Daan oil field is located in the secondary belt of Daan-Honggang terrace of the central depression area in the south of Songliao basin, and the study area is located on the deepest sub sag in Daan-Honggang terrace. Fuyu oil layer is the main layer series of development of the oilfield. The main controlling factors of the physical property of the tight sandstone reservoir of the Fuyu oil layer in Daan oilfield are studied based on measurements normal thin-sections, cast thin-sections, logging data, some other laboratory analysis data and previous research.

Results show: (1) Fuyu oil layer is fluvial-dominated shallow water deltaic depositional system controlled by northwest sources which mainly develops delta distributary plains subfacies and delta front subfacies. Distributary channel is the main reservoir. Fuyu oil layer in Daan oilfield mainly develops debris-feldspar and feldspar-debris sandstone, which has the high content of cuttings and feldspar and low content of quartz. The compositional maturity and texture maturity of sandstone are both low. The reservoir is the typical tight sandstone pore type reservoir, which porosity has a good correlation with permeability. (2) The main controlling factors of the reservoir physical property are sedimentation and diagenesis. 1) Sedimentation is the basic controlling factor of reservoir development, which control the rock grain size, rock components and particle classification of the reservoir. Rock grain size is closely related to reservoir physical property, the reservoir physical property changes better with the increase of grain size. Fine sandstones reservoir physical property is relatively good. Reservoir physical property is positively related with quartz content, but negatively with carbonate content and debris content. The primary pore is easily preserved and secondary pore is beneficial to form with the high content of the rigid mineral. The higher content of the soluble minerals is also good for the development of secondary pore. The reservoir physical property and the particle classification are significantly positively correlated. 2) Diagenesis has a decisive influence on reservoir physical property, compaction and cementation are the main factors of reservoir density, strong mechanical compaction makes mineral grains crushed and plastic mineral bending deformation, the particles are closely packed, and the primary pores are obviously damaged. And the reservoir physical property deteriorate obviously. The carbonate and clay cements formed by cementation further blocking the pore and the physical property is poor. Dissolution has some improvement to the physical property of the reservoir, the dissolution of feldspar, debris particles and some carbonate cements can easily form secondary dissolution pores and micro pores to improve reservoir property, which is the key factor of the formation of high quality reservoir in tight reservoir. The distributary channel sand bodies have coarse rock grain size, large pores and throats, strong dissolution. The primary and secondary pore of which are developed. The distributary channel has good physical property and which is the high quality reservoir development area.