王瑞飞,陈明强.储层沉积-成岩过程中孔隙度参数演化的定量分析——以鄂尔多斯盆地沿25区块、庄40区块为例[J].地质学报,2007,81(10):1432-

储层沉积-成岩过程中孔隙度参数演化的定量分析——以鄂尔多斯盆地沿25区块、庄40区块为例

点此下载全文

王瑞飞 陈明强

西安石油大学石油工程学院 710065

基金项目：国家重点基础研究发展规划“973”项目(编号2003CB214600)资助成果

DOI：

摘要：

分别对鄂尔多斯盆地中南部沿25、西南部庄40两区块延长组长6段砂岩的成岩作用和孔隙演化进行分析。研究表明,两区块目的层砂岩目前均处于中成岩B期。受成岩环境酸碱性的控制,沿25区块普遍发育浊沸石和绿泥石,其浊沸石溶蚀孔隙为有利的储集空间;庄40区块高岭石较为发育,长石、岩屑溶孔为有利的储集空间。成岩过程中孔隙度演化的定量研究表明,相似的成岩演化阶段,孔隙度的演化不同。两区块初始孔隙度相近,沿25区块为34.91%,庄40区块为33.42%。机械压实过程中,沿25区块孔隙损失率为40.33%;庄40区块孔隙损失率为55.45%。胶结、交代过程孔隙损失率:沿25区块为46.86%;庄40区块为36.51%。后期溶蚀过程中,沿25区块次生孔隙空间主要为浊沸石溶孔,次生溶孔占比例为55.76%;庄40区块次生孔隙空间主要为长石、岩屑溶孔,次生孔隙占比例为73.51%。两区块沉积-成岩过程中孔隙度参数演化的定量分析为优质储层的筛选及相关砂岩油田的滚动勘探提供借鉴。

关键词：鄂尔多斯盆地 特低渗透储层 孔隙度演化 沉积-成岩 初始孔隙度 次生孔隙度

Quantitative Analysis of Porosity Evolution during the Reservoir Sedimentation-Diagenesis--Taking the Yan 25 and Zhuang 40 Areas in the Ordos Basin as Examples

Download Fulltext

WANG Ruifei CHEN Mingqiang

Fund Project:

Abstract:

The diagenesis and pore evolution of Yan 25 and Zhuang 40 areas in the Ordos basin were analyzed.The research shows that the sandstone layers of the two areas are currently at the second stage of the middle-diagenesis period and controlled by acidity and alkalinity of diagenetic environment.Sloanite and chlorite are very developed within the Chang 6 Formation of Yan 25 area,and solution pores of sloanite are the favorable place for gas/oil reservoir;whereas kaolinite is widely spread in the Chang 6 Formation and the main reservoir in Zhang 40 area is the feldspar and debris solution pores.The quantitative study of pore evolution shows that the pore evolution differs even at similar diagenetic stages.The primary porosity is similar:34.91% for Yan 25 and 33.42% for Zhuang 40.During mechanic compaction,the loss rate of porosity in Yan 25 is 40.33% and Zhuang 40 is 55.45%.During cementation and metasomasis,the loss rate of Yan 25 is 46.86%,and that of Zhuang 40 is 36.51%.The secondary porosity is mainly sloanite solution pores in Yan 25 area and feldspar and debris solution pore in Zhuang 40 area.The proportion of secondary porosity takes up to 55.76% in Yan 25 and 73.51% in Zhuang 40.Therefore,the quantitative analysis of porosity evolution in sedimentation-diagenesis provides a good reference for the sieving of high-quality reservoir and progressive exploration.

Keywords:Ordos Basin ultra-low permeability reservoir porosity evolution sedimentary-diagenesis primary porosity secondary porosity

查看全文 查看/发表评论 下载PDF阅读器