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Evaluation of potassium formate as a potential modifier of TEG for high performance natural gas dehydration process

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A B S T R A C T

Triethylene glycol (TEG) is one of the most effective sorbents for natural gas dehydration. There are many processes using this approach but none of them can combine high performance and economical energy consumption. In this study hydrocarbon–water phase behavior was investigated for different TEG concentrations in different natural gas dehydration processes. The equilibrium correlations were investigated for predicting water dew point as a function of TEG concentration. The effect of TEG concentration on the outlet gas dew point was also determined using phase envelope diagrams. The results showed that the (DRIZO) process achieved the most significantly reduces water dew point followed by conventional stripping gas dehydration process. Moreover, TEG was modified using potassium formate as additive. The results showed that the absorption capacity of the modified TEG was improved, that is almost duplicated. This modification augments the performance of the proposed mixture which can be potentially applied to a real scale process.

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