

## **Phase Envelopes and Densities for Natural Gas Samples Including Heavy Components**

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During last decade at Texas A&M University - Thermodynamics Research Group, we measured densities and phase envelopes of the natural gas like mixtures for several different gas samples. Natural gas mixtures including heavy components were one of our special interests. Properties of such samples are essential for two major reasons: extension of the use of AGA8-DC92 EOS which still is the current industry standard equation of state for natural gas custody transfer, and the need for thermophysical properties for reservoir fluids from deep ocean beds in the Gulf of Mexico. We measured 4 synthetic samples and in this paper we show the conclusions regarding the retrograde condensation region as well the performance of the AGA8-DC92 EOS in application to mixtures containing heavy components. Measurements were made by an Isochoric Apparatus and a High-Pressure Single Sinker Magnetic Suspension Densimeter.