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致密砂岩中硅质胶结物的硅质来源及其对储层的影响——以川西坳陷新场构造带须家河组二段为例

罗龙, 孟万斌, 冯明石, 谭先锋, 张世华, 孙茹, 肖春晖 | ▾

Silica Sources of Quartz Cements and Its Effects on the Reservoir in Tight Sandstones:A Case Study on the 2<sup>th</sup> Member of the Xujiahe Formation in Xinchang Structural Belt,Western Sichuan Depression

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PDF (PC)

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摘要/Abstract

摘要 :

运用薄片鉴定、扫描电镜、包裹体测温、岩心观察等手段研究了川西新场构造带须二段砂岩中硅质胶结物的硅质来源及其对储层的影响。结果表明:研究区须二段硅质胶结物的主要产出形式为次生加大石英和孔隙充填自生石英,硅质来源有内部和外部2种来源。内部来源主要包括碎屑石英因压溶作用、砂岩内部的黏土矿物转化释放的游离硅,外部来源主要为下伏泥岩段的黏土矿物转化释放并通过裂缝向上运移进入须二段砂岩的SiO<sub>2</sub>和少量热液硅质来源。以不同岩石类型的硅质来源及其对储层的影响为基础,结合储层物性综合分析表明,须二段大部分硅质胶结物对储层起破坏作用,少量早期分散的次生加大石英对储层孔隙起一定的保持性作用。

**关键词:** 新场构造带, 须家河组二段, 致密砂岩, 硅质胶结物, 硅质来源

Abstract:

By means of thin section analysis,scanning electron microscopy,testing temperature of the fluid inclusion,core observation,characteristics of the quartz cements and their silica sources in the 2<sup>th</sup> member of the Xujiahe Formation of Xinchang structural belt had been studied.The results show that the occurrence of quartz cements included overgrowth quartz and pore-filled authigenic quartz.Silica sources of the quartz cements include internal and external sources.Internal silica sources came from clay-mineral transformations inside sandstone and from the pressure dissolution of quartz grains.External sources include the silica that moved into the sandstones from underlain mudstones through fractures,and a small amount of silica supplied by hydrothermal fluid.The relationship between quartz cements and reservoir property in different types of sandstones indicates quartz cements mostly destroy the reservoir quality,however,some early formed overgrowth quartz sporadically filled in intergranular porosity in some extent can protect the reservoir property.

**Key words:** Xinchang structural belt, The member of the Xujiahe Formation, Tight sandstone, Quartz cementation, The sources of quartz cementation line-height

中图分类号:

TE122.2

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陇ICP备05000311号-2