

## **Appraisal methods on oil fluid ability in tight sandstone: A case study of Chang7 Formation, Ordos Basin**

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Tight oil resource potential of China is listed No. 3 all over the world and preliminary research indicates that the reserves excess  $100 \times 10^8$ t. How to evaluate the recoverable oil and its controlling factors became the research focus. We define two parameters, including HC adsorption amount per area and effective surface area to evaluate the mobile oil in tight sandstones. Upper Triassic Yanchang tight play is one of the most important tight oil plays in China. The porosity of the samples ranges from 6% to 10%, and permeability is less than 1.0mD.

The results include the following aspects:

- Adsorption experiment indicates that the average surface adsorption of oil is about  $13 \text{mg/m}^2$ .
- minimum diameter of pores filled with oil is about 20nm.
- Nitrogen adsorption data indicate that the surface area of pores with diameter over 20 nm is  $1 \text{ m}^2/\text{g}$ . Here, this surface area is defined as effective adsorption area.
- The maximum mobile oil accounts 14.3%~48.6% of total oil amount, which is comparable with NMR results.
- Key factors of oil mobility in tight sand consist of oil density, viscosity, effective surface area, the effective pore volume, and mineral composition. The most important factor controlling mobile oil percentage is the surface area per pore volume ( $S / \phi$ ).