic Surfactant and a Hydrophobically Modified 2-Hydroxyethyl Cellulose", *The Journal of Physical Chemistry B*, **109**(11), 4906–4916 (2005).