



SYNTHESIS, CHARACTERIZATION AND STUDY OF SURFACTANTS EFFICIENCY IN THE DISPERSION (O/W) EMULSIONS

Muhanned Jawad Kadhim Al-Assadi, Kawkab Ali Hussein Al-Ali

Department of Chemistry, College of Education, University of Basrah, Basrah, Iraq

Abstract

In the present study three classes of surfactants derivatives from heptilic acid were prepared. The prepared surfactants were characterized by FTIR-Infrared spectrophotometer and CINN analysis. The physical properties of the prepared surfactants were measured i.e. (pH, density, viscosity, color, freezing point and stability to hydrolysis). The efficiency of the prepared surfactants was studied with time and long side chain substituted. The hydrophilic lipophilic balance (HLB) was calculated.

الخلاصة

تم في الدراسة إعداد ثلاثة فئات من سرفاكتنات مشتقة من حمض الهيپتيليك، تم تطبيق تحليل IR-FTIR وتحليلاً كهرومطيئياً (CINN) على كل منها. تم قياس خواص السرفاكتنات المنشورة كاللون والكتلة والвязانية والكتلة المائية (pH) والثبات إلى التحلل. تم دراسة الكفاءة بحسب المدة والسلسلة الطويلة المقترنة. تم حساب معامل HLB.

Introduction

The common aromatic nuclei, benzene and naphthalene are not sufficiently hydrophobic to produce a high degree of field when they are combined with a sulphonate acid group. When however the aromatic nucleus is substituted with one or more alkyl groups, which may be quite small, the amphiphilic character of the molecules is greatly enhanced and in this class we find many important surface active agents [1a, 1b].

The alkyl benzene sulphonates however are efficient detergents where the alkyl group contains 10-14 carbon atoms. It is to be expected that the short chain alkyl compounds would be much less effective than the long-chain ones in reducing the oil-solvent interfacial tension, which would be a contributory factor in their being inferior demulsifiers [2a, 2b].

The most important of the synthetic surfactant carboxylate are the "Modialans" and "Lumipones". The former, structures of which recall "Igepon T", are sarcosine derivatives of general formula $[R-\text{CON}(\text{CH}_3)\text{CH}_2\text{COO}^{\pm}\text{M}^{\pm}]$ in which M^{\pm} is a simple ion such as Na^+ and $R-\text{COO}^-$ is a group such as stearyl ($\text{C}_{18}-\text{COO}^-$) or oyl ($\text{C}_{12}-\text{COO}^-$) [4].

A surfactant is a chemical compound that affects the surface forces of a liquid or a solid in relation to other liquids, solids or gases. The surfactants generally consist of a molecule in which one end is hydrophilic (water loving) and the other end is lipophilic (oil-loving) [4a, 4b]. A dispersing agent is used to promote the suspension of fine particles of solid in a liquid. Hence, both surfactants and colloidal thickeners may fit the definition. A dispersing agent must wet the surface of the solid, yet, at the same