

# **A STUDY OF THE EFFECTS OF ORGANIC MATTER ON ILLITIZATION IN THE WOODFORD/CHATTANOOGA SHALE, OKLAHOMA**

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## **ABSTRACT**

The Woodford Shale has received significant research interest as the number of productive wells has increased. The Woodford is productive over a wide range of thermal maturity (based upon vitrinite reflectance), yet most clay mineral studies report primarily illite. A previous report contrasts this behavior to other late Paleozoic shales in Oklahoma (Kowal, 2015). The major difference between these units is the amount of organic matter, which is very high in Woodford samples. In this study, Woodford shale samples will be analyzed for three different characteristics. Clay mineralogy will be determined using an X-ray diffractometer (XRD) with the goal of finding the amount, and the degree of crystallinity of illite in a suite of samples. Vitrinite reflectance as a marker for thermal maturity will then be determined if not already provided with the samples. Finally, samples will be assessed for percent total organic matter. These three rock properties will then be statistically reduced with the interest of finding lines of correlation between them, if any exist.

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