

EVAPORATION OF EMULSIONS WITH ESTERS
IN WATER AND GLYCEROL SYSTEMS

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**EVAPORATION OF EMULSIONS WITH ESTERS
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By

CHENG YIN NEE

**Thesis submitted in partial fulfillment of the
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**Faculty of Science and Technology
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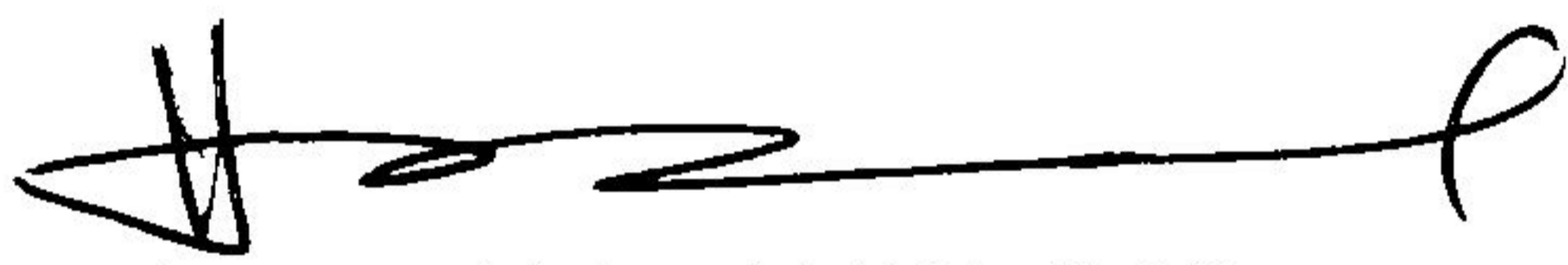
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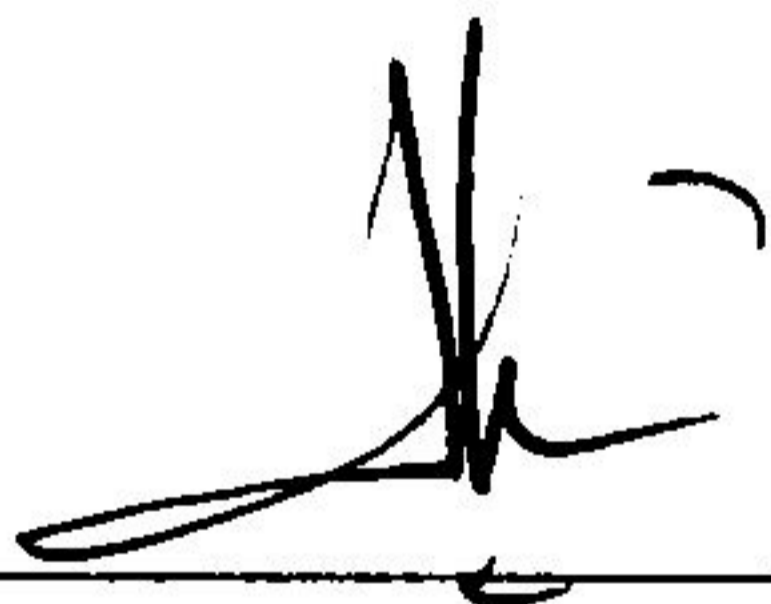
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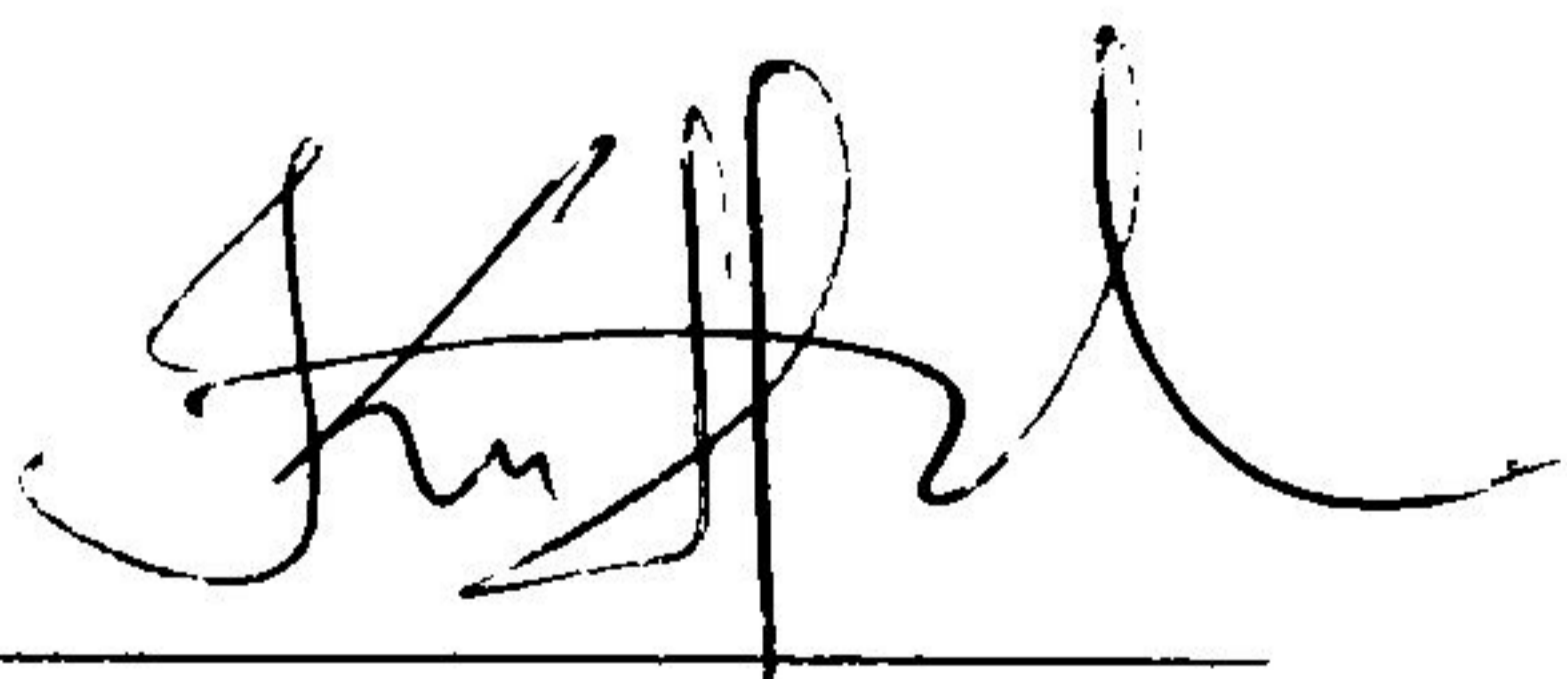
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ABSTRAK

