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摘要:

通过对东营凹陷民丰洼陷深层天然气储层岩芯描述、薄片观察、储层流体包裹体显微观察和拉曼光谱分析, 描述了流体包裹体的岩相学特征和成分。实验分析表明, 酸性溶蚀作用是东营凹陷民丰洼陷重要机制之一, 碳酸盐、长石和岩屑的溶蚀现象较明显, 石英溶蚀主要发生在颗粒边缘。储层包裹体成分分析结果与储层孔隙度和高渗透率呈正相关性, 与储层碳酸盐含量呈负相关性。包裹体中烃类流体与CO₂流体共存, CO₂对碳酸盐等胶结物的溶蚀作用使得储层次生孔隙发育, 促进了民丰洼陷的天然气成藏。同时, 包裹体热解成因天然气成因给出了直接证据。本次研究为东营凹陷民丰洼陷深部储层的酸性溶蚀作用给出了证据, 研究生孔隙发育带在未来东部深层勘探中应当受到重视。

关键词: [储层](#) [酸性溶蚀](#) [流体包裹体](#) [东营凹陷](#) [拉曼光谱](#)

Acid Dissolution of Deep natural Gas Reservoirs in Minfeng Sag in Dongying Depression
inclusions [Download Fulltext](#)

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Abstract:

Based on the description of drilling cores, observation of thin sections, microscopic and Raman spectra analysis of fluid inclusions in deep natural gas reservoirs in Minfeng sag in Dongying depression, the types of acid dissolution and characteristics of fluid inclusions were described in this paper, done same to the characteristics of fluid inclusions. The observation mechanism of second pore forming in deep natural gas reservoirs by acid dissolution in Minfeng sag, carbonates, feldspars and rock bits are obviously, however, the quartz mainly dissolved at the edge of fluid inclusions in reservoirs were analyzed by Raman spectroscopy. Experimental results indicate that filter rate of reservoirs rocks increased with the content carbon dioxide in inclusions, but the permeability of rocks decreased with the accretion of the content of carbon dioxide in fluid inclusions. The Raman spectra analysis of fluid inclusions show that hydrocarbon co-exist with carbon dioxide. It proved that the acid fluids occur in natural gas. So, we know that the second pore in reservoirs increased due to the dissolution of carbon dioxide, such as dissolution of carbonates. This process accelerated the accumulation of natural gas. Undersaturation hydrocarbon was found in fluid inclusions, which give direct evidence for the thermal maturation of natural gas. This study give reliable evidence for acid dissolution of deep reservoirs in Minfeng sag, and should be cared the zone of second pore caused by acid dissolution in future deep exploration.

Keywords: [Reservoirs](#) [Acid dissolution](#) [Fluid inclusions](#) [Dongying depression](#) [Raman spectroscopy](#)