

N₂-AR-HE SYSTEMATICS OF ORE-FORMING FLUID: A CASE STUDY ON CHANGKENG AU-AG DEPOSIT, CHINA*

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Changkeng Au-Ag deposit is a newly-discovered new type precious metal deposit. N₂-Ar-He systematics studies and ³He/⁴He and dD-d¹⁸O composition analyses show that the ore-forming fluid of the deposit is composed mainly of formation water(sedimentary brine) but not of meteoric water, which was thought to be source of the ore-forming fluid by most previous researchers. The content of mantle-derived magmatic water in the ore-forming fluid is quite low, usually lower than 10%. According to the source of the ore-forming fluid, the Changkeng Au-Ag deposit should belong to sedimentary brine transformed deposits. During Late Jurassic to Early Cretaceous Period, with deposition and accumulation of thick sediments in Sanzhou Basin, the formation water in the sedimentary layers was expelled from the basin because of overburden pressure and increasing temperature. The expelled fluid moved laterally along sedimentary layers to the margin of the basin, and finally moved upward along gently-dipping interlayer fault. Because of decline of pressure and temperature, ore minerals were deposited in the fault. *Project supported by Natural Science Foundation of China (No.49502029).