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渤海海域沙三段烃源灶演化特征研究

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Hydrocarbon kitchen evolution of E_2s_3 source rock of the Bohai Offshore area, North Chir

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摘要 烃源灶是表征供烃中心的最合适的方法, 其迁移演化研究对油气勘探具有重要意义. 渤海海域为渤海湾盆地海域部分, 要富油气盆地之一. 沙河街组三段是古近系4套烃源岩中最重要的烃源岩. 本文在沉积、构造发育和热史研究成果的基础之上 源岩地球化学参数模拟计算了沙三段烃源岩成熟生烃及生、排烃演化历史, 并以此研究渤海海域沙三段烃源灶的演化特征. 究区具有早期的"双灶共存"和晚期"单灶为主, 多灶并存"的特征, 即早期(古近纪)为岐口和渤中凹陷烃源灶; 晚期(新近纪至今 凹陷烃源灶为主, 岐口、南堡、黄河口、辽中、辽西和秦南凹陷等烃源灶并存. 烃源灶为油气田的形成提供了物质基础, 渤海 中型油气田分布在主要烃源灶周围的凸起区和斜坡带. 因而, 本文的研究可以为渤海海域油气的深入勘探决策提供基础.

关键词: 渤海海域 烃源岩 沙三段 成熟度 烃源灶

Abstract: The hydrocarbon kitchen is appropriate for characterizing the center of providing hydrocarbo evolution research has a great significance for petroleum exploration. The Bohai Offshore area is located offshore Bohai Bay basin, North China. It is one of the most petroliferous basins in China. There develope sets of potential source rocks in the Paleocene. The third member of the Shahejie Formation (E_2s_3) is th important source rock. In this paper, the evolution histories of the maturation and hydrocarbon generatic expulsion of E_2s_3 source rocks are modeled based on the depositional and tectonic development history i combination with geochemical and thermal parameters, etc. The hydrocarbon kitchen evolution of the E_2 rocks is analyzed using the amount of expelled hydrocarbon of the E_2s_3 source rocks in the main geologi periods. The results show that there developed two hydrocarbon kitchens at early stage, which then tra to one main hydrocarbon kitchen and co-existing multi-hydrocarbon kitchens with the geological evolutio two hydrocarbon kitchens in the Bozhong and Qikou sags in the Paleocene and one main hydrocarbon kit the Bozhong sag and multi-kitchens in the Qikou, Nanpu, Huanghekou, Liaozhong, Liaoxi and Qinnan sags Neogene to the present day. Most oil and gas fields are located in the uplifts and slopes around the mair hydrocarbon kitchens, thus the study may provide new insight for understanding the petroleum explorati potential of the Bohai Offshore area.

Keywords: Bohai Offshore area Source rock The third member of the Shahejie Formation Maturatic Hydrocarbon kitchen

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