

论文

川东南地区古生界主要页岩层系热演化

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摘要:

在研究区热流史和地层埋藏史的基础上, 对下寒武统筇竹寺组、下志留统龙马溪组的热演化进行了模拟。下寒武统筇竹寺组烃源岩在早志留世开始生油并进入生油高峰, 在中志留世至早二叠世生烃缓慢并一度停滞, 中三叠世进入湿气阶段, 早侏罗世进入干气阶段, 干酪根主生气期为中三叠世一早白垩世。下志留统龙马溪组烃源岩在二叠纪开始生油, 中侏罗世一早白垩世中期为干酪根主生气阶段, 晚侏罗世早期一晚白垩世早期为油裂解生气阶段。下志留统龙马溪组是川东南地区页岩气勘探开发的最有利目的层系。

关键词: 古生界页岩 热演化 生烃过程 川东南地区

Thermal evolution of the main Paleozoic shale rocks in the Southeastern Sichuan Basin

Abstract:

Thermal evolution of these main Paleozoic shale source rocks were modeled based on the heat flow history and sedimentary burial history. The Lower Cambrian Qiongzhusi source rock began to produce petroleum and entered its oil generation peak in the Early Silurian rapidly, nevertheless, the hydrocarbon generating process was stationary during Middle Silurian-Early Permian. The matured stage of the Lower Cambrian Qiongzhusi source rock changed from oil into wet gas in Middle Triassic and from wet gas into dry gas in Early Jurassic. The main gas generation period of the kerogen source rock was from Middle Triassic to Early Cretaceous. The Lower Silurian Longmaxi source rock began to produce petroleum in Permian, the main gas generation period of the kerogen was from Middle Jurassic to the Middle stage of Early Cretaceous, however, the crude oil cracking gas was produced during the late stage of Late Jurassic-the early stage of Late Cretaceous. The Lower Silurian Longmaxi Formation is the best favorable target for shale gas exploration and development in the Southeastern Sichuan Basin.

Keywords: Paleozoic shale rocks; thermal evolution; hydrocarbon generation process; Southeastern Sichuan Basin

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