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Similarities and Differences between Marine and Continental Shale Gas

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Shale is composed of the fine particle size less than 0.0039mm debris, clay and organic matters (Zhou Wen, Wang Hao, 2013). Having sheet bedding. Based on the formation of environment, divide the organic-rich shale into marine organic-rich shales, The continental coal organic-rich shales and the lake facies shales. The successful development of shale gas resources in oil and gas sector is a new breakthrough. In the global energy sector set off a "shale gas" revolution. By North American shale gas development enlightenment, China is speeding up the exploration and development of shale gas resources. At present, China's shale gas wells have been drilled over 51 (Zou Caineng, 2010). Whether it is technology, or theoretically have some progress Therefore, find out the similarities and differences between marine and the continental shale gas is extremely necessary.

Whether marine or the continental shale gas, generally have thermogenic and biogenic two types. And there is also a mix of the two, But in general the main causes is thermogenic (Li Yanjun, 2013). In general, organic matter in marine shale based on sapropelic, And mixed with humic type. But the continental mainly are mixed types, Typically lake from the edge to the center, the shale was zonal distribution with humic, mixed to sapropelic shale. whether marine or the continental shale, The main mineral can be divided into quartz carbonate rocks and clay classes three types, In addition to the common illite, smectite, kaolinite and other clay minerals, Also mixed with quartz, feldspar, calcite, dolomite, pyrite, apatite, mica, etc (Li Yanjun, 2013). Changes in the relative composition of the shale inorganic mineral composition affects the pore structure of shale, Therefore affecting the adsorption capacity of the shale gas. Because of transport and diagenesis.

From continental to marine facies, Unstable mineral gradually reduced, stable minerals gradually increased. Therefore, marine shale stability mineral are more than the

continental shale mineral, And most of the marine clay minerals have been transformed into a stable mineral, it does not have water sensitivity. But whether it is marine shale, or continental shale, brittle mineral content is generally relatively high, but from the marine to continental shale, brittle mineral showing decreased, in continental shale (Dong Dazhong, 2010), due to it is relatively close to continental source areas, transport distance is short, lower degree of diagenetic evolution of post-deposition, eamonn mixed layer and other water-sensitive mineral content are high, from the marine to continental facies, TOC is a generally increasing trend. However, this law is not absolute, TOC in the same shale in different geological area, in different regions is not the same.

Whether continental shale or marine shale, usually have organic porosity, particle hole, interparticle porosity, just different shale have different degree of pore types. Only the degree of development of different pore types in different shales is inconsistent. Organic porosity mainly related to organic abundance and the degree of thermal evolution.

Continental shale quartz content generally higher than marine shale, Thus, in the case of certain other conditions, the porosity of high quartz content of continental shale is higher than the marine shale. the brittle of mineral content in continental shale is generally higher than the marine shale, So continental shale is easier to produce cracks, However, this is not absolute, the cracks is also related to the strength of tectonic activity (Li Jianzhong, 2012), different shale areas have different distribution, mainly distribution of northeast, north, south and northwest 4 oil and gas producing basins, Organic-rich shale is thick In the longitudinal direction, laterally continuous distribution of large area.

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Zhou Wen, Wang Hao, Xie Runcheng Paleozoic marine shale

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