Effect of Thermodynamics Promoter (TBAB) in Gas Hydrate Dissociation Conditions of the Mixtures: $H_2O+C_6H_{14}+CO_2$+TBAB and $H_2O+C_7H_{16}+CO_2$+TBAB

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In México, there are reservoirs with high content of water (20 % or more) like Cantarell, where hydrate formation can be simple. For this reason, the oil industry recorded an increase of produced water during the extraction of these resources in oil production wells, so it is necessary to develop a low cost effective process for separating water from oil-- a novel alternative for separation applications, such as gas storage, water desalination, CO_2 capture, separation gases, gas supply, oil and gas separation, and principally, dehydration oil process. Gas hydrates are crystalline ice-like solids that are formed by water molecules in contact with small gas molecules such as CO_2, N_2, H_2, light hydrocarbons, etc. at low temperatures (above the freezing point water) and high pressures. Since oil is a multi-component mixture of hydrocarbons, a systematic study on the phase equilibrium conditions of mixtures containing liquid hydrocarbons is required. In this work, the experimental dissociation conditions for the systems H_2O + C_6H_{14} + CO_2 +TBAB and H_2O + C_7H_{16} + CO_2 +TBAB were determined at pressures up to 3.5 MPa and in a temperature range of 273 K to 290 K using an apparatus based on a synthetic-static method with an isochoric technique. The goal of this study is to determine the effect of thermodynamic promoters on the dissociation conditions. The combined expanded uncertainties of the dissociation conditions were estimated to be less than 0.012 MPa, 0.200 K, and 0.002 for pressure, temperature, and mass fraction, respectively.