

Cloud Point Phenomena for Imidazolium-Type Compounds in Electrolyte Aqueous Solutions.

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Cloud point, tcl, is the temperature at which a homogeneous aqueous solution of a water-soluble amphiphile becomes turbid. Cloud point usually decreases as salinity increases. In this work a study on the cloud point phenomena in aqueous solutions of seven imidazolium-type compounds is presented. These compounds were synthesized in our laboratory and are intended to act as Low Dosage Kinetic Hydrate Inhibitors (KHIs). Knowing the cloud point of a KHI is important for preventing its possible precipitation when injected into hot well streams. Cloud points were visually determined by observing the temperature at which the first sign of appreciable turbidity in the aqueous solution appeared. The effect of several parameters (including concentration of the studied compounds [0.05 to 1.0 g/100 g] as well as type and concentration of electrolytes) on the cloud points was investigated. Some of the studied compounds were compatible (tcl > 60 °C) with very high salinity brines (total dissolved solids > 250,000 mg/kg). Additional experiments carried out in our laboratory indicate that these compounds also showed promising activity as KHIs for natural gas type-II hydrates with large subcooling.