

CHARACTERISTICS AND ORIGINS OF STABLE CARBON ISOTOPE IN THE COALBED GAS OF CHINA

¹YONG QIN, ²XIUYI TANG and ³JIANGPING YE. ¹China University of Mining and Technology, Xuzhou 221008, Jiangsu, China; Huainan Institute of Industry, Huainan 232000, Anhui, China; ²China National Administration of Coal Geology, Zhuozhou 072750, Hebei, China.

In this paper, the distribution of the stable carbon isotope of the coalbed gases in China was generalized for the first time with the area, geological era and coal rank, and their origin was discussed. In general, the carbon isotope is more various in value and lighter in composition than the isotope of the normal natural gas and approaches to or falls in the range of the normal humic-type gas, and the $\delta^{13}\text{C}_1$ from the first desorption is lighter than that from the secondary desorption. the carbon isotope composition of the coalbed gases occurred in the middle-high rank coal reservoirs form the most of China was controlled by the isotope fractionation under the thermodynamical mechanism, and the fact that the carbon isotope of the coalbed gases is lighter might be resulted in the desorption-difussion-migration effect of the gases, with some other causes such as the bio-generated gas relic, the oil-type gas mixture, the coal-forming plant difference and the biochemical function during the weathering.