Kajian terhadap sifat gambarajah fasa telah dilakukan ke atas sistem air/surfaktan/ester dan gliserol/surfaktan/ester untuk penyediaan emulsi. Surfaktan yang digunakan di dalam projek ini adalah asid isostearic dan triethanolamine dengan nisbah berat 75:25. manakala, ester yang digunakan adalah metil asetat dan n-otilasetat. Keputusan menunjukkan satu kawasan emulsi yang besar diperolehi dalam kedua-dua sistem. Selain itu, satu kawasan biru emulsi didapati di dalam sistem air/surfaktan/metil asetat di antara nisbah berat 60:40 dan 70:30 surfaktan:metil asetat dalam lingkungan 70% air. Emulsi biru ini merupakan emulsi yang paling stabil dalam sistem, dimana ia tidak mudah terurai kepada lapisan bahan yang berasingan. Kehilangan berat daripada pemeruapan dalam sistem emulsi adalah lebih tinggi di metil asetat dalam sistem akues. Kehilangan berat dan kadar pemeruapan bergantung kepada nisbah bahan surfaktan, ester dan kandungan pelarut. Kandungan ester dan kandungan pelarut yang tinggi dan kandungan surfaktan rendah memberikan kadar pemeruapan yang lebih tinggi. Bagi sistem bukan akues pula, kadar pemeruapan menurun dengan kandungan ester.

ABSTRACT

The emulsion region of water/surfactant/esters and glycerol/surfactant/esters are investigated at 30°C room temperature. The surfactants used in this project are isostearic acid and triethanolamine with ratio 75:25. The esters are methyl acetate and n-octyl acetate. The results show that a large emulsion region is observed in both systems. In addition, a blue phase emulsion is located in water/surfactant/methyl acetate system with weight ratio 60:40 and 70:30 surfactant: methyl acetate at around 70% by weight of water. The weight loss of evaporation from the emulsion system is found to be larger in the aqueous methyl acetate system. The weight loss due to the evaporation from the emulsion system is found to be independent on the weight ratio of surfactant, esters, and solvents content of emulsion, a higher esters content and solvent content, and lower surfactant content led to a higher evaporation. In the non-aqueous system, the evaporation rate decreased with the esters content.