# Characteristics of Sinian and Cambrian natural gases in Sichuan and Tarim basins, China

Z.Y.WANG*, Y.X.LI, D.Y.GONG , G.Y.HU

PetroChina Research Institute of Petroleum Exploration & Development, Beijing 100083, China

(*correspondence: wzy@petrochina.com.cn)

A series of large scale natural gas reservoirs have been discovered in Sinian and Cambrian strata in China (see Fig.1). Natural gas found in deep marine strata can be generated in two different ways, kerogen degradation and liquid hydrocarbons cracking. For liquid hydrocarbons, there are 3 kinds of occurrence including dispersive liquid hydrocarbons inside source rocks and those outside source rocks as well as oil pool, all of which can be cracked into gas.

53 samples were collected from 10 gas fields and the light hydrocarbons associated with the natural gases were also analyzed (Fig.1). The methylcyclohexane content in natural gas reduces gradually, as the concentration of liquid hydrocarbon increases. The generation of cyclanes like methylcyclohexane is related to the isomerization or steady-state catalysis of cations in the acidic clay.

The ratio of methylcyclohexane to normal heptane content being 1 is an important parameter. The natural gas of Gaoshiti-Moxi and Weiyuan gas fields in the Sichuan Basin and of the Hetianhe gasfield in the Tarim Basin is dominated by cracked gas from dispersed liquid hydrocarbon; the natural gas of Gucheng in the Tarim Basin is dominated by cracked gas from paleo-oil reservoir; the natural gas of that of Luojiazai and Puguang gas fields in the Sichuan Basin is dominated by cracked gas from paleo-oil reservoir.

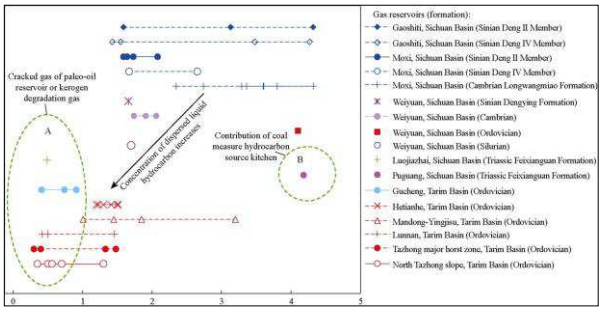


**Figure 1:** Ratio of methylcyclohexane to normal heptane content.

[1] Wei (2015) *Petroleum Exploration and Development*, **42**, 257–265. [2] Wang (2014) *Natural Gas Industry,* **34**, 1–9.