LIGHT HYDROCARBONS IN FLUID INCLUSIONS IN SONGXI LARGE SCALE AG(SB) DEPOSIT, CHINA*

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Songxi Ag(Sb) deposit is a newly discovered large scale silver deposit in China. Analysis of gaseous composition in fluid inclusions in ore minerals collected from this deposit by means of high vacuum quadrupole gas mass spectrometer system show that there exist nine light hydrocarbons in the ore-forming fluids. The hydrocarbons are composed predominantly of four light alkanes (CH_4, C_2H_6, C_3H_8 and C_4H_{10}), while the content of unsatured alkenes and aromatic hydrocarbons are very low, suggesting that the hydrocarbons in the deposit might have been mostly generated by fluid-rock interactions at low-medium temperature, and magmatic activity didn't involved in the mineralizing processes. Studies of chemical equilibrium among three lightest alkanes show that the light hydrocarbons are mixture of hydrocarbons generated respectively by microorgasim activity and thermal cracking of type?kerogens (Kukersite). A chemical equilibrium temperature of about 300? among the three alkanes had been attained, which is much higher than the ground temperature at ore-forming depth, suggesting that part of the hydrocarbons might have been generated in the deep position of the sedimentary basin by thermal cracking of kerogens, then migrated laterally to the margin of the basin along the ore-forming fluids. *Project supported by Natural Science Foundation of China(No.49773195).