

**Sedimentary and geochemical characteristics of the
Triassic Chang 7 Member Shale in the Southeastern
Ordos Basin, Central China**

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The Ordos Basin is the largest petroliferous basin in China, where the Chang7 Member shale serves as the major source rock in the basin. So far, sedimentary and geochemical characterizations have rarely been conducted on the shale in shallow (<1,000 m) areas in the southeaster part of the basin, but such characterizations can help identify the genesis of organic-rich shale and promote the prediction and recovery of shale oil. In this paper, several outcrop sections of the Chang7 Member in the Tongchuan area were observed and sampled, and sedimentary and geochemical characterizations were conducted for the well-outcropped YSC section. The organic-rich shale is 7–25 m thick. In the eastern sections, the shale contains organic matter of Type II₂–III and is low in thermal maturity, with high clay mineral content, low K-feldspar content, and no pyrite. In the western sections, the shale contains Type II₁ organic matter and is low in thermal maturity, with high clay mineral, K-feldspar and pyrite contents. The YSC section reveals three obvious intervals in vertical mineral composition and organic abundance. The Chang7 Member organic-rich shale (TOC>10%) contains mainly sapropelite and liptinite, with Type II kerogen. It is generally characterized by a hydrocarbon potential of more than 70 mg/g, low maturity, and shallow–semideep lacustrine facies. In the western sections, the shale, still in a low maturity stage, has a higher hydrocarbon potential and is optional for shale oil recovery. However, the Chang7 Member shale in the study area is highly heterogeneous and its shale oil recovery is practical only in the organic-rich intervals.