

## **COSMO-RS Prediction for Choline Chloride/Urea Based Deep Eutectic Solvent: Chemical Structure and Application as Agent for Natural Gas Dehydration**

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**Abstract :** In recent years, green solvents named deep eutectic solvents (DESs) have been found to possess significant properties and to be applicable in several technologies. Choline chloride (ChCl) mixed with urea at a ratio of 1:2 and 80 °C was the first discovered DES. In this article, chemical structure and combination mechanism of ChCl: urea based DES were investigated. Moreover, the implementation of this DES in water removal from natural gas was reported. Dehydration of natural gas by ChCl:urea shows significant absorption efficiency compared to triethylene glycol. All above operations were retrieved from COSMOthermX software. This article confirms the potential application of DESs in gas industry.

**Keywords :** COSMO-RS, deep eutectic solvents, dehydration, natural gas, structure, organic salt

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