

## **Study on the Origin of Hongshan Brecciated Copper Deposit in Huichang, Jiangxi, PR China**

CHEN Shizhong, ZHOU Jiyuan and CUI Binfang; Nanjing Institute of Geology and Mineral Resources, Nanjing, PR China.

The Hongshan copper deposit situated in the southwest of the Wuyi Mountains is a typical brecciated deposit. The large cryptoexplosive breccia pipe is about 2Km long and 1Km wide, there are a number of small cryptoexplosive breccia pipes of varying sizes and strikes around it. Orebodies mainly occur in contact zones between breccia pipes and Mesoproterozoic metamorphic rocks.

The fluid inclusions show that they are predominantly gaseous inclusions and no daughter mineral is observed. The homogenization temperatures(424-152 • ) and pressures(42-24MPa) decrease as depart from the breccia pipe. The physical-chemical parameters of ore-forming:  $\text{Na}^2/\text{Ca}$ (7.8~0.2),  $\text{fo}_2$ ( $5 \times 10^{-36}$  ~  $5 \times 10^{-41}$  bar),  $\text{fs}_2$ ( $8 \times 10^{-7}$  ~  $5 \times 10^{-9}$  bar), Eh(-0.56~-0.62V), PH(4.5~4.8), change regularly from pipe center to outside.

The isotope geochemistry of the deposit is consistent with porphyry breccia origin: the  $\delta^{18}\text{O}_{\text{H}_2\text{O}}$  Ranging from 1.2 to 6.1 per mil and the  $\delta^{34}\text{S}_{\text{H}_2\text{S}}$  Varying from 0 to 2.5 per mil.  $^{208}\text{Pb}/^{204}\text{Pb}$  and  $^{206}\text{Pb}/^{204}\text{Pb}$  of pyrite that coexists with ore minerals indicates it is derived from orogenic belt.

Thermodynamic analysis indicates that chloride complexes  $[\text{CuCl}_2]^-$  in the main metals is deposited largely as a result of the decreasing proton concentration associated with  $\text{H}_2\text{S}$  and  $\text{CO}_2$  exsolution during explosion and temperature dropping.

Based on Rb-Sr and K-Ar ages, the mineralization is 97.1-98.8Ma, which occurs after brecciated porphyry intruding in pipe (109.88-101.1Ma). They are products of Late Yanshanian in the East.