

## **Investigation on High-Potential Oil Source Kitchen in Non-Marine Basins, China**

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The definition of an oil source kitchen in non-marine basins has been a controversy among Chinese geologists. It is widely perceived that any dark-colored mudstones with TOC > 0.3% may be source rocks. According to these criteria the thickness of source rocks is over 1000 m in most non-marine basins in east China.

On the basis of detailed sedimentological and geochemical investigation of the dark-coloured mudstones in both rift basins in east China and evaporative basins in north-west China, we have found that only those with very high TOC contents and are within oil windows, called high-potential source rock (HPSR), may actually contribute to hydrocarbon generation and accumulation. In most source kitchens, the HPSR shales are characteristic of thin-layered (<1m) and their accumulative thickness is normally no more than 200 m. The TOC in the HPSR is generally over 2% in the rift basins and over 1% in the evaporative basins. It is critical to identify the HPSR shales from the vast volume of dark-colored mudstones in a basin in order to accurately predict hydrocarbon reserves. A quantitative approach involving the use of well-log analysis integrating with geological and geochemical interpretation is formulated, which provides a high resolution dataset (8 points of TOC, HI and Ro per meter) for detailed characterization of source kitchens. The source kitchens of the Jiyang Basin in east China and in the Qaidam Basin in northwest China are evaluated in details.