

MA Xiangxian, ZHENG Guodong, LIANG Shouyun, 2013. Geochemical Characteristics of Absorbing Gases of Gouge from Some Faults in Daliushu Dam Area, NW China. *Acta Geologica Sinica* (English Edition), 87(supp.): 372-372.

Geochemical Characteristics of Absorbing Gases of Gouge from Some Faults in Daliushu Dam Area, NW China

MA Xiangxian^{1,3}, ZHENG Guodong¹, LIANG Shouyun^{1,2}

1 Key Laboratory of Petroleum Resources Research, Institute of Geology and Geophysics, Chinese Academy of Sciences, Lanzhou, 730000, China

2 Key Laboratory of Mechanics on Disaster and Environment in Western China (Lanzhou University), Ministry of Education, Lanzhou, 730000, China

3 Graduate University of Chinese Academy of Sciences, Beijing, 100029, China

Absorbing gases of fault gouge may contribute to recognize fault characteristics and fault activity. In order to invest gas geochemistry variation trend in fault zone and the relationship between absorbing gases and the fault activity, 11 fault gouge samples were collected from the Daliushu Dam area in the Zhongwei-Tongxin Fault Zone (ZTFZ), NW China, and analyzed for Chemical composition of gases absorbed by fault gouge and their concentrations. The analytical results showed that the absorbing gases were dominated by CO₂, N₂, H₂, and few hydrocarbon gases such as methane etc. Furthermore, the total amount of absorbing gases, H₂, CO₂, total of

hydrocarbon gases and noble gases (Ar) were relatively higher in the fault sites with more activity than those with lower activity. In addition, the concentrations of gouge absorbing gases increased along with the distance from the fault plane on the profile crossing the fault zone, and began to descend when reached the belt of transition between fault gouge and cataclasite, and achieve a minimum value in the damaged host rock. The study of absorbing gases of gouge is a useful way to understand the fault activity.

Key words: fault gouge, absorbing gas, geochemical characteristics, fault activity

* Corresponding author. E-mail: maxxan04@163.com