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渝东南地区下寒武统牛蹄塘组页岩孔隙体系特征

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Pore System Feature of Lower Cambrian Niutitang Formation Shale in Southeast Chongqing

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PDF (PC)

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摘要/Abstract

摘要 :

页岩孔隙类型与结构对其含气性具有决定性的控制作用。通过扫描电镜二次电子成像、氩离子抛光技术和高分辨率扫描电镜,对渝东南地区下寒武统牛蹄塘组页岩中的孔隙体系进行分类描述,并初步探讨了孔隙特征与含气性的关系。渝东南地区下寒武统牛蹄塘组页岩主要发育了4个大类9个亚类的基质孔隙和3个大类4个亚类的天然裂缝。其中粒内孔、溶蚀孔、高角度剪切裂缝和低角度滑脱缝4类优势孔隙类型共同构成了牛蹄塘组的孔隙体系,具有孔隙类型多样、孔径规模小、连通性差、渗透率低等特点。孔隙体积主要由纳米级的微孔和中孔提供。有机质孔隙相对不发育、孔隙连通性差及滑脱裂缝呈区域性发育等是牛蹄塘组含气性不理想的可能原因。

关键词: 孔隙体系, 基质孔隙, 天然裂缝, 溶蚀孔, 有机质孔, 滑脱缝

Abstract:

The pore types and structures are critical to gas bearing capacity of shale reservoirs. Conventional scanning electron microscope, argon ion polishing, high resolution power scanning electron microscope are used to describe pore system of Lower Cambrian Niutitang Formation shale in Southeast Chongqing and discuss the relationship between pore characteristics and gas bearing capacity. There are four categories and nine classes matrix pores and three categories and four classes natural fractures in Lower Cambrian Niutitang Formation shale. Intragranular pore, dissolved pore, high angle shear fracture and low angle decollement fracture constitute the pore system of Lower Cambrian Niutitang Formation shale jointly. The pore system has the characteristics of various types, small pore diameter, poor connectivity and low permeability. Pore volume is mainly provided by the nanoscale pores. No organic pores, poor pore connectivity and regional developed decollement fractures maybe the reason why the Niutitang Formation shale has poor gas-bearing capacity.

Key words: Pore system, Matrix porosity, Nature fracture, Dissolved pore, Organic pore, Decollement fractures

中图分类号:

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