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Physical characteristics analysis of Carboniferous-Jurassic reservoir in the piedmont southwest Tarim Basin

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The southwest Tarim Depression is an important exploration area in the Tarim Basin. In recent years, an major breakthrough has been made in the substantial increase of exploration reserves, indicating that this area has great exploration and research potential. Collect the Carboniferous-Jurassic reservoir samples from five profiles in the front of Kunlun Mountain in the southwest of Tarim were, combined with the casting thin sections and scanning electron microscopy to analyze their physical properties. The results show that: The sedimentary environment of the Carboniferous reservoir in the study area is mainly carbonate platform, the Permian reservoir mainly develops delta distributary channel, underwater distributary channel and fluvial sand conglomerate, and the Jurassic reservoir is the sandstone reservoir of delta and lake deposits. On the whole, the average porosity of the sandstone reservoir is about 2.24%, the highest permeability is only 3.34×10-3μm2, and the average is about 1.19×10-3μm2. The porosity and permeability are low, and the reservoir physical properties are poor. The reservoir space is the dissolving pore - intergranular pore - dissolving pore and fissure-pore. The porosity and permeability of carbonate reservoirs are relatively good, with an average porosity of about 1.54% and an average permeability of about 8.93×10-3μm2, but it is still dominated by Class II and Class III reservoirs, and the reservoir space is the assemblage of pore - fracture, and fracture.

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