ASSOCIATION BEHAVIOUR OF MIXED CATIONIC SURFACTANT / ALCOHOL / WATER SYSTEM

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By

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Thesis submitted in partial fulfillment of the requirement for the Degree of Bachelor of Science (Hons.) Chemistry

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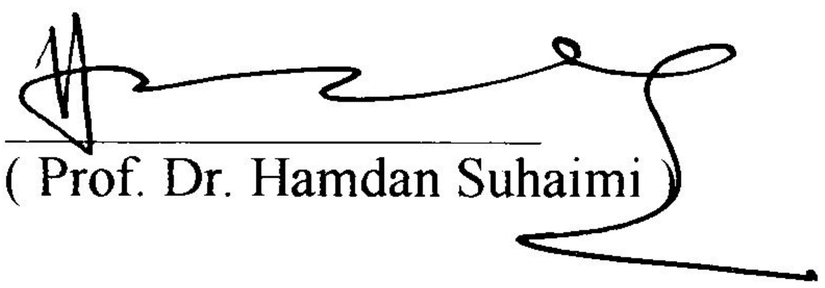
Approved by :

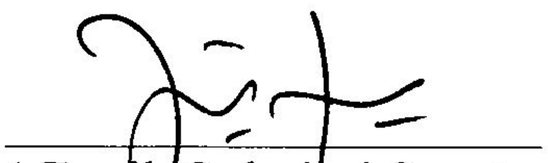
Supervisor



(Prof. Dr. Hamdan Suhaimi)

Date :_____

Coordinator



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ABSTRAK

Kajian terhadap sistem campuran kationik surfaktan tetradesiltrimetilammonium bromide (CTAB) dan dodesiltrimetilammonium bromide (DTAB) / Pentanol / Air, campuran CTAB dan DTAB / Octanol / Air dan campuran CTAB dan DTAB / Dodecanol / Air telah dijalankan pada suhu 30°C. Keputusan menunjukkan bahawa kawasan misel bagi komposisi 0.2 dan 0.5 pecahan mol CTAB adalah lebih kurang sama besar untuk sistem campuran bagi pentanol, octanol dan dodecanol. Keputusan juga membuktikan bahawa kawasan misel bertambah kecil dari sistem campuran pentanol kepada sistem campuran dodecanol bagi semua jenis sistem sama ada surfaktan tulen atau campuran surfaktan. Selain itu, keputusan juga menunjukkan bahawa campuran tersebut menghampiri sifat tidak unggul dan sifat yang lebih baik adalah disebabkan oleh interaksi antagonis antara kedua-dua surfaktan. Nilai parameter interaksi molekul, β yang didapati ialah lebih kurang 0.1.

ABSTRACT

Studies on a mixed cationic surfactant systems of cetyltrimethylammonium bromide (CTAB) and dodecyltrimethylammonium bromide (DTAB) / Pentanol / Water, mixed CTAB and DTAB/ Octanol / Water and mixed CTAB and DTAB / Dodecanol / Water were carried out at 30°C. Results indicated the composition of 0.2 mole and 0.5 mole fraction of CTAB exhibit approximately the same size of micelle regions for the pentanol, octanol and dodecanol mixture systems. Results also indicated that the micelle regions becoming smaller and smaller from pentanol mixture system to dodecanol mixture system for pure and mixed surfactants. Besides that, the results also indicated that the mixture behaved slightly nonideally and its superior properties are due to its antagonistic interaction amongst the two surfactants which gave a molecular interaction parameter value, β of about 0.1.