584b Epoxidation of Soybean Oil in a Microemulsion-Assisted Environment

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Microemulsions are thermodynamically stable, optically clear dispersions of an organic phase in an aqueous medium which may form spontaneously in the presence of an appropriate mixture of surfactants and cosurfactants. The dynamic interface generated by microemulsions between an organic alkene and an aqueous oxidizing medium greatly facilitates phase transfer and interfacial kinetics, which is important for hypochlorination and epoxidation reactions that occur at this interface. In this talk, the use of the microemulsion method for the hydroxylation and epoxidation of soybean oil will be presented. Specifically, oxidizing reactions have been carried out in the bicontinuous phases of microemulsions which typically contain higher oil to water ratio than o/w or w/o microemulsions. In this study, the effect of the presence of a variety of surfactants on enhancing the conversion of unsaturated soybean oil to epoxidized triglycerides have been explored in detail.