

Separation of ethanol – water mixture using ionic liquids

M. Addounir¹ and H. Benyounes¹

¹U.S.T.Oran, Laboratoire de chimie physique de matériaux, catalyse et environnement, Oran,
Algérie

jch@emp.mdn.dz

Abstract. The aim of the present work has been focused on the design of liquid-liquid extraction and liquid-vapor extractive distillation processes for the separation of ethanol-water using ionic liquids. For this purpose, 1-butyl-3-methylimidazolium ([BMIM][NTF₂]) and 1-Ethyl-3-methylpyridinium Ethyl Sulfate ([EMpy][EtSO₄]) has been chosen as separating agent. A comparative study among processes of extraction using the [BMIM][NTF₂] combined with extractive distillation, and extractive distillation using [EMpy][EtSO₄]. The UNIQUAC and NRTL models were used to correlate respectively the LLE of the ternary systems at 30°C and the NRTL model for LVE under the atmospheric pressure using Simulis Thermodynamic software.

Keywords: Ionic liquid, UNIQUAC model, Liquid – liquid extraction.