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## Abstract

Accurately assessing the temperature and hence the depth and timing of hydrocarbon generation is a critical step in the characterization of a petroleum system. Clay catalysis is a potentially significant modifier of hydrocarbon generation temperature, but experimental studies of clay catalysis show inconsistent or contradictory results. This study tests the hypothesis that source rock fabric itself is an influence on clay mineral catalysis as it controls the extent to which organic matter and clay minerals are physically associated. Two endmember clay-organic fabrics distinguish the source rocks studied: 1) a particulate fabric where organic matter is present as discrete, >5  $\mu\text{m}$  particles and 2) a nanocomposite

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