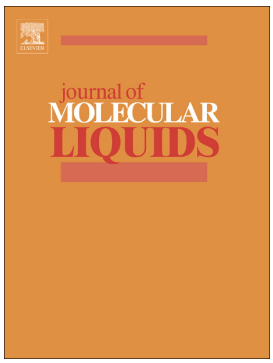

FT-IR spectroscopic and micellization studies of cetyltrimethylammonium bromide in aqueous and aqueous solution of ionic liquid (1-butyl-3-methylimidazolium bromide) at different temperatures

Harsh Kumar, Arjuna Katal, Pradeep Rawat

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FT-IR spectroscopic and micellization studies of cetyltrimethylammonium bromide in aqueous and aqueous solution of ionic liquid (1-butyl-3-methylimidazolium bromide) at different temperatures

Harsh Kumar*, Arjuna Katal, Pradeep Rawat

Department of Chemistry, Dr B R Ambedkar National Institute of Technology, Jalandhar – 144011, Punjab, India

ABSTRACT

The electrical conductivity and infrared spectroscopic measurement of aqueous solutions of cetyltrimethylammonium bromide (CTAB), cationic surfactant, with imidazolium based ionic liquid 1- butyl-3 methyl imidazolium bromide [C_4mim] [Br] were determined at different weight percentages and temperatures. The temperature dependence of critical micelle concentration (cmc) obtained from conductivity measurements at different temperatures (298.15, 303.15, and 308.15) K has been used to calculate various thermodynamic parameters of micellization like standard enthalpy of micellization (ΔH_m^0), standard free energy of micellization (ΔG_m^0), and standard entropy of micellization (ΔS_m^0), and the obtained parameters are further used to understand the effect of ionic liquid on surfactant. The influence of ionic liquid 1-butyl-3-methylimidazolium Bromide [C_4mim][Br] on the micellization process of the cetyltrimethylammonium bromide (CTAB) is discussed.

Keywords: 1-Butyl-3-methylimidazolium bromide, Cetyltrimethylammonium bromide, FT-IR, CMC, Micellization.

1. INTRODUCTION

Corresponding author: manchandah@nitj.ac.in; h.786.man@gmail.com