# Hydrate-Containing Phase Equilibria for Mixtures of Carbon dioxide + Ionic Liquids + Water

신병수, 강정원*
고려대학교
(jwkang@korea.ac.kr*)

Ionic liquids (ILs), a promising alternative for organic solvent, were found to have the inhibition effect on the $CO_2$ hydrate formation. Among ILs, the hydroxyl groups in [HEMP][$BF_4$], Pyrrolidinium cation – based ionic liquids, were found to be very effective inhibitor on hydrate formation. In this study we measured the dissociation temperature of $CO_2$ hydrate containing Ionic liquids including [HEMP][$BF_4$] at constant high pressure and determined loading composition of all components. With 1 ~ 9 weight present of ILs to aqueous solution, three-phase equilibrium conditions in $L_W$-H-$L_{CO2}$ were determined by varying the relative amount of $CO_2$ to ILs-$H_2O$ mixture. The result shows that ILs inhibit the $CO_2$ hydrate formation even with small amount